Digital citizenship and digital citizenship education: Perceptions of Lebanese middle school teachers in Mount Lebanon

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LIST OF ABBREVIATIONS

DC	Digital Citizenship
DCE	Digital Citizenship Education
MEHE	Ministry of Education and Higher Education
IT	Information Technology
ICT	Information Communication Technology
ISTE	International Society for Technology in Education
CERD	Center for Educational Research and Development
COE	Council of Europe
NETS	National Educational Technology Standards

ABSTRACT

This study investigates the perceptions of digital citizenship (DC) and digital citizenship education (DCE) among Lebanese middle school teachers, examining the impact of DCE training workshops and identifying expectations for future support. Data were collected through questionnaires and semi-structured interviews, revealing that teachers' overall perceptions of DC encompass a mix of awareness and uncertainty. Specifically, while teachers demonstrated high awareness of digital ethics, skills, and trade, they exhibited lower awareness and confidence in areas such as digital communication, rights, responsibilities, participation, security, and critical thinking. This uncertainty stemmed from varied levels of understanding of the concept of DC, its importance, and the challenges of implementing it effectively in educational settings.

Findings indicate no significant variation in perceptions of DC elements by age, except that younger teacher (Millennials and Gen Z) exhibited higher perceptions of digital skills compared to older generations. Educational attainment influenced perceptions of digital communication and skills, with higher-educated teachers showing more positive views. Teaching experience did not significantly impact perceptions, except for digital skills, where teachers with over 30 years of experience had lower perceptions.

DCE training workshops did not significantly affect teachers' perceptions of DC. However, teachers expressed a strong need for continuous professional development, more instructional time, access to pre-made lesson plans, reliable technology, and collaboration with parents. They also highlighted the necessity of specialized technology teachers for effective DCE implementation.

The study underscores the importance of tailored training programs and comprehensive integration of DCE within educational policies to equip teachers with the necessary skills. Addressing these needs can enhance DCE implementation in Lebanese schools, fostering a generation capable of navigating the digital world responsibly and ethically.

Keywords: Digital Citizenship, Digital Citizenship Education, Teacher Perceptions, Professional Development

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Significant changes in how people interact, work, and learn have been brought about by the quick rate of technology development. Technology has radically changed how students and teachers interact with course material and learn it, becoming a crucial component of the educational process. The requirement to make sure that students and teachers have the essential digital citizenship (DC) skills to use technology effectively and ethically has grown more and more important as it continues to develop and become more complex.

According to Gazi (2016), Ohler (2011), Ribble and Bailey (2007), Ribble (2007, 2011, 2015), and Ribble and Miller (2013), DC focuses on having acceptable online behavior, norms or codes of online actions, and using and interacting with technology in a responsible manner. Nevertheless, initiatives to address issues contributing to the development of DC are still missing from school curricula, particularly in developing nations (Choi, 2016; Heath & Marcovitz, 2019). Despite being continuously exposed to technology in both their academic and personal lives, there is mounting evidence that students still do not have the requisite abilities to effectively navigate the digital world (Jackman et al., 2021; Doiraghusoha, 2022; Ghiță & Stan, 2023). This draws attention to the important problem of students' lack of readiness to handle the difficulties presented by the internet and technology (Quarterly Survey Series | Common Sense Media, 2020).

The rapid switch to remote learning made it even harder for educators to teach pupils about DC in light of the extraordinary challenges the COVID-19 pandemic had posed for schools and educators around the world. Nonetheless, it is essential that educators understand and support DC. Teacher conceptions of DC have a significant impact on students' abilities to exercise the duties and practices of a digital citizen in the twenty-first century (Berardi, 2015). Teachers are essential in helping students become digital citizens. They must become familiar with DC themselves and apply it to their teaching methods. Students should learn about the

advantages and disadvantages of technology as well as how to conduct themselves ethically and safely online. Educators should also set an example for students by practicing good DC. Professional development is crucial to ensure that educators are well equipped to help their students navigate the digital world safely and responsibly.

1.1.1 DC in the Lebanese Context

Though little research has targeted DC in the Lebanese context, Ghamrawi (2018) indicates that Lebanese teachers' knowledge of DC is negligible as well as their corresponding teaching practice, thus inhibiting the advancement of students as effective digital citizens. It is necessary to include DCE in the new curriculum and this would be initiated by educating and developing educators' perspectives of the elements of DC (Ribble, 2015). The Lebanese Ministry of Education and Higher Education (MEHE) has already launched workshops to reform the Lebanese curriculum which is expected to include objectives of DCE. The Center of Educational Research and Development (CERD) has published Lebanese National Framework of the General Education Curriculum and emphasized the fact that in order to increase chances for collaboration, cooperation, and the creation of digital resources, national e-learning and educational technology management policies can help educators enhance their skills in a variety of Information and Communications Technology (ICT) employment fields (MEHE, 2022). Given how quickly technology is developing, the five-year General Education Plan for Lebanon, 2021–2025, states that it is essential to continue the teacher training program after 2025. This will guarantee that teachers continue to be aware and capable of utilizing platforms, software, and resources successfully while implementing a variety of pedagogical techniques that fully utilize the technology (MEHE, 2022).

1.3 Research aims and research questions

The aim of this study is to (a) identify the perceptions of DC and DCE of Lebanese middle school teachers. It also aims to (b) explore the impact of DCE training workshops received on teachers' perceptions of DC and its elements. The study also investigates (d) expectations of future support for an effective implementation. The study is guided by the following research questions:

1. How do Lebanese teachers' perceptions of DC and its elements vary according to their demographic factors (age, educational level, and teaching experience)?
2. What are the Lebanese middle school teachers' perceptions of DCE?

3. What impact do DCE training workshops have on teachers' perceptions of digital citizenship?
4. What are the teachers' expectations of future support for a better DCE implementation?

1.4 Rationale and significance of the study

Many social and ethical problems have emerged due to specific aspects of technological advancement, necessitating resolution. These concerns, which are particularly important in the context of education, have been highlighted and addressed by academics and specialists from all over the world. Online safety and security are among the most urgent issues related to technology use. The risk of identity theft, scams, system phishing, hacking, online predators, and cyberbullying has increased as people and businesses depend more on digital technologies to carry out transactions and maintain sensitive information. These dangers could have detrimental effects on people and organizations, including monetary loss, harm to their reputations, and psychological trauma. Misuse of information, such as plagiarism, access to improper content, and misrepresentation, is a significant worry as well. It can be challenging to assess the credibility and accuracy of sources given the abundance of information available online, and people may be tempted to copy and paste information without properly attributing the sources. The integrity of academic work may be compromised, and there may be moral and legal implications. Last but not least, prolonged screen time, arm and back aches, and game and internet addiction have all been associated with using technology. These problems may have a negative influence on a person's physical and mental health as well as on their ability to function successfully in school and at work. It is therefore crucial to highlight the importance of acquiring skills to use technology responsibly and practice appropriate online behavior which are notions that the concept of DC addresses.

In Lebanon as in many countries around the world, the disruption in the educational system during the COVID-19 pandemic raised the red flag on many of the dangers mentioned previously and shed light on the dilemma whether teachers are ready to face any future disruptions or even able to prepare students to be engaged in the virtual world. This abrupt shift to remote learning had been one of the causes that led authorities and policy makers in ministries of education to assess threats differently and take measures to prevent future disruptions. MEHE

established Lebanon 5 Year Education Plan where online learning during COVID 19 is considered an opportunity to encourage the development of digital teaching and learning and in the same plan there is emphasis on the significance of the Lebanese curriculum update (MEHE, Five-Year Education Sector Strategic Plan 2022-2026 (Amendment 1), 2022). Moreover, CERD has established the "The Lebanese National Framework for the Pre-University Education Curriculum" in November 2022 and one of the thinking and learning competencies is the competency of digitization and ICT (MEHE, 2022). This shows that the future of educational system in Lebanon is promising to integrate technology immensely in the curriculum.

There is a lack of research examining DCE in the Lebanese context. Ghamrawi (2018) indicated that Lebanese teachers' DC knowledge is almost nonexistent and consequently their practices that would introduce and nurture DC themes are severely lacking. Hence, it is crucial to investigate the teachers' perceptions of DC and their DCE to ensure that DCE is effectively implemented in the Lebanese curriculum. Studying teachers' perceptions and experiences of DC is important as it helps inform curriculum development and ensures appropriate behavior in both online and offline environments (Prasetiyo et al., 2023). There is a connection and reciprocal influence between teachers' perceptions of DC and their perceptions of DCE. Individuals' beliefs, attitudes, and conceptions of what it means to be a responsible and ethical digital citizen are referred to as perceptions of DC. These perceptions include a range of topics, including critical thinking, digital involvement, critical communication, digital ethics, and rights and obligations in the digital age. The goal, significance, and success of incorporating DCE into educational settings, particularly within the context of formal schooling, are, on the other hand, the subject of perceptions of DCE. It includes teachers' attitudes, beliefs, and understandings about how DC instruction should be carried out, the most efficient teaching techniques, and the overall effects of DCE on the students' knowledge, skills, and attitudes toward responsible DC. The two constructs are interwoven because instructors' perceptions of DC have a big impact on how they approach teaching about it. The curriculum, pedagogical choices, and instructional strategies that teachers use to teach their pupils about DC are influenced by their understanding of the topic. The learning activities, conversations, and assessments chosen to support students' growth of responsible DC are informed by their perceptions. In contrast, instructors' experiences and observations when teaching DC have an impact on how they view the subject. Teachers who participate in DCE programs get personal knowledge of the difficulties, possibilities, and effects

of their educational endeavors. Their judgments of the efficacy and influence of DCE on students' knowledge, attitudes, and behaviors can be influenced by these encounters. Studying teacher's perceptions of DC helps determine if students understand and practice DC well (Martin et al., 2019). We may therefore learn a lot about how teachers view, how they apply it in their classrooms, and the opportunities and obstacles they face while delivering DC lessons by studying and comprehending these perceptions.

This investigation can offer insightful information on the state of DCE in Lebanon now and serve as a roadmap for curriculum guidelines to fill in any gaps or overcome problems. Policymakers and educational leaders can better meet the needs of teachers by designing future professional development programs and curriculum policies based on their understanding of these perceptions and attitudes. This will lead to a safer and more responsible use of technology in education and thus create responsible digital citizens.

CHAPTER 2

LITERATURE REVIEW

2.1 Definition of Digital Citizenship

"Digital citizens" are those who use the internet consistently and effectively—that is, on a daily basis and DC involves the rights, duties and skills needed for individuals to engage effectively and responsibly in online communities. According to Mossberger, Tolbert, and McNeal (2007)**,** digital citizens are people who regularly and efficiently use the internet taking part in activities daily. However, it is essential to understand that DC goes beyond being active in society. A digital citizen is defined in the DCE Handbook published by Council of Europe (COE) as someone who has acquired a wide range of competencies and who can participate actively, constructively, and responsibly in both online and offline communities, whether they be local, national, or international (COE, 2018).

DC covers a spectrum of behaviors, mindsets, and abilities that individuals require to navigate the digital realm effectively and responsibly. It encompasses responsible conduct when using technology, understanding digital privileges and obligations, critically assessing online information, safeguarding personal data and privacy, and engaging positively in online interactions. DC represents an approach to addressing the opportunities and challenges brought about by technology use (Ribble & Bailey, 2007). In 2019, the definition was updated to include the criteria for the ongoing development of suitable, responsible, and successful use of technology (Ribble & Park, 2019, pp. 10-11). Another definition of DC is a collection of norms and behaviors that are socially formed to support individual growth and maintain social values in a digital society (Gazi, 2016). Hobbs and Jensen (2009) define DC as "the skills and knowledge needed to be effective in the increasingly social media environment" (p. 5).

Digital citizenship is traditionally defined as the responsible and safe use of digital technologies. However, the concept of digital citizenship has evolved to include active participation in civic and community activities through digital means.

Recent studies highlight the potential of digital technologies to foster active citizenship, encouraging individuals to engage in social, political, and community activities online. For example, Buchholz, DeHart, and Moorman (2020) explore how digital citizenship extends beyond digital literacy, emphasizing the role of digital tools in maintaining social connections, accessing information, and participating in civic activities during the COVID-19 pandemic. The study demonstrates how adolescents and adults used digital platforms to support community efforts, share vital information, and engage in collective problem-solving during a global crisis.

Similarly, Gonzalez-Mohino et al. (2023) discuss the role of digital tools in enhancing critical thinking and fostering citizen participation. Their research highlights how digital platforms can be utilized to engage individuals in discussions about societal issues, encouraging critical analysis and active involvement in civic matters. By leveraging digital tools, educators can empower students to become proactive citizens who contribute meaningfully to their communities.

2.2 Digital Citizenship Education

The emphasis on the impact of integrating information communication technology in education has altered substantially everyone's expectations for teaching and learning. Because the purpose of education is to prepare learners for life, it is critical that learners develop to be responsible digital citizens during their early years by preparing them for future opportunities to work and live in a society that is becoming increasingly digitally dependent (Snyder, 2016). School is a wonderful venue to help youngsters become proficient digital citizens who use technology not only successfully and creatively, but also responsibly and sensibly (Ohler, 2011). Pusey and Sadera (2012) acknowledged that providing learning for ethics, safety, and security when using the Internet requires a collaborative approach from all stakeholders, particularly teachers and teacher educators.

In the context of the AI era, the integration of artificial intelligence in education necessitates a balanced approach that prioritizes ethical considerations and the protection of fundamental rights. The Council of Europe (2019) emphasizes the importance of this responsible integration, ensuring that AI technologies are used in ways that uphold human dignity and ethical standards. Furthermore, UNESCO (2022) underscores the critical role of digital literacy in understanding the profound impacts of AI, advocating for the promotion of ethical use and the fostering of inclusivity and equity within educational systems. Addressing biases, privacy

concerns, and ethical dilemmas associated with AI technologies is paramount. These aspects collectively underscore the need for comprehensive digital citizenship education that prepares individuals to navigate the complexities of AI responsibly and ethically, fostering an environment of informed and equitable digital engagement.

2.2.1 International Society for Technology in Education (ISTE) Standards

The International Society for Technology in Education (ISTE) first introduced the concept of digital citizenship (DC) in educational materials in 2007 through their National Educational Technology Standards (NETS) Refresh Project. The ISTE Standards initially had a student-centered orientation, listing recommended skills and knowledge for DC (Ribble, 2008). To successfully implement digital citizenship education (DCE) in schools, the ISTE Standards were updated in 2016 to include guidelines for educators, including coaches, teachers, administrators, and IT specialists (ISTE, 2016). These standards emphasize educating students to become morally and ethically responsible digital citizens who can use technology and the internet responsibly. According to the ISTE Standards (2016), students must gain proficiency in various topics related to learning in the digital age. These competencies include creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem-solving and decision-making, DC, and technology operations and concepts.

The ISTE Standards for Teachers offer guidelines for educators on how to successfully incorporate technology into their lesson plans and support students' development of digital age capabilities. The standards place a strong emphasis on the contribution teachers should make to encouraging students' digital responsibility and citizenship. ISTE (2016) states that teachers should both encourage their pupils to build their DC abilities and serve as positive role models for students. The main areas covered by the standards for teachers are:

- Encouraging and fostering students' learning and creativity: Teachers inspire students to develop a passion for learning by creating an environment that cultivates creativity through innovative teaching strategies. They provide opportunities for students to explore, experiment, and express their ideas, thus fostering an atmosphere where learning is both engaging and dynamic.
- Designing and developing learning experiences and assessments for the digital age: Educators create engaging and interactive digital learning environments that

capture students' interest and facilitate meaningful learning. They develop assessments that leverage technology to measure and support student learning effectively, ensuring that these learning experiences are accessible and personalized to meet the diverse needs of all students.

- Modeling working and learning in the digital age: Teachers demonstrate effective use of digital tools and resources in their teaching practices, showcasing their commitment to lifelong learning by continuously updating their digital literacy skills. They encourage students to use technology responsibly and effectively, preparing them to navigate the digital landscape with confidence.
- Participating in professional development and leadership: Educators teach and exemplify the ethical use of digital resources, fostering a culture of respect, responsibility, and safety in digital interactions. They guide students in understanding and navigating the digital world responsibly, ensuring that they develop into conscientious digital citizens.

2.3. Ribble's Nine Elements of Digital Citizenship and Their Role in Education

Mike Ribble, a well-known author and expert in educational technology, has been focusing on digital citizenship (DC) for a long time. He is one of the authors of the book Digital Citizenship in Schools (Ribble & Bailey, 2007), in which he follows the recommendations of ISTE standards. He emphasizes the significance of effectively and meaningfully incorporating DC into the curriculum. He also assures that the aim of DCE is to prepare people to use technology responsibly in all contexts, not only in the classroom. Everyone should be aware of the skills and knowledge needed to use digital technology safely and effectively, and an important goal for society as a whole should be to teach students how to use technology responsibly. Students are better able to identify and steer clear of incorrect digital behavior in any situation by learning about the nine elements of DC (Ribble & Bailey, 2007).

DC consists of nine elements where emphasis is placed on competence (skills) and ethical rules in digital environments (Ribble, 2015). The nine elements of DC are: digital access, digital commerce, digital communication, digital literacy, digital ethics, digital law, digital rights

and responsibilities, digital health, and digital security. These elements serve as a comprehensive framework for navigating the complexities of the digital realm.

Digital access is the full electronic participation in society (Ribble, 2015). It is a foundational component of digital citizenship (DC), emphasizing the importance of ensuring equitable digital rights and access for individuals. In the contemporary world, where digital technologies play a central role in various aspects of life, advocating for equal opportunities to benefit from and contribute to the digital world is paramount. Ensuring digital access goes beyond mere connectivity; it encompasses the idea that everyone, regardless of socioeconomic status, geographic location, or other factors, should have the opportunity to utilize and engage with digital resources. This theme aligns with the broader concept of digital equity, emphasizing fairness and inclusivity in the distribution and availability of digital tools and information. Promoting digital access involves addressing barriers that hinder individuals' ability to participate fully in the digital landscape (Kelly & Zakrajsek, 2023). These barriers may include issues such as limited internet connectivity, lack of access to necessary digital devices, and disparities in digital literacy skills. By advocating for equitable digital rights and access, the goal is to bridge these gaps and empower all individuals to harness the benefits of the digital world for education, employment, communication, and civic participation.

In educational contexts, digital access is particularly critical. Students who have equal access to digital resources are better equipped to engage in online learning, access educational materials, and develop essential digital skills (Afzal, 2023). Teachers, as facilitators of learning, play a crucial role in advocating for digital access in their classrooms and communities, ensuring that students from diverse backgrounds have equal opportunities to thrive in the digital age.

The second element is digital commerce or trade which is defined by Ribble (2015) as the electronic buying and selling of goods. It underscores the importance of equipping individuals with the knowledge and skills needed to navigate the complexities of a digital economy (Richardson & Milovidov, 2019). In an era where online transactions and digital marketplaces are integral to commerce, understanding how to be effective consumers in this landscape is essential. Digital commerce encompasses a range of skills and competencies. At its core, it involves understanding how online transactions work, including the principles of digital payment systems, e-commerce platforms, and the dynamics of virtual marketplaces. This knowledge

enables individuals to make informed choices when engaging in digital transactions, ensuring that they are aware of the potential risks and benefits. Navigating the digital economy also requires a keen awareness of issues such as online security, data privacy, and consumer rights. Individuals need to be informed consumers, capable of recognizing legitimate digital vendors, making secure online transactions, and protecting their personal information in the digital marketplace.

Educational initiatives focused on digital commerce should address topics like online banking, digital payment methods, and the responsible use of personal information in online transactions (Suryanarayana & Lingaiah, 2022). Additionally, DCE plays a crucial role in fostering critical thinking skills, enabling individuals to evaluate the credibility of online products and services, identify potential scams, and make ethical choices in the digital marketplace (Al-kardousi & Zaghloul, 2024). The significance of digital commerce extends beyond personal transactions to broader economic participation. As individuals become adept at navigating the digital economy, they contribute to the overall economic growth and development of society. Moreover, a digitally literate and commerce-savvy population is better equipped to adapt to the evolving landscape of the global economy (Weninger, 2017) , where digital technologies continue to reshape the ways in which business and commerce operate.

The third element is digital communication which is the electronic exchange of information (Ribble, 2011). It emphasizes the need to develop skills in selecting appropriate tools for communication based on the audience and message (Choi, 2016). In an interconnected world where communication increasingly occurs in digital spaces, individuals must navigate various platforms while ensuring their interactions are clear, responsible, and contextually appropriate. Learning to choose the right digital communication tools involves understanding the dynamics of different platforms, such as social media, email, instant messaging, and video conferencing (Sivunen & Laitinen, 2019). It requires individuals to consider the nature of their message, the intended audience, and the context in which the communication takes place. Emphasizing clear and responsible digital interaction is crucial in fostering positive online environments. This includes promoting respectful and ethical communication, discouraging cyberbullying or online harassment, and educating individuals on the potential consequences of their digital interactions (Althibyani & Al-Zahrani, 2023).

DCE plays a key role in empowering individuals to navigate the nuances of online communication, promoting constructive dialogue, and contributing positively to digital communities. Mayuri et al. (2020), digital tools can enhance communication skills in students, promoting innovation and autonomy in learning and teaching. Teachers, as influencers and guides in the educational journey, play a pivotal role in instilling effective digital communication skills in students. By incorporating lessons on online etiquette, responsible use of language, and understanding the impact of digital communication, educators contribute to the development of well-rounded digital citizens (Ghosn-Chelala , 2019). Moreover, individuals must be aware of the permanence and visibility of digital communication. What is shared online can have long-lasting consequences, impacting personal and professional relationships. DCE should emphasize the importance of digital footprints and guide individuals in cultivating a positive online presence (Parkin, 2022). Digital communication as a component of DC goes beyond the mere use of online tools. It involves teaching individuals to navigate the digital landscape thoughtfully, choosing the right platforms for effective communication, and ensuring that their interactions contribute positively to the online community (Mantl et al., 2020)

The fourth element is digital literacy which is the process of teaching and learning about technology and the use of technology (Ribble, 2011). It is considered a cornerstone of DC, encompasses the proficient use of digital tools and the development of skills such as finding, evaluating, and citing digital materials. In an era inundated with information, digital literacy is indispensable for individuals to navigate the digital landscape, critically assess online content, and engage with information responsibly. Critical evaluation of digital materials is another crucial facet of digital literacy. Individuals must develop the ability to discern credible sources, assess the reliability of information, and navigate the vast expanse of digital content. By enabling people to critically analyze and evaluate information, digital literacy fosters the growth of critical thinking skills (Vodă et al., 2022). It entails challenging the veracity, applicability, and correctness of data in addition to recognizing prejudices or deceptions (Umar, 2023). Another key aspect of digital literacy is the ability to use digital tools effectively. This includes proficiency in using software, applications, and devices for various purposes, from creating content to collaborating with others. According to Fraillon et al. (2018), possessing fundamental computer skills is essential for individuals to effectively navigate digital environments, particularly in an age where misinformation and fake news proliferate online.

DCE should equip individuals with the tools to verify information, question sources, and engage in fact-checking. Digital literacy empowers students to harness the potential of technology for learning, productivity, and creativity. Digital literacy positively predicts innovation performance, and high-quality online learning processes contribute to better innovation performance (Sun, 2022). In educational settings, digital literacy is essential for students to succeed academically and its integration in educational contexts fosters critical thinking and promotes active participation of citizens in the digital society (Escoda, 2017). It empowers individuals to leverage digital tools effectively, critically evaluate information, and engage with digital content responsibly. Digital literacy is crucial for improving learning effectiveness, adapting to the changing labor market, and preparing students for success in society (Lei, 2021). As technology continues to evolve, digital literacy becomes increasingly vital for individuals to navigate the complexities of the digital world and contribute meaningfully to society.

The fifth element is digital ethics or etiquette which is defined as the electronic standards of conduct or procedure (Ribble, 2011). It is a pivotal component of DC. In a rapidly evolving digital landscape, where online interactions are integral to daily life, fostering a sense of ethics becomes essential to maintain a positive and respectful digital community. Prathomwong and Singsuriya (2022) discuss the key principles of digital ethics to include Human Dignity, Justice, Non-maleficence, and Beneficence, with sub-principles for each core principle. According to Zostant and Chataut (2023), five key principles of digital ethics include privacy concept, ethical considerations surrounding personal information, consent, transparency, data protection, legal framework, and technology role in protecting privacy. Cultivating proper online behavior involves instilling a set of values that guide individuals in their digital interactions. This includes promoting respect, empathy, and consideration for others in digital spaces.

DCE plays a crucial role in raising awareness about the impact of online behavior on individuals and communities, encouraging individuals to contribute positively to the digital world. According to Buchholz et al. (2020), DCE can nurture participatory and social justice-oriented DC, addressing ethical questions faced by citizens online. One key aspect of digital ethics is addressing issues such as cyberbullying, hate speech, and online harassment. Kaluarachchi et al. (2020) discuss that teaching responsible use of technology and focusing on cyber ethics at the start of young people's exposure to technology use may be an excellent

strategy to reduce the growth and impact of cyberbullying. Digital ethics education should equip individuals with the knowledge and skills to recognize and combat these negative behaviors, creating an online environment that is inclusive, safe, and conducive to positive interactions. Responsible and ethical DC can promote a more inclusive, safe, and beneficial digital environment for individuals and society (Kadek, 2021). Individuals need to understand the implications of their online presence, including the potential consequences of sharing personal information, engaging in digital activism, or participating in online discussions. This awareness contributes to the development of a responsible digital citizen who considers the ethical implications of their online actions. Educators play a vital role in shaping digital ethics among students. By instilling these values, DCE contributes to the creation of a digital community that reflects the principles of respect, empathy, and ethical engagement.

The sixth element is digital law which is defined as digital accountability, for one's actions and behavior (Ribble, 2011). It focuses on instilling awareness of the fundamental digital rights to privacy and freedom of expression. It ensures that users understand the legal aspects related to digital activities, promoting responsible and lawful engagement in the digital realm. According to Fenwick et al. (2021), the fundamental principles of digital law include integrating legal-thinking and design-thinking with a deeper understanding of underlying technologies and user-interfaces, and a new approach to teaching data protection and privacy.

DCE aims to empower individuals with the knowledge of their rights, fostering a sense of autonomy and agency in the digital landscape. DCE guides users in navigating these boundaries, encouraging responsible expression and discouraging harmful behaviors such as online harassment or hate speech (Dunaway & Macharia, 2021). Understanding legal aspects related to digital activities goes beyond individual rights; it extends to issues such as intellectual property, copyright, and ethical use of digital content. DCE equips individuals with the knowledge to respect and adhere to legal frameworks, fostering a culture of accountability and compliance in the digital space. Educators play a crucial role in integrating digital law into the curriculum, providing students with the tools to navigate legal aspects of the digital world. By incorporating lessons on digital rights, privacy protection, and responsible online expression, teachers contribute to the development of informed digital citizens who engage with technology in a lawful and ethical manner (Suson, 2019). Digital law is an integral part of DC, emphasizing the awareness of fundamental digital rights and legal aspects related to digital activities. By instilling

this knowledge, DCE promotes responsible and lawful engagement in the digital realm, contributing to the development of individuals who navigate the complexities of the digital landscape with a strong understanding of their rights and legal responsibilities.

The seventh element is digital rights and responsibilities which is defined as obligations and liberties granted to all individuals in a digital environment (Ribble, 2011). According to Cortesi et al. (2020), this element forms a vital component of DC, emphasizing the cultivation of an understanding of both moral and legal obligations related to engaging in the digital realm. It encompasses core principles such as privacy, freedom of expression, and the responsible use of digital resources, contributing to the development of ethical and informed digital citizens. DCE aims to foster a moral understanding of the digital landscape. This involves instilling values related to the ethical use of technology, emphasizing the impact of digital actions on individuals and communities (Alt & Raichel, 2018). Central to this concept is the recognition of fundamental digital rights, including privacy and freedom of expression. Individuals are encouraged to respect the rights of others, creating a digital environment where ethical conduct prevails. Understanding the moral dimensions of DC includes promoting empathy, fairness, and integrity in online interactions. It discourages behaviors such as plagiarism, cyberbullying, and the unauthorized use of digital content.

DCE plays a crucial role in shaping individuals who are not only aware of their moral responsibilities but also actively contribute to a positive and respectful digital community (Althibyani & Al-Zahrani, 2023). In addition to moral considerations, DCE addresses legal obligations associated with digital activities. This includes an awareness of privacy laws, data protection regulations, and intellectual property rights. Users are educated about the legal frameworks that govern their digital interactions, ensuring compliance with established rules and regulations. Privacy is a key aspect of legal understanding within DC. Individuals learn about the importance of safeguarding personal information, the implications of data sharing, and the significance of consent in online transactions (Pangrazio & Sefton-Green, 2021). By nurturing an awareness of legal responsibilities, DCE empowers individuals to navigate the digital space while respecting both moral and legal principles. Educators play a vital role in integrating these concepts into the learning environment. Through lessons on digital ethics, discussions on legal considerations, and interactive activities, teachers contribute to the development of students who

are not only competent in digital skills but are also ethically and legally responsible in their digital engagements (Mangkhang & Kaewpanya, 2021).

Digital health is the eighth element of DC. It is defined as health and mental wellness in an era of digital technologies (Ribble, 2011). It encompasses three main aspects; knowing when to disconnect, balanced digital lifestyle, and informed choices. Digital health focuses on encouraging knowledge about when to disconnect, fostering a balanced and healthy digital lifestyle, and making informed choices about online and offline activities. In an era where digital technologies are pervasive, promoting digital health is essential for the well-being of individuals in both physical and mental aspects. One aspect of digital health involves developing an understanding of when to disconnect from digital devices. This includes recognizing the signs of digital fatigue, understanding the impact of prolonged screen time on physical health, and actively seeking moments of disconnection to promote overall well-being (Nebeker et al., 2019).

DCE emphasizes the importance of creating boundaries for healthy technology use, ensuring individuals are not overwhelmed by constant digital engagement. Fostering a balanced digital lifestyle entail making conscious choices about the time spent online and offline. DCE encourages individuals to consider the quality of their digital engagements, promoting activities that contribute positively to personal growth, learning, and social connections (Walters et al., 2019). This includes being mindful of the content consumed, the purpose of online activities, and the potential impact on mental and emotional health. Digital health also involves making informed choices about online and offline activities. Individuals are encouraged to critically assess the impact of digital content on their well-being, from social media interactions to online gaming. DCE provides individuals with the tools to navigate the digital landscape consciously, ensuring that they make choices that align with their overall health goals (Choi, 2016). Educators play a pivotal role in promoting digital health among students. By integrating lessons on digital well-being, discussing the importance of balance, and providing strategies for managing screen time, teachers contribute to the development of individuals who are not only digitally literate but also prioritize their health in the digital age (Rogers-Whitehead et al., 2022).

Digital security is the final element of DC. It is defined as the safety precautions taken in the digital world (Ribble, 2011). It is dedicated to empowering individuals to modify their privacy settings, protect their information, and engage in responsible and secure digital practices

(Rogers et al., 2022). In a time where cyberattacks are common, it is critical to comprehend digital security in order to protect private and sensitive data online.

DCE focuses on empowering individuals with the knowledge and skills to navigate privacy settings effectively. This involves understanding the privacy features of various digital platforms, such as social media accounts, online applications, and communication tools (Adorjan & Ricciardelli, 2018). Cyber security education is essential in preparing computer users with knowledge and skills that significantly improve security and lower risks related to digital ecosystems (Afiza et al., 2019). A crucial aspect of digital security is the protection of personal information. Individuals learn about the potential risks associated with sharing sensitive data online and are equipped with strategies to minimize these risks (Nimgaonkar & Kumbhar, 2023). This includes understanding the importance of strong, unique passwords, recognizing phishing attempts, and being cautious about the information shared in digital communications. DCE emphasizes the responsibility of individuals to actively contribute to their own digital security. Digital security education goes beyond individual actions to promote a culture of secure digital practices. Students are encouraged to adopt secure practices, such as regularly updating software, using antivirus tools, and being vigilant against online scams. By promoting a collective understanding of digital security, DCE contributes to the creation of a safer digital environment for all users. Digital Security is a critical element of DC that addresses the need for responsible and secure digital practices.

2.4 Exploring Digital Citizenship Education in Middle School: A Focus on Common Sense Media's Digital Citizenship Curriculum

There are numerous digital citizenship curricula developed to help students navigate the digital world responsibly and effectively. These curricula vary in their approach, focus areas, and implementation strategies. Some of the most prominent international digital citizenship curricula include the Australian Digital Technologies Curriculum (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2015) emphasizing computational thinking, digital literacy, and ethical considerations in technology use and aiming to equip students with skills for the digital economy and society. The European Digital Competence Framework for Citizens (DigComp) outlines key competencies required for digital proficiency, including information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving

(European Commission, 2016). In this thesis, I will focus on the Common Sense Education's Digital Citizenship Curriculum for middle school.

In the dynamic landscape of education, a globally coordinated response is urgently needed to help students acquire digital skills and cultivate DC to thrive in a fast-changing digital world (Jackman et al., 2021). Various curricula have been developed to address these needs, including the Common Sense Media's Digital Citizenship Curriculum (Common Sense Media, n.d.). The Common Sense Digital Citizenship Curriculum stands as a cornerstone in addressing the distinctive needs of middle school students within the digital era. It was developed in partnership with Project Zero at Harvard Graduate School of Education and based on studies involving thousands of experts and teachers and parents (James et al.,2021). The Common Sense Digital Citizenship Curriculum supports six DC elements including media wellbeing, privacy, identity, cyberbullying and media illiteracy. Crafted by experts in digital literacy, this curriculum is designed to instill responsible digital behavior, critical thinking, and ethical decision-making. Its tailored approach recognizes the developmental stage of middle schoolers, ensuring the curriculum's relevance and efficacy in shaping responsible digital citizens. Building Foundations Grade 7 introduces foundational concepts aimed at cultivating responsible DC. Topics such as "My Media Use" foster self-awareness in digital interactions, and "Upstanding Against Cyberbullying" encourages empathy and positive online behavior. The curriculum progresses in Grade 8 to address more intricate issues associated with DC. Topics such as "The Big Data Dilemma" and "Protecting Online Reputations" delve into complexities of data privacy and the long-term consequences of online actions (Armfield & Blocher, 2019). Advanced Concepts in the final stage of middle school, the curriculum delves into advanced concepts to prepare students for the evolving digital landscape. Topics such as "Risky Online Relationships" and "Hoaxes and Fakes" prompt critical discussions on online safety and media literacy effective in addressing advanced DC concepts (Singer et al., 2021).

The 21st century's DC objectives as published in the Common-Sense White Paper (2011) are to 'Educate', 'Empower', and 'Protect'. These objectives stress the significance of giving students the information and abilities they need to use the internet securely and responsibly, as well as the resources and tools required to safeguard their online safety and well-being. Students who are taught about DC can improve their critical thinking and digital literacy, which will enable them to assess online material and make wise decisions. Giving students the agency to

take charge of their online presence and actively participate in digital communities is a key component of empowering them. Protecting students involves offering them the tools and support they need to stay secure online, such as instruction on cybersecurity and access to data protection technologies.

According to Brandau et al. (2021), the digital citizenship curriculum developed by Common Sense Media effectively increases middle-schoolers' knowledge of DC and reduces cyberbullying and online aggression, making it a cost-effective and resource-friendly program. The curriculum covers essential concerns that children face in a rapidly changing world of technology and media. Students learn to think critically and create habits of mind that will help them handle digital issues in their everyday life through the unique teachings.

However, while this curriculum is comprehensive, it should be amended to be suitable for Middle Eastern culture, especially regarding controversial issues like gender. Cultural sensitivity and adaptation are crucial to ensuring the curriculum's effectiveness and acceptance in different regions. Research supports that aligning educational content with cultural contexts enhances its effectiveness (Aslan & Reigeluth, 2013; Anderson-Levitt, 2003). This includes incorporating localized content, using inclusive language, engaging with local educators, and involving parents in the adaptation process to ensure the curriculum is relevant and respectful of local values and norms.

2.5 Importance of Professional Development for Teachers on DC

Teachers play a vital part in society's growth since they must constantly adjust to inventions and advances in knowledge, as well as be receptive to these changes (Ozdamli & Ozdal, 2015). Amidst rapid technological development, teachers require specialized information technology abilities to demonstrate proper technology utilization so that students can grow into digital citizens (Greenhow et al., 2009; Karal & Bakir, 2016). However, despite the many resources available to support teachers in teaching digital citizenship, there are numerous obstacles and institutional limits that may impede instructors' ability to impart digital citizenship skills effectively (Lauricella et al., 2020). One challenge is the lack of policies and resources aimed at improving teacher training in educational technology and DC skills (Baylor & Ritchie, 2002). This leaves teachers unprepared to address critical topics such as cyberbullying with students Moreover, some teachers themselves may feel uncomfortable with using technology,

hindering their ability to teach DC competencies (Choi, 2016). Research suggests that teachers who exhibit low efficacy in using technology in their classrooms also show low capacity in engaging in DC curriculum (Baylor & Ritchie, 2002). The mentioned factors necessitate an educational system that recognizes professional development is about teachers' learning, learning how to learn, and putting what they have learned into practice for the sake of their students' development to overcome challenges and difficulties that arise as a result of teachers' need to deal with emerging issues such as digitalization (Avalos, 2011).

Recent studies have highlighted the effectiveness of professional development programs in enhancing teachers' capacity to teach DC. According to Martin et al. (2022), K-12 educators' DC knowledge significantly increased during a graduate-level course, and they were able to transfer course content to their school environments. Similarly, Xie et al. (2017) demonstrated that training teachers to evaluate digital content can effectively improve their capacity in technology integration, particularly for those with less prior experience. Furthermore, professional development training enables teachers to develop digital literacy activities without deviating from their previous pedagogical plans (Tomé & Abreu, 2016). Cappuccio and Compagno (2021) emphasized that developing support for teachers' digital skills may be crucial for enacting inclusive processes that guarantee every student the chance to become a capable and valuable citizen. Gondwe et al. (2023) found that professional development activities for teacher educators can facilitate the development of ethical use of educational technology. Moreover, research by Elsayary (2023) indicates that upskilling training programs effectively develop teachers' digital competence, leading to improved student digital competence and preparedness for future challenges. Chong and Pao (2021) shed light on the priorities of teachers in teaching DC, showing that after training workshops, teachers tended to focus more on aspects of digital law, digital commerce, and digital safety and security when teaching DC. Based on these findings, it's clear that supporting teachers, with professional development, in DC is crucial and has the power to greatly improve students' digital skills and readiness for the online environment.

2.6 Digital Citizenship in the Lebanese Context

Lebanon has faced significant civil and political unrest, including a civil war from 1975 to 1990, a war between Hezbollah and Israel in 2006, and military battles against ISIS in July

2016. Additionally, the country experienced prolonged presidential vacancies from May 2014 to October 2016 and from October 2022 until the time of this study. These challenges have led to inadequate governance, impacting the goal of providing quality education and necessitating the development of curricula that address contemporary themes such as DC. MEHE shifted towards a competency-based approach to education in 2012 where the curricular objectives were revised to focus on the development of skills and knowledge that are essential for success in the real world (MEHE, 2012). MEHE also produced the Lebanon 5 Year Education Strategic Plan, which places emphasis on the importance of updating the Lebanese curriculum and views online learning during COVID 19 as an opportunity to promote the development of digital teaching and learning (MEHE, 2022). Additionally, the Lebanese National Framework for the Pre-University Education Curriculum was released by the CERD in November 2022, and one of the thinking and learning competencies is the competency of digitization and information communication technology (MEHE, 2022). This demonstrates how the educational system in Lebanon will likely include technology heavily into the curriculum in the future. Despite the effort invested, Lebanese schools continue to rely on textbooks and curricula established in 1997, which are at the time of this study outdated.

Limited research has been conducted to study the status of DCE in Lebanon. According to Yehya et al. (2018), for the most part, Lebanese schools struggle to fully embrace the digital age and successfully incorporate instructional technology into their procedures. ICT implementation challenges continue to affect a variety of stakeholders, including students, teachers, communities, and educational officials, as these technologies are adopted and used (Yehya et al., 2018). Schools that struggle to use educational technology successfully and are not fully embracing the digital age leave pupils with less possibilities to acquire crucial DC skills. Students in Lebanon may lack sufficient exposure to online resources and platforms due to the absence of a robust digital infrastructure in many schools, which would make it harder for them to behave responsibly online and have meaningful online experiences.

Lebanese teachers are unaware of the term “Digital Citizenship” and its corresponding nine elements and they showed a low perception of self-efficacy in handling DC in addition to a lack of knowledge, training, time and authority (Ghamrawi , 2018). In relation to students’ online safety, Lebanese teachers believe that cyberbullying is not more harmful than ordinary bullying and they reflected a lack of knowledge of the prevention strategies (Ghamrawi et al., 2016). This

clearly contradicts the international literature which reveals that cyberbullying has a more expanded harm than traditional bullying (Ybarra & Mitchell, 2004). The 21st century skills, of which DC and its elements are considered to be integral, are being weakly implemented in Lebanese public schools (Ghamrawi et al., 2017). A relevant program addressing the disparity between DC practices and student learning after school is highly recommended (Chelala, 2019). Ghamrawi (2018) recommended that future studies would be more useful if they included a sample of schools from throughout Lebanon including private schools whose participation would provide a more complete picture of the realities of DC in Lebanese schools.

2.6.1 Center for Educational Research and Development (CERD) contribution to DCE

In Lebanon's educational system, CERD is a key player. In order to raise the standard of education, it carries out research, creates educational policies, and offers direction and support. The CERD is in charge of developing curricula, generating educational materials, arranging professional development programs, establishing educational rules and guidelines, and ensuring educational quality assurance. The CERD was instrumental in aiding Lebanon's educational system during the COVID-19 crisis. To assist teachers in adjusting to remote teaching, the CERD provided advice, materials, and online training. To maintain educational continuity throughout the epidemic, they also helped with curriculum adaptation, created educational resources, and offered technical support. Their goals were to minimize disturbances, encourage student engagement, and provide high-quality instruction under trying conditions.

Mawaridy.org is an online platform that was launched as a response to the crisis caused by the COVID-19 pandemic. The platform has since been developed to support the digital transformation policy adopted by CERD to provide teachers and students with access to a wide range of educational resources including lessons about ICT and DC. The lessons target grades 1,2 and 3 covering cyberbullying, digital health, digital security and grades 10, 11 and 12 covering digital health, media, ethics and footprint. This clearly leaves cycles 2 and 3 without any resources about DCE. It is worth mentioning that even this platform is consistently inaccessible due to lack of maintenance. CERD is also responsible for continuous training teachers on contemporary themes in education. The teachers' training workshop booklet for the year of 2020/2021 which is issued by CERD contains training workshops related to digital

literacy to equip teachers in ICT skills to use online teaching platforms like Microsoft TEAMS, ignoring the other 8 elements of DC.

These practices by CERD have significant implications for the Lebanese educational context. While CERD's efforts have been crucial in supporting education during the COVID-19 crisis and in promoting digital literacy, the gaps in resource availability for certain educational cycles and the lack of comprehensive digital citizenship education highlight areas needing improvement. Addressing these gaps is essential for equipping students with the necessary skills to navigate the digital world responsibly and ethically. This study aims to explore the perceptions of Lebanese middle school teachers regarding digital citizenship and its education, thereby providing insights that could guide future policy and curriculum development to ensure a more balanced and inclusive approach to digital citizenship education in Lebanon.

In addition to the efforts of CERD in Lebanon, there are other initiatives aimed at promoting digital literacy and safety among students. One such initiative is ProtectED, which focuses primarily on online safety and security. ProtectED educates young people about the risks associated with the internet, teaching them how to recognize online threats, understand privacy settings, and develop strategies to protect their personal information. However, it is important to note that while ProtectED and similar initiatives make significant strides in enhancing students' awareness of online safety, they often do not encompass the broader aspects of digital citizenship.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This research aimed to explore Lebanese middle school teachers' perceptions of DC and its elements, their perceptions towards DCE and its implementation in their teaching practices in addition to their expectations in the future in terms of support they need to overcome challenges they may face in educating for DC. The research was conducted from January 2022 through January 2023. This chapter presents the research design, the study context and participants, the data collection instruments, the data analysis methods, and the ethical considerations.

3.1 Research design

Convergent mixed method is an approach that integrates both quantitative and qualitative data collection and analysis to provide a comprehensive understanding of a research problem. In the current study, this approach was employed by utilizing interviews to gather qualitative data and administering a questionnaire to collect quantitative data. Due to this design's capacity to triangulate data from both methodologies, the study's conclusions have greater validity and reliability (Creswell & Creswell, 2017). The purpose of the questionnaire was to obtain data on the demographics of the participants as well as their perceptions of DC and its elements. To evaluate the associations between variables, descriptive statistics and inferential statistics, such as correlation analysis, were used to assess the quantitative data gathered from the questionnaire. In-depth qualitative information regarding participants' experiences and perceptions of DCE was also gathered through interviews. Thematic analysis was used to find recurring themes and patterns in the participant replies to the qualitative data gathered from the interviews.

By triangulating data from both approaches, the convergence of quantitative and qualitative data in this study offered a more thorough understanding of the research topic. A mixed methods approach made it possible to examine the study issue from a variety of angles and to analyze the results in greater depth and with greater nuance and thus to boost the validity and reliability of the findings (Creswell & Creswell, 2017).

3.2 Research context and participants

This study investigates the perceptions of digital citizenship (DC) among middle school teachers in Mount Lebanon. Mount Lebanon's educational landscape includes both private and public schools, which vary significantly in resources, class sizes, and curricula. Public school teachers, typically government-employed and following the national curriculum, often face challenges such as large class sizes and limited resources. In contrast, private school teachers work in institutions of varying size and resources, offering smaller class sizes, better facilities, and diverse curricular offerings. Ghamrawi (2018) recommends that including Lebanese private schools in studying the teachers' perceptions of DC will provide valuable insights on the topic.

In this study, convenience sampling, also known as availability sampling, was employed for selecting schools in the Mount Lebanon region. Convenience sampling entails selecting participants based on their accessibility and willingness to participate (Frey, 2018). The selection of teachers was based on their availability and willingness to cooperate with the research. While convenience sampling was used for selecting schools, the sampling of teachers within those schools was done through a random approach to ensure a representative sample. This study targeted both public and private schools, primarily English medium with some private schools also offering French language instruction as a third language. The sample size comprised 214 teachers all of whom participated voluntarily in the study. 80% of this study's participants are part-time or contractual teachers who work in both public and private schools, enabling them to provide diverse insights into digital citizenship education across different educational environments. This setup allows the study to explore how teachers adapt their practices based on available resources, class sizes, and institutional support in each school type, providing valuable insights to enhance digital citizenship education overall.

3.3 Data collection procedure

In this study, a convergent mixed-methods design was employed to gather comprehensive data to address the research questions. Data collection utilized both quantitative and qualitative data collection tools, including a questionnaire and semi-structured interviews. The questionnaire was administered to gather quantitative data from participants, while semi-structured interviews were conducted to obtain qualitative insights. This approach allowed for triangulation of findings from multiple sources, enhancing the depth and validity of the study's conclusions (Creswell & Creswell, 2017).

3.3.1 Questionnaire

The questionnaire was created using Google Forms (Appendix 1) and administered online to teachers. The link was sent to administrators who inturn disseminated the questionnaire link to WhatsApp groups of teachers. Additionally, I was granted access to a Facebook group created by teachers for educational purposes, and the questionnaire link was shared with members of this group as well.

The questionnaire is divided into two parts. The first part is used to collect data about teachers' age, gender, teaching experience, current school sector, educational level in addition to the number of workshops related to DC that they have attended. The second part of the online questionnaire is based on the Digital Citizenship Scale developed by Kus et al. (2017).The questionnaire was intended to measure perceptions through hypothetical scenarios. The initial scale has 49 items that measure the perceptions of DC. The items are distributed to reflect the nine elements of DC discussed in chapter 2. The items are on a five-point Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree. After communicating with Dr. Kus by email, he allowed me to amend the items with what is applicable in the Lebanese context and after discussing with the thesis supervisor, 2 items were deleted from the subscale 'digital rights and responsibilities. The final scale developed consists of 47 items and 8 subscales, namely digital communication (6 items), digital rights and responsibility (7 items), digital critical thinking (7 items), digital participation (5 items), digital security (6 items), digital skills (5 items), digital ethics (4 items) and digital trade (7 items).

3.3.1.1 Reliability

The reliability of the scale and its dimensions was assessed using Cronbach's alpha, a statistical measure that indicates the internal consistency of the scale items. A Cronbach's alpha value closer to 1.0 suggests higher reliability, with values above 0.70 generally considered acceptable for research purposes (Kılıç, 2016). It is important to note that Cronbach's alpha is calculated after the data has been collected and is used to evaluate the reliability of the scale's measurements. For digital communication, digital rights and responsibilities, digital critical thinking, digital participation, digital security, digital skills, digital ethic, digital trade factors, the

Cronbach values were .626, .625, .711, .821, .562, .861, .884, and .841 respectively. For the whole scale, the value obtained was .83. These numbers show that the scale's overall internal consistency and the elements' internal consistency are both acceptable (Hintonet al., 2004). Table 3.1 shows Cronbach's alpha reliability coefficients of the scale as a whole and its subscales.

Table 3.1: Cronbach's Alpha Reliability Coefficients of the Scale and Its Subscales

	Number of items	Cronbach Alpha
Digital communication	6	0.626
Digital rights and responsibility	7	0.625
Digital critical thinking	7	0.711
Digital participation	5	0.821
Digital Security	6	0.562
Digital Skills	5	0.861
Digital Ethics	4	0.884
Digital Trade	7	0.841
Whole scale	47	0.83

3.1.1.2 Validity

The questionnaire was reviewed by Dr. Samira Nicolas, my thesis supervisor and the creator of the scale, Dr. Kus. This ensured the face validity of the questionnaire. Face validity is a characteristic of tests that can be validly and reliably measured, with implications for research and practical use (Nevo, 1985).

3.3.2 Semi - structured interviews

Semi-structured interviews were used as the main method of qualitative data collection in the current study which are effective because they are adaptable, permit adjustment and follow-up, and can provide insightful information about perceptions, attitudes, and facts (Robson, 2002, as cited in Hofisi et al., 2014). The study's specific goal was to look into Lebanese teachers' perceptions of DCE, including its implementation in their teaching practices and teachers' training needs. Due to its capacity to offer in-depth insights into participants' experiences and viewpoints, semi-structured interviews were selected as the method of data gathering based on the framework presented by Braun and Clarke (2006). The interviews were made to be flexible in order to explore emerging themes and provide participants the chance to share original thoughts. The participants were chosen from a variety of Mount Lebanon private and public schools, offering a wide diversity of viewpoints and experiences. All participants gave their informed consent prior to the interviews after receiving a thorough description of the study's aims and methods. Depending on the preferences and availability of the participants, the interviews were either performed in-person or by online video conferencing.

The interviews (Appendix 3) were done with a subset of 11 teachers, where 7 were public school teachers and 4 were from private school. I created the interview questions and after receiving the validity from my thesis supervisor, it was administered to the interviewees. After introducing the purpose of the study, teachers granted their consent to record the interviews (Appendix 2). The interviews were done face to face with 9 teachers and online with 2 teachers and took an average of 30 minutes each.

3.4. Data analysis

Data analysis is the method through which researchers thoroughly search and organize data in order to better comprehend the data and make their findings understandable to others (Goodrick & Rogers, 2015). The quantitative data from the teacher questionnaire was imported into an Excel sheet, and statistical data analysis was done using SPSS software. The qualitative data from the interviews were analyzed using thematic analysis. Desriptive and inferential statistics were used to analyze the quantitative data of the study. The teachers' perceptions of DC

and its elements were measured by descriptive analysis. Inferential statistics including One Way Anova, and Post Hoc multiple comparison using the Tukey HSD Test showed the significant differences, if found, of teachers' perceptions of DC and its elements on the measure of some factors. These factors included age, teaching experience, educational level, and the number of DC training workshops attended. The analysis aimed to determine how these demographic and professional variables influenced teachers' perceptions of DC and its components. For the one-way ANOVA test, the 0.05 alpha level was used as the criterion for statistical significance and the Significance value was refereed to as p-value throughout the study.

Descriptive analysis was used in the qualitative phase of the study to fully comprehend the data collected through semi-structured interviews. It is used to enumerate and describe the characteristics of a set of data which was thoroughly evaluated to find patterns and trends. The interview data was transcribed and coded. The codes were created through thematic analysis, which made it easier to organize and comprehend the data. Additionally, inductive coding was performed to allow themes to emerge naturally from the data without being constrained by pre-existing categories.When a dataset is subjected to thematic analysis, emerging themes serve as the categories for the analysis, allowing the researcher to spot patterns in the data (Fereday & Muir-Cochrane, 2006). Insightful information about teachers' perceptions of DCE, importance, implementation in teaching practices , challenges during the implementation process and finally the expected support to be well implemented were obtained.

3.5 Ethical Considerations

To ensure the preservation of participants' privacy and rights throughout the research process, ethical requirements were diligently followed. Initial contact was made with the schools to facilitate the dissemination of questionnaires, with a clear explanation provided regarding the study's purpose. In line with ethical standards, authorization to share questionnaire links with school employees via WhatsApp groups was sought from the principals. Prior to sharing the links, the principals were briefed on the study's objectives. For teachers' involvement, the questionnaire introduction explicitly outlined the study's purpose and emphasized the value of their contributions, ensuring anonymity and voluntary participation.

Prior to recording the interviews, teachers' permissions were secured by written consent. (see Appendix4). To ensure interviewees' confidentiality, each teacher was given a number to

keep their identity anonymous. The transcripts and recordings in addition to the data collected were handled ethically where the thesis supervisor and I are the only ones to access them.

CHAPTER 4

ANALYSIS AND DISCUSSION OF FINDINGS

This chapter presents the data gathered through the online questionnaire and the teachers' semi-structured interviews. First, the questionnaire data will be presented followed by the interview data. Then there will be the discussion of the findings.

4.1 Descriptive Statistics of the Participants Backgrounds

The teacher questionnaire collected demographic data from the participants, and this data is presented in Table 4.1 below. Table 4.1 shows the age group, gender, current school, teaching experience, educational level and training workshops related to DC received.

Table 4.1: Teachers' Background Information

Category	Groups	Frequency	Percentage
Age Group	18-24 Gen Z	29	13.6
	26-41 Millennials	102	47.7
	42-57 Gen X	74	34.6
	58-67 Boomers II	9	4.2
Gender	Female	193	90.2
	Male	21	9.8
Teaching experience	1 - 5 years	47	22.0
	6 - 10 years	33	15.4
	11 - 15 years	41	19.2
	16 - 20 years	32	15.0
	21 - 30 years	41	19.2
	More than 30 years	20	9.3
Teaching sector	Private	3	1.4
	Public	40	18.69

	Both	171	79.91
Education level	no university degree	13	6.1
	teaching diploma	51	23.8
	bachelor's degree	78	36.4
	master's degree	68	31.8
	doctorate degree	4	1.9
Training workshops	0	68	31.8
	1	19	8.9
	2	33	15.4
	3	24	11.2
	4	12	5.6
	5	5	2.3
	More than 5	53	24.8

As shown in Table 4.1, the majority of the participants were in age group "26 to 41" years old or Millennials (47.7 %) followed by age group "42 to 57" years old or Gen X (34.6%). The number of female participants (90.2%) is significantly greater than the number of male teachers participating in the study (9.8%). Around 80% of the participants teach in both private and public schools part time in either of both.

The number of years of the teachers' teaching experience ranged from "1 to 5 (22 %)" to "more than 30 years" (9.3%)". Most of the teachers have a bachelor's degree (36.4%) and master's degree (31.8 %) while 1.9 % of the participants have a doctorate degree. The data reveals that 31.8% did not receive any workshops on DCE while 24.8% received more than 5 training workshops.

4.2 Questionnaire Results

4.2.1 Lebanese middle school teachers' perceptions of digital citizenship and its elements

In statistical analysis, it is essential to ensure that the underlying data distribution satisfies the assumption of normality before applying any statistical tests that assume normality. The normality assumption is one of the fundamental assumptions in statistical analysis and is crucial for reliable and accurate inference (Saculinggan & Balase, 2013). The normality assumption is necessary for many statistical tests such as t-tests, ANOVA, and linear regression. The results of these tests can be inaccurate or biased if the data is not normally distributed. Therefore, it is common practice to test for normality before applying these tests to the data. To determine if the data were normally distributed, the skewness and kurtosis values of the data were examined. The data's skewness and kurtosis values, which ranged from +3 to -3, are regarded as acceptable (Joanes & Gill, 1998).

Table 4.2 Statistical Measures and Normality Test of Teachers' Perceptions of DC and its Elements

						Skewness		Kurtosis	
	N	Range	Min	Max	Mean	SD	Statistic	Std Error	Statistic	Std Error
Digital Communication	214	3.17	1.00	4.17	2.25	.66	.58	.17	.10	.33
Digital Rights and Responsibilities	214	3.50	1.00	4.50	3.17	.59	-1.44	.17	4.18	.33
Digital Critical Thinking	214	3.71	1.00	4.71	2.53	.67	.28	.17	.44	.33
Digital Participation	214	4.00	1.00	5.00	3.36	.80	-.52	.17	.43	.33
Digital Security	214	3.50	1.00	4.50	2.63	.61	.15	.17	.22	.33
Digital Skills	214	4.00	1.00	5.00	4.08	.69	-.99	.17	2.10	.33
Digital Ethics	214	4.00	1.00	5.00	4.02	.79	-2.82	.17	8.68	.33

Digital Trade	214	4.00	1.00	5.00	3.67	.71	-1.18	.17	2.19	.33
Digital Citizenship	214	2.73	1.69	4.42	3.07	.38	.12	.17	1.81	.33

According to Table 4.2, the data are normally distributed with acceptable skewness values that range between -3 and 3 and kurtosis values (< 8) except for Digital for which the kurtosis value is slightly greater than 8. This discrepancy requires exploration. The observed discrepancy could possibly be attributed to factors concerning how the participants perceived and comprehended ethics. A possible explanation for this could be that, in comparison to the elements that were investigated, digital ethics covers a wider spectrum of more complex concepts. It could entail reflections on moral and legal issues pertaining to behaviour, which might lead to a wider range of reactions and interpretations from the participants. Additionally, individuals may demonstrate differing levels of acquaintance with or comprehension of ethics, resulting in a varied range of answers and maybe slightly distorting the distribution

Column 5 in Table 4.2 shows the mean for each element of DC and this value corresponds to the participants' perceptions of DC. Participants have a high perception of the given element of DC if the score is 3.5-5.0, an unsure perception if it was between 2.5-3.4, and a low perception if it was 1.0-2.4. The mean of DC perceptions of teachers is 3.07. This indicates that the teachers' perceptions of DC is unsure.

Regarding the elements of DC, it is observed that the mean of digital communication is 2.25 which indicate that teachers' perception is low in this domain. The means of digital ethics, skills and trade are 4.02, 4.08 and 3.07 and this shows that teachers have high perceptions in these domains.

The means of digital rights and responsibilities, digital participation, digital security and digital critical thinking are 3.17, 3.36, 2.63 and 2.53 respectively and this indicates that teachers' perceptions of the mentioned elements are unsure regarding these elements of DC. Teachers appear to be more confident, however, in their digital participation compared to digital security and critical thinking.

4.2.2 Teachers' perceptions of DC and its elements by demographic factors

The following section explains whether the teachers' perceptions of DC and its elements show significant differences in terms of age, working experience, educational level and number of DC training workshops received. Regarding the factor "gender", since the participants happened to be overwhelmingly female, a cross-tabulation of DC with the gender demographic would not yield any meaningful conclusion.

ANOVA test is a statistical method used to compare the means of three or more groups. One Way ANOVA test was conducted to investigate whether there were differences in the perceptions of DC and its elements according to the different demographic factors cited in the previous paragraph. A p-value less than the predetermined significance level of 0.05 suggests that there is statistically significant evidence of a difference in the means of the groups being compared (O'Brien, Osmond, & Yi, 2015). In other words, if the p-value is less than 0.05, it suggests that the groups being compared are not likely to have the same population mean.

When the ANOVA test indicates significant differences among groups, conducting post hoc tests becomes essential. These tests are necessary to determine which specific groups or sub-groups of the independent variable(s) differ significantly from each other in terms of the dependent variable, such as perceptions of digital citizenship and its various elements. Without a post hoc test, it is not possible to determine which specific groups differ significantly, as the ANOVA only tells us whether there is a significant difference overall (McHugh, 2011). The post hoc test helps to identify which specific groups have significantly different means, and thus provides a more detailed and nuanced understanding of the relationship between the independent and dependent variables. Because it provides crucial context for understanding the outcomes of the post-hoc analysis, a descriptive table is frequently displayed prior to the table of post-hoc results. For instance, the descriptive table can show that particular groups have greater or lower mean scores, which could be a significant element to take into account when interpreting the post-hoc analysis's findings (Celik, 2022). The descriptive tables give a brief overview of the fundamental statistics of the study's variables. It contains details about each variable's mean, standard deviation, and range of scores. The distribution of the data and the sample's characteristics can both be better understood by readers with the use of this information.

4.2.2.1 Teachers' age and DC perceptions

One Way ANOVA test was conducted to investigate whether there were differences in the perceptions of digital citizenship and its elements according to age. The "F" value, or the F-statistic, is a measure used in ANOVA to assess whether the means of different groups are significantly different from each other. It is calculated by dividing the variance between groups by the variance within groups. The resulting F-value is then compared to a critical value to determine statistical significance (Siegel, 2016) .The results are shown in table 4.3.

Table 4.3: One-Way ANOVA Test on age and teachers' perceptions of digital citizenship and its elements

ANOVA					
		df	Mean Square	F	p-value
Digital Communication	Between Groups	3	.258	.593	.61
	Within Groups	210	.493		
	Total	213			
Digital Rights and Responsibilities	Between Groups	3	.305	.862	.462
	Within Groups	210	.354		
	Total	213			
Digital Critical Thinking	Between Groups	3	.288	.580	.629
	Within Groups	210	.496		
	Total	213			
Digital Participation	Between Groups	3	.098	.152	.929
	Within Groups	210	.647		

	Total	213			
Digital Security	Between Groups	3	.524	1.408	.241
	Within Groups	210	.372		
	Total	213			
Digital Skills	Between Groups	3	.9319	6.682	0.000
	Within Groups	210	.438		
	Total	213			
Digital Ethics	Between Groups	3	.557	.897	.444
	Within Groups	210	.621		
	Total	213			
Digital Trade	Between Groups	3	.698	1.406	.242
	Within Groups	210	.497		
	Total	213			
Digital Citizenship	Between Groups	3	1.55	1.282	.281
	Within Groups	210	1.21		
	Total	213			

According to Table 4.3, the perceptions of teachers' digital citizenship (F=1.282, p-value = 0.281) and its elements did not show a significant variation by their age using ANOVA test except on digital skills (p-value<0.05). This indicates that there is a significant difference in perceptions of digital skills scores among the different age groups. Furthermore, a post-hoc test

Tukey's HSD was conducted to determine the specific age groups that differed significantly in terms of their digital skills scores. Table 4.4 shows the descriptive statistics of the elements digital skills and table 4.5 shows the results of post-hoc analysis.

Table 4.4: Descriptive Statistics of Teachers' Perception of Digital Skills by Age

Digital Skills

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
18-24 Gen Z	29	4.186	.784	.146	3.888	4.484	1.60	5.00
26-41 Millennials	102	4.245	.613	.061	4.125	4.365	1.00	5.00
42-57 Gen X	74	3.895	.693	.081	3.734	4.055	1.60	5.00
58-67 Boomers II	9	3.489	.481	.160	3.119	3.858	2.60	4.20
Total	214	4.084	.688	.047	3.991	4.177	1.00	5.00

Table 4.5: Post-Hoc Analysis

Multiple Comparisons

Dependent Variable: Digital Skills

Tukey HSD

(I)Age Group	(J) Age Group	Mean Difference (I-J)	Std. Error	Sig	95% Confidence Lower Bound	Upper Bound
18-24 Gen Z	26-41 Millennials	-.059	.14	.975	-.420	.302
	42-57 Gen X	.292	.15	.187	-.084	.667
	58-67 Boomers II	.697*	.25	.032	.043	1.351
26-41 Millennials	18-24 Gen Z	.059	.14	.975	-.302	.420
	42-57 Gen X	.351*	.10	.004	.089	.612

	58-67 Boomers II	.756*	.23	.007	.160	1.352
42-57 Gen X	18-24 Gen Z	-.292	.15	.187	-.667	.084
	26-41 Millennials	-.351*	.10	.004	-.612	-.089
	58-67 Boomers II	.406	.23	.308	-.199	1.011
58-67 Boomers II	18-24 Gen Z	-.697*	.25	.032	-1.351	-.043
	26-41 Millennials	-.756*	.23	.007	-1.352	-.160
	42-57 Gen X	-.406	.23	.308	-1.011	.199

*The mean difference is significant at $p \leq 0.05$

The results of the post hoc multiple comparisons using the Tukey HSD test indicate that there are significant differences in the mean scores of perceptions of digital skills among different age groups of teachers. Specifically, the mean scores for perception of digital skills of teachers belonging to the Gen Z age group (18-24 years old) is significantly different from that of teachers in the Boomers II age group (58-67 years old). Additionally, the mean scores for perception of digital skills of teachers in the Millennial age group (26-41 years old) is significantly different from those in the Gen X age group (42-57 years old) and the Boomers II age group.

Based on these results, it can be concluded that Millennial (26-41 years old) and Gen Z (18-24 years old) teachers exhibit more positive and higher perceptions of digital skills than the Gen X and Boomers II teachers. This finding supports the notion that younger generations tend to be more familiar and comfortable with digital technology, and may therefore be more proficient in using it (Minzaripov & Shamsutdinova, 2023)

4.2.2.2 Teachers' educational levels and DC perceptions

One Way ANOVA test was conducted to investigate whether there were significant differences in the perceptions of digital citizenship and its elements according to the respondents' educational level. The results are shown in table 4.6.

Table 4.6: One-Way ANOVA Test on Teachers' Perceptions of DC and its Elements and Their Educational Level

ANOVA					
		df	Mean Square	F	p-value
Digital Communication	Between Groups	4	1.472	3.557	.008
	Within Groups	209	.414		
	Total	213			
Digital Rights and Responsibilities	Between Groups	4	.557	1.595	.177
	Within Groups	209	.349		
	Total	213			
Digital Critical Thinking	Between Groups	4	.461	.933	.445
	Within Groups	209	.494		
	Total	213			
Digital Participation	Between Groups	4	.882	1.389	.239
	Within Groups	209	.635		
	Total	213			
Digital Security	Between Groups	4	.778	2.124	.079
	Within Groups	209	.366		

	Total	213			
Digital Skills	Between Groups	4	1.255	2.737	.030
	Within Groups	209	.458		
	Total	213			
Digital Ethics	Between Groups	4	.350	.561	.691
	Within Groups	209	.625		
	Total	213			
Digital Trade	Between Groups	4	.299	.593	.668
	Within Groups	209	.503		
	Total	213			
Digital Citizenship	Between Groups	4	.239	2.000	.096
	Within Groups	209	.119		
	Total	213			

Table 4.6 reveals that there is no significant difference in the overall perceptions of digital citizenship across the educational levels (F=2.00, p-value= 0.096). Similarly, there were no significant difference in the perceptions of each of the elements digital rights and responsibilities, critical thinking, participation, security, ethics and trade across the respondents' educational levels with all the p value greater than 0.05. However, the table shows a significant difference in the respondents' perception of digital communication and skills across their educational levels with the p-values of 0.008 and 0.03 respectively, which are less than 0.05. To further investigate into the variations in the perceptions of elements of digital skills and communication among teachers of diverse educational perceptions, a descriptive analysis and a

post hoc multiple comparison test using the Tukey HSD test were employed. The results are presented in Tables 4.7 and 4.8 respectively.

Table 4.7: Descriptive

						95% Confidence Interval for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Digital Communication	No university degree	13	2.168	.831	.230	1.665	2.669	1.17	3.33
	Teaching diploma	51	2.176	.607	.085	2.006	2.347	1.00	3.83
	Bachelor degree	78	2.188	.634	.072	2.045	2.331	1.00	4.17
	Master's degree	68	2.338	.643	.078	2.183	2.494	1.17	4.00
	Doctorate degree	4	3.333	.624	.312	2.341	4.326	2.67	4.17
	Total	214	2.253	.659	.045	2.164	2.342	1.00	4.17
Digital Skills	No university degree	13	3.523	.823	.228	3.026	4.020	1.60	4.40
	Teaching diploma	51	4.035	.732	.102	3.829	4.241	1.60	5.00
	Bachelor degree	78	4.141	.557	.063	4.016	4.267	2.80	5.00

Master's degree	68	4.147	.740	.090	3.968	4.326	1.00	5.00
Doctorate degree	4	4.350	.342	.171	3.806	4.894	4.00	4.80
Total	214	4.083	.688	.047	3.991	4.177	1.00	5.00

Table 4.8: Teachers' Background Information Post Hoc Multiple Comparison

Multiple Comparisons

Tukey HSD

Dependent Variable: Digital Communication

					95% Confidence	
(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error	p-value	Lower Bound	Upper Bound
No university degree	Teaching Diploma	-.010	.200	1.000	-.560	.5402
	Bachelor's degree	-.021	.193	1.000	-.552	.5089
	Master's Degree	-.172	.195	.904	-.707	.3643
	Doctorate Degree	-1.167*	.368	.015	-2.179	-.1546
Teaching Diploma	No University Degree	.010	.200	1.000	-.540	.5598
	Bachelor's degree	-.012	.116	1.000	-.330	.3072
	Master's Degree	-.162	.119	.655	-.490	.1661
	Doctorate Degree	-1.157*	.334	.006	-2.076	-.2377
Bachelor's degree	No University Degree	.021	.193	1.000	-.509	.5517
	Teaching Diploma	.012	.116	1.000	.307	.3303

	Master's Degree	-.150	.107	.624	.4444	.1435
	Doctorate Degree	-1.145*	.330	.006	-2.053	-.2378
Master's Degree	No University Degree	.172	.195	.904	.364	.7074
	Teaching Diploma	.012	.116	.655	-.166	.4897
	Bachelor's degree	-.150	.107	.624	-.143	.4439
	Doctorate Degree	-1.145*	.330	.006	-1.906	-.0844
Doctorate Degree	No University Degree	.172	.368	.015	.155	2.1788
	Teaching Diploma	.162	.334	.006	.238	2.076
	Bachelor's degree	.150	.330	.006	.238	2.053
	Master's Degree	-.995*	.331	.024	.084	1.906

Dependent Variable: Digital Skills					95% Confidence	
(I) Education Level	(J) Education Level	Mean Difference (I-J)	Std. Error R	p-value	Lower Bound	Upper Bound
No university degree	Teaching Diploma	-.512	.210	.110	-1.091	.067
	Bachelor's degree	-6.18*	.203	.022	-1.176	-.060
	Master's Degree	-6.24*	.205	.022	-1.188	-.060
	Doctorate Degree	-.827	.387	.209	-1.892	.238
Teaching Diploma	No University Degree	.512	.210	.110	.067	1.091
	Bachelor's degree	-1.06	.122	.909	-.441	.230
	Master's Degree	-.112	.125	.900	-.457	.233
	Doctorate Degree	-.315	.352	.898	-1.282	.653
Bachelor's degree	No University Degree	6.18*	.203	.022	.060	1.176
	Teaching Diploma	.106	.122	.909	-.230	.441

	Master's Degree	-.006	.112	1.000	-.315	.303
	Doctorate Degree	-.209	.347	.975	-1.164	.746
Master's Degree	No University Degree	.624*	.205	.022	.060	1.188
	Teaching Diploma	.112	.125	.900	-.233	.457
	Bachelor's degree	.006	.112	1.000	-.303	.315
	Doctorate Degree	-.203	.348	.978	-1.161	.756
Doctorate Degree	No University Degree	.827	.387	.209	-.238	1.892
	Teaching Diploma	.315	.352	.898	-.653	1.282
	Bachelor's degree	.209	.347	.975	-.745	1.164
	Master's Degree	.203	.348	.978	-.756	1.161

*The mean difference is significant at $p \leq 0.05$

According to table 4.7, the mean score of the perceptions of digital skills and communication is the highest for teachers holding doctorate degree than holding any other degree.

Post hoc multiple comparisons using the Tukey HSD test were conducted to examine the differences in the mean scores of the perceptions of digital communication and digital skills among teachers of various educational backgrounds. The results demonstrate that teachers who hold a doctorate degree exhibit significantly higher mean scores in both digital communication (M = 3.333, SD = 0.624) and digital skills (M = 4.350, SD = 0.342) than those holding a master's degree (M = 2.338, SD = 0.643; M = 4.147, SD = 0.740) and those holding a bachelor's degree (M = 2.188, SD = 0.634; M = 4.141, SD = 0.557) in both elements. Moreover, the perceptions of both digital communication (M = 2.176, SD = 0.607) and digital skills (M = 4.035, SD = 0.732) for teachers who hold a teaching diploma are also significantly different than those who do not hold any university degree, with mean values of (M = 2.167, SD = 0.831) for digital communication and (M = 3.523, SD = 0.823) for digital skills.

Based on these results, it can therefore be concluded that the teachers whose educational attainment is higher had more positive and higher perceptions of digital communication and

skills than the teachers who have lower educational attainment to reach its minimum for those with no university certificate. Individuals who have completed levels of schooling often have opportunities to learn extensively which can include formal education on digital communication and technology. Additionally, advanced education helps develop thinking abilities and adaptability to technologies, which are essential for comprehending and effectively using digital communication tools. Furthermore, individuals with education tend to participate in professional development activities related to digital communication and technology enhancing their understanding and perspectives in these areas. Therefore, the link between achievement and views on communication skills highlights the significant impact of education, on individuals' attitudes and capabilities particularly in the context of digital citizenship.

4.2.2.4 Teachers' Teaching Experience and DC Perceptions

One Way ANOVA test was conducted to investigate whether there were significant differences in the perceptions of digital citizenship and its elements according to the respondents' teaching experience. The results are shown in table 4.9.

Table 4.9: One-Way ANOVA Test on teachers' perceptions of digital citizenship and its elements and their teaching experience

ANOVA

		Sum of Squares	Df	Mean Square	F	p-value
Digital Communication	Between Groups	4.74	5	.949	2.252	.051
	Within Groups	87.63	208	.421		
	Total	92.37	213			

Digital Rights and Responsibilities	Between Groups	2.88	5	.576	1.655	.147
	Within Groups	72.38	208	.348		
	Total	75.26	213			
Digital Critical Thinking	Between Groups	4.22	5	.843	1.740	1.27
	Within Groups	100.80	208	.485		
	Total	105.02	213			
Digital Participation	Between Groups	2.65	5	.530	.826	.533
	Within Groups	133.55	208	.642		
	Total	136.21	213			
Digital Security	Between Groups	2.27	5	.454	1.218	.302
	Within Groups	77.43	208	.372		
	Total	79.69	213			
Digital Skills	Between Groups	9.39	5	1.878	4.273	.001
	Within Groups	91.42	208	.439		
	Total	100.81	213			

Digital Ethics	Between Groups	5.75	5	1.149	1.893	.097
	Within Groups	126.26	208	.607		
	Total	132.01	213			
Digital Trade	Between Groups	6.66	5	1.332	2.778	.069
	Within Groups	99.71	208	.479		
	Total	106.37	213			
Digital Citizenship	Between Groups	1.17	5	.234	1.970	.084
	Within Groups	24.72	208	.119		
	Total	25.89	213			

Using ANOVA test, the teachers' perceptions of digital citizenship and its elements did not show a significant difference by their teaching experience (F=1.97, p-value= 0.084). However, there was a significant difference in the element digital skills (F= 4.273, p-value= 0.001). To further investigate the variations in the perceptions of elements of digital skills among teachers of diverse teaching experience, a descriptive analysis and a post hoc multiple comparison test using the Tukey HSD test were employed. The results are presented in Tables 4.10 and 4.11 respectively.

Table 4.10: Descriptive of teachers' perceptions of digital skills and their teaching experience

Descriptives								
Digital Skills								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
1 – 5 years	47	4.268	.692	.101	4.065	4.471	1.60	5.00
6 – 10 years	33	4.115	.747	.130	3.850	4.380	1.00	5.00
11 – 15 years	41	4.220	.608	.095	4.028	4.411	2.60	5.00
16 – 20 years	32	4.156	.596	.105	3.941	4.371	2.80	5.00
21 – 30 years	41	3.9175	.581	.091	3.734	4.101	2.80	5.00
More than 30 years	20	3.550	.802	.179	3.175	3.925	1.60	5.00
Total	214	4.084	.688	.047	3.991	4.177	1.00	5.00

Table 4.11: Posthoc Multiple Comparison

Multiple Comparisons

Dependent Variable: Digital Skills

Tukey HSD

(I)Teaching Experience	(J) Teaching Experience	Mean Difference (I-J)	Std. Error	Sig	95% Confidence Lower Bound	95% Confidence Upper Bound
1 – 5 years	6 – 10 years	.153	.151	.912	-.280	.586
	11 – 15 years	.049	.142	.999	-.359	.456
	16 – 20 years	.112	.152	.977	-.325	.549

	21 – 30 years	.351	.142	.136	-.056	.759
	More than 30 years	.718*	.177	.001	.209	1.227
5 – 10 years	1 – 5 years	-.153	.151	.912	-.586	.280
	11 – 15 years	-.104	.155	.985	-.550	.342
	16 – 20 years	-.041	.164	1.000	-.514	.432
	21 – 30 years	.198	.155	.797	-.248	.644
	More than 30 years	.565	.188	.035	.025	1.106
11- - 15 years	1 – 5 years	-.049	.142	.999	-.456	.359
	5 – 10 years	.104	.155	.985	-.342	.550
	16 – 20 years	.063	.156	.999	-.387	.513
	21 – 30 years	.302	.146	.310	-.119	.724
	More than 30 years	.670*	.181	.004	.149	1.190
16 – 20 years	1 – 5 years	-.112	.152	.977	-.549	.325
	5 – 10 years	.041	.164	1.000	-.432	.514
	11 – 15 years	-.063	.156	.999	-.513	.387
	21 – 30 years	.239	.156	.646	-.211	.689
	More than 30 years	.606	.189	.019	.063	1.150
21 – 30 years	1 – 5 years	-.351	.142	.136	-.759	.056
	5 – 10 years	-.198	.155	.797	-.644	.248
	11 – 15 years	-.302	.146	.310	-.724	.119
	16 – 20 years	-.239	.156	.646	-.689	.211
	More than 30 years	.367	.181	.329	-.152	.887
More than 30 years	1 – 5 years	-.718*	.177	.001	-1.227	-.209
	5 – 10 years	-.565*	.188	.035	-1.106	-.025
	11 – 15 years	-.670*	.181	.004	-1.190	-.149
	16 – 20 years	-.606*	.189	.019	-1.150	-.063
	21 – 30 years	-.367	.181	.329	-.887	.153

*The mean difference is significant when p-value ≤ 0.05

The results presented in Table 4.10 and 4.11, demonstrate that the mean score for the perceptions of digital skills for teachers with more than 30 years of experience (M = 3.55) differed significantly from the mean scores for teachers in all other years of experience range. Thus, it can be concluded that teachers with over 30 years of experience held less positive and lower perceptions of digital citizenship skills compared to teachers with less experience.

4.2.2.5 Teachers' level of Digital Citizenship by DC training workshops received

One Way ANOVA test was conducted to investigate whether there were significant differences in the perceptions of digital citizenship and its elements according to the respondents' DC training workshops received. The results are shown in table 4.12.

Table 4.12: ANOVA test on DC training workshops received by teachers and their perceptions of digital citizenship and its elements.

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig
Digital Communication	Between Groups	2.27	6	.379	.870	.518
	Within Groups	90.10	207	.435		
	Total	92.37	213			
Digital Rights and Responsibilities	Between Groups	2.23	6	.372	1.056	.391
	Within Groups	73.02	207	.353		
	Total	75.26	213			
Digital Critical Thinking	Between Groups	3.62	6	.603	1.230	.292
	Within Groups	101.40	207	.490		
	Total	105.02	213			

Digital Participation	Between Groups	3.94	6	.657	1.029	.408
	Within Groups	132.26	207	.639		
	Total	136.21	213			
Digital Security	Between Groups	3.80	6	.633	1.727	.116
	Within Groups	75.89	207	.367		
	Total	79.69	213			
Digital Skills	Between Groups	2.51	6	.419	.882	.509
	Within Groups	98.29	207	.475		
	Total	100.81	213			
Digital Ethics	Between Groups	2.98	6	.497	.797	.573
	Within Groups	129.03	207	.623		
	Total	132.01	213			
Digital Trade	Between Groups	5.88	6	.980	2.019	.067
	Within Groups	100.49	207	.485		
	Total	106.37	213			
Digital Citizenship	Between Groups	1.48	6	.247	2.099	.055
	Within Groups	24.40	207	.118		
	Total	25.89	213			

Based on the results presented in Table 4.12, the ANOVA test indicates that the perceptions of digital citizenship and all its elements did not show a significant difference based on digital citizenship training workshops received (F=2.099, p-value=0.055). The p-values for all elements were greater than 0.05, indicating that there was no statistically significant difference in the mean scores for perceptions of digital citizenship and its elements between teachers with different number of received digital citizenship training workshops. Overall, these results suggest that digital citizenship training workshops may not have a significant impact on the perceptions of digital citizenship among teachers.

4.3 Results and Analysis of Teachers' Interviews

The qualitative interviews conducted for this study on digital citizenship involved middle school teachers from both public and private schools in Mount Lebanon. These interviews aimed to gather insights into the nuances of DCE within the Lebanese educational landscape.

All participants were middle school teachers, representing both public and private schools in Mount Lebanon. They were contacted subsequent to the dissemination of the questionnaire and expressed their willingness to participate in the interviews. Detailed profiles of the participants are provided in Table 4.13. The profiles of the participants are shown in table 4.13.

Table 4.13: Teachers' background information

Teacher	Educational Level	Subject	Years of Experience	School sector
T1	Bachelor's degree	Sciences	15	Public
T2	Bachelor's degree	Sciences	12	Public
T3	Bachelor's degree	Arabic	10	Public
T4	Master's Degree	English	5	Public
T5	Bachelor's degree	Math	10	Private
T6	Master's Degree	Math	10	Public
T7	Master's Degree	Civics	11	Public
T8	Bachelor's degree	Technology	15	Public

T9	Bachelor's degree	Math	10	Private
T10	Master's Degree	Sciences	5	Public
T11	Master's Degree	English	20	Public

The interviewees include 6 teachers having a bachelor's degree and 5 teachers having a master's degree. They teach subjects such as Sciences, Arabic, English, Math, Civics, and Technology. The years of experience range from 5 to 20, with most having around 10-15 years. The teachers work in both public and private school sectors.

Thematic analysis of the teachers' interviews yielded the emergent themes presented in Table 4.14 where 5 themes emerged from the data collected from teachers' points of view.

Table 4.14: Teachers' Interviews Themes and codes

Theme number	Theme	Codes	occurrence
1	Concept of digital citizenship	1. Presence in virtual world	13
		2. Standards and norms of good citizen	22
2	Concept of DCE	1. Teaching/ teachers	11
		2. Knowledge/ skills/ attitudes	7
		3. Raise standards	7
		4. Virtual world	4
3		1. Teachers and parents	6

	Responsibility of teaching DC	2. Civics and technology teachers only	7
		3. All teachers	4
		4. DCE specialized teachers	2
4	Significance of DCE	1. Dangers faced online (cyberbullying, inappropriate content)	8
		2. online teaching/ COVID 19 era	3
		3. student's unawareness of rights and responsibilities	13
		4. importance of critical thinking	7
		5. Lebanese crisis	4
		6. Lack of parents' support	4
5	Expected support for better implementation	1. Extra Time	11
		2. Readymade Resources (lesson plans and printable documents)	10
		3. Internet connection and technology devices	7
		4. Spread awareness to parents	3
		5. Technology teacher allocated for support	10

4.3.1 Theme 1: Concept of digital citizenship

The theme '*concept of digital citizenship'* was generated from the two codes 'standards and norms of good citizen' which appears 22 times in the data and 'presence in virtual world' with 13 occurrences. Most of the teacher respondents mentioned the standards of digital citizenship like 'responsibility', 'efficient use of technology', 'good citizen', 'respect', 'doesn't harm anyone', 'anti cyberbullying', 'accept opinions', 'being non offensive' and 'being good to his country'. T1 summarized her concept of DC as follows: "As I understand, digital citizenship is to be a good citizen in the digital world" while T3 wondered: "Is it the standards that should be found in every person who is available online and how to use technology well without any difficulty?" The second code was "presence in the virtual world' was applied when a participant mentioned activities related to one's presence online like "playing games", 'researching', 'internet surfing', 'virtual', 'digital society'. T5 stated: "DC is to be a good citizen while surfing digital platforms".

4.3.2 Theme 2: Concept of DCE

The theme '*concept of digital citizenship education'* was generated from five codes. The first code was 'teachers/teaching' which appeared 11 times in the data. All the interviewees related DCE to teachers and teaching. T8 expressed her belief that "DCE is to teach to be a responsible citizen in the virtual world". T4 stated that DCE is "to teach students how to use technology effectively". The second code was 'knowledge, skills and attitudes' with 7 occurrences. T3 stated: "As to DCE, it is teaching the skills, knowledge and attitudes to be a good digital citizen". T11 emphasized that DCE should include attitudes in addition to skills and knowledge in its learning objectives. The third code was 'raising standards' with 7 occurrences. Some of the teachers mentioned the terms "responsibility", "good citizen", "good standards" and "respect". T2 stated that DCE main objective should be to raise good standards among all students at school. The fourth code was 'virtual world' which occurred 4 times. T6 remarked, "DCE should prepare students to navigate the complexities of the virtual world." T9 expressed, "In today's digital age, teaching about the virtual world is as crucial as teaching traditional subjects."

4.3.3 Theme 3: Responsibility of teaching digital citizenship

The theme *'responsibility of teaching DC'* was generated from four codes. The first code is "all teachers" which occurred 4 times. T8 said that all teachers can be involved, each based on the subject they teach. T3 said: "Teachers are usually updated with the new trends in technology and can be more reliable to teach students these skills in a reasonable way and based on each student's needs and level of thinking. The second code is "teachers and parents" that occurred 6 times. Some participants saw that 'teachers and parents' are both responsible for teaching DC. T1 said: "Teachers could teach DC but someone should follow up with the students whether they are applying the knowledge and skill they are being taught at school in their daily life, referring to parents". The third code was "technology and civics teachers" that occurred 7 times. Three teachers insisted that although in ideal cases it is the responsibility of all teachers to teach DC, the characteristics of the Lebanese curriculum are such that it is a special topic that should be taught by "technology and civics teachers". For instance, T9 said: "I believe it is merely the technology and civics teachers' responsibility". Similarly, T2 stated: "I feel that civics and technology teachers are the teachers that mostly have the opportunity to do so as citizenship is most likely linked to these subject matters." The code "teachers specialized in DCE" was repeated 2 times where teachers expressed that this DC should be taught as an independent subject matter.

4.3.4 Theme 4: Significance of digital citizenship education

The theme *'significance of digital citizenship education'* was generated from 9 codes. The first code was 'students' awareness of rights and responsibilities' which occurred 13 times. Teachers mentioned that Lebanese students are unaware of their rights and responsibilities online and this was very prevalent in their research projects where they used to 'copy and paste' ideas referring to 'plagiarism'. T1 expressed her deep worry saying: "Sometimes students used to do research as copy paste from the internet and know nothing about plagiarism. They thought that "copy" and "paste" features are found for that and this is their right!" Teachers also mentioned the notion 'students' reputation' and their 'digital footprint' as students may share 'inappropriate posts' or 'details of their private lives' that will 'stay forever haunting them in their future'. T7 said: "In in the digital world, there is no place for mistakes. Making a mistake online is irreversible and may haunt our students forever." T9 indicated that DCE can equip students with

the right tools to avoid any permanent mistakes. T3 indicated: "Students are unaware of the dangers of sharing posts or photos online we should teach them to wisely decide the fate of their public information and what legacy they want to leave for their children". The second code was '*online dangers*' which occurred 8 times. Some data that was coded with this code included instances when participants referred to the notions of 'cuberbullying', 'harrassment', 'pornography' and 'violence'. For example, T2 said: "we have seen cyberbullying during online classes, on teachers too!!" T5 indicated: "Students are prone to see pornography or over 18 movies including all kinds of harmful and harassing actions."

The third code was "online teaching and COVID 19 period" where 10 interviewees related DCE importance to the time where students were taught online during the year of 2020 and 2021. T1 said: "After the online teaching during the pandemic. We have witnessed disasters!!" T2 stated: "…after COVID students are in need to guidance and teaching how to use the available online teaching resources". T8 said: "During compulsory online teaching era, students needed to know what the skills are needed to act wisely and responsibly". The fourth code was 'importance of critical thinking' which occurred 7 times. Teachers expressed their worry that students accept 'false information', 'fake accounts','fraud proposals' or 'scientific misconceptions' because they 'don't have critical thinking skills'. T8 said: "…Take for example the corona era. Students were traumatized by Facebook campaigns and social media campaigns that falsified every scientific fact they should know about the virus and this left them clueless without the support of us as educators." The fifth code which occurred 4 times was 'Lebanese crisis' referring to the 'major changes in the Lebanese society' whereas T7 said: "Lebanese citizens are facing difficulties due to the economic and political circumstances". T4 stated: "DCE is very important. Teaching digital citizenship to Lebanese students is very challenging since the criteria to citizenship in their minds are very vague". T3 said: "Lebanese students are in a more dangerous zone since there are no restriction on some websites as there are in many Arabic countries". T9 mentioned: "Due to Lebanese crisis, Lebanese students are psychologically fragile due to the traumatic change at their economical level and so they need to be equipped with the right tools to deal with any kind of pressure faced online as cyberbullying or even child grooming". The sixth code was "lack of parents' support" which occurred 4 times. T11 mentioned that "parents are under immense pressure that makes following up with their kids'

activities online a difficult task". T7 explained the "gap between children and their parents due to huge technological advancements".

4.3.5 Theme 5: Expected support for better DCE implementation

The theme "*expected support for better DCE implementation*" emerged from 5 codes. The first code was "DCE training workshops" with a repetition of 25 times. During the interviews many teachers talked about the importance of attending training workshops that focus on DCE. They believed that these workshops could improve their teaching skills in DCE. Some teachers mentioned that they lack training and highlighted the importance of professional development, in this field. Others emphasized the need for training that keeps up with the trends and techniques in DCE implementation. T1 said: "In order to prepare our students for the digital world, we as teachers need to be trained in DCE". T2 explained the responsibility of the Ministry of Education to train teachers excessively before any implementation of the subject. T8 claimed that DCE is a modern concept, and teachers need to be updated with the latest trends in DCE implementation for a teacher to be competent in his teaching skills. T11 insisted on the teachers' need for training by saying: "Training and training and training and then implementation!".

The second code was "extra time" which occurred 15 times. T4 expressed her need to allocate 2 to 5 hours per week as extracurricular activities specifically targeting DC because her class time is not enough to fully implement DCE. T9 said: "More time should be allocated to teach such a theme in a way it doesn't cause the loss of objectives in other subjects". Some respondents expressed their need for extra time to prepare lesson plans in addition to allocating teaching sessions inside the school time. T3 said: "…It would be really beneficial to have access to pre-made lesson plans on digital citizenship. Instead of spending hours creating classes from scratch, it would allow us to concentrate on delivering the content". T7 stated: "Many teachers believe they are unprepared to do so. A collection of pre-written lesson plans would provide us with the knowledge and tools we need to teach this significant subject to our students." T11 claimed: "Finding the time and materials to develop lesson plans on digital citizenship might be difficult."

The third code was “availability of internet connection and technology devices” which occurred 7 times. T4 said: “Teachers require access to dependable internet and technology tools in order to properly teach digital citizenship. Without these tools, it is hard to provide children the abilities they need to be responsible digital citizens.” T6 said: “Computers, tablets, and the internet are necessary technology tools for teaching digital citizenship. It is impossible to prepare pupils for the challenges of the digital age without access to these tools."

The fourth code was “spread awareness to parents” which was repeated 3 times. T1 said: “To make sure that our students are receiving a thorough education about digital citizenship, we as teachers must collaborate with parents.” Some teachers stressed the importance of involving parents in raising awareness of good digital citizenship, as well as the necessity to collaborate to foster such behavior both in the classroom and in the community.

The last code was “technology teacher allocated for support” which was repeated 10 times where some teachers emphasized the role the technology teacher can play in overcoming challenges in allocating hours for providing support to teachers and student for effective implementation. T5 mentioned the importance of having teachers specialized in technology pointing out "It would be really helpful to have a technology teacher to assist us. They could guide us on how to incorporate citizenship principles into our teaching and provide help when necessary."T10 stressed the significance of receiving assistance stating, "A technology teacher can bring expertise in navigating online platforms and addressing cybersecurity issues. Their presence would help alleviate some of the difficulties teachers encounter when implementing DCE effectively." T12 underscored the role played by technology teachers, in growth mentioning, "Technology teachers can organize workshops and training sessions to equip educators with the necessary skills and knowledge to confidently teach digital citizenship. Their support is essential for ensuring that teachers feel ready and capable of delivering DCE."

4.4 Discussion of Findings

The findings of this study give an understanding of Lebanese teachers’ perceptions of DC and its elements. This study also investigates the relationship between teachers’ perceptions and their age, teaching experience and educational attainment. It also explores the relationship between these perceptions and the DC training sessions received. The study also reveals the

teachers' perceptions of DCE and the expected future support for a better implementation in their teaching practices.

4.4.1 Perceptions of DC and its elements:

This study revealed that the perceptions of digital citizenship as a whole among Lebanese teachers is uncertain. Ghamrawi (2018) aligns with this discovery showcasing the viewpoints on citizenship held by teachers, in Lebanon. Ghamrawi proposed that improving citizenship education entails addressing the need to reshape teachers' understanding and recognition of digital citizenship.

In terms of the individual elements of digital citizenship, teachers' perceptions of digital communication are low, compared to their perceptions of digital ethics and digital skills which are high, and their perception of digital rights and responsibilities, participation, and security and critical thinking which are unsure with a slight increase in their perceptions of digital participation. These findings highlight the need for more attention on DC in the Lebanese educational system. The low perceptions of digital communication among Lebanese educators is particularly concerning, as digital communication in education can transform teaching and learning, making students more engaged and interested in technology-based activities (Folostina & Tăbăcaru, 2022) and can enhance student satisfaction and engagement (Belonovskaya, et al., 2020). Moreover, in line with prior research by Du and Meier (2023), this study's findings underscore the challenges that teachers face in developing digital communication and collaboration skills in today's digital landscape. These findings highlight the need for more attention to digital citizenship (DC) in the Lebanese educational system.

Several factors might contribute to the low perceptions of digital communication. Public training programs in Lebanon lack professionalism and quality, with trainees dissatisfied with the reality of the industry and the lack of regulations, standards, and clear outcomes (Soubjaki & Kamaleddine, 2020). This gap in professional development can lead to a lack of confidence and competence in using digital communication tools. Additionally, in many Lebanese schools, especially in public institutions, there might be limited access to the necessary technology and digital tools, further hindering teachers' ability to practice and improve their digital communication skills (Yehya et al., 2018). The current curriculum may not place enough

emphasis on digital communication, resulting in a lack of structured opportunities for teachers to develop and apply these skills. Moreover, national and institutional policies might not adequately support the integration of digital communication in educational practices (Yehya et al., 2018).

High perceptions of both teachers' digital skills and digital ethics are promising aligning with earlier studies emphasizing the pivotal role of critical thinking in DCE programs (Kirschner & van Merriënboer, 2013). Additionally, the issue of developing critical thinking skills among preservice teachers is a global concern exacerbated by the ongoing digital revolution. This deficiency hampers teachers' capacity for deep learning and critical thinking within digital learning environments (Madsen, Thorvaldsen, & Sollied, 2021). On the other hand, teachers' high perceptions of digital ethics among Lebanese educators shows that they value moral conduct online. High degree of digital ethics among educators increases the stability of personal potential in the educational process (Shmyreva, 2021). Teaching digital ethics in school education can increase students' digital competence, improve their ability to use digital and connected technologies for learning, and help them live a good life (Ott & Tiozzo, 2022).

This study's results indicate that teachers' perceptions of digital rights and responsibilities are unsure which aligns with Elmali et. al (2020) who observed misconceptions among teacher candidates regarding digital rights and responsibilities. These misconceptions may indicate gaps in understanding or awareness in certain areas related to digital. These misconceptions could manifest as misunderstandings or incomplete knowledge about the ethical use of digital resources, online privacy, intellectual property rights, and the legal aspects of digital interactions.

This study also revealed that teachers' perceptions of digital critical thinking, security, and participation are also uncertain. This is an alarming result since digital critical education fosters holistic digital citizenship by enabling individuals to access, analyze, evaluate, and produce media content and communication in various forms, regardless of platform or tool (Fréchette, 2015).This also aligns with Talib (2018) recognizing that digital education is crucial for preparing students to manage the predominance of social media in their lives.

Moreover, the questionnaire results indicate that teachers have high perceptions of digital trade. However, in the interviews, participants didn't mention any notion related to digital trade.

The difference between the survey results and the interview outcomes concerning how teachers view digital trade raises questions about what might be causing this inconsistency. While the survey, which involved 214 teachers indicates a view of digital trade within the teaching community the absence of any discussion on digital trade in interviews with 11 teachers presents a different viewpoint. This contrast prompts a closer examination of several factors. Firstly, it is essential to consider the context in which the questionnaire and interviews were conducted. The questionnaire, being a quantitative tool, may have prompted respondents to indicate their perceptions based on predefined categories, including digital trade, without much elaboration or reflection. In contrast, the interviews, being qualitative in nature, allowed for more nuanced discussions where digital trade might not have emerged as a prominent topic spontaneously or may have been overshadowed by other aspects of DCE. Aligning data from questionnaires and interviews in mixed method studies is challenging due to differences in data collection procedures, complexity of the construct, and potential loss of complementary data (Harris, 2010).

This study also revealed that the perceptions of teachers' digital citizenship and its elements did not show a significant variation by their age except on digital skills where millennial teachers (26-41 years old) exhibit more positive and higher perceptions of digital skills than the gen X and boomers II teachers. This is consistent with the results of the study of Fernandez Cruz and Fernandez Diaz (2016), which found that teachers who are younger generally have a higher level of expertise in using information and communication technology (ICT) in their teaching practices compared to teachers who are older. Similarly, a study done by Sanchez et al. (2021) reached the same conclusion that younger teachers tend to have a higher competency in digital skills than older ones. This result also aligns with the findings of a study done by Hakdar et. al (2022) that shows that there was no significant difference between the age variable and digital citizenship perceptions of teachers.

The results imply that teachers' perceptions of digital communication and skills are positively correlated with their educational attainment. According to the study, teachers with higher degrees of education are more likely to be more proficient in digital skills and communication than teachers with lower levels of education. This finding is consistent with (Sánchez-Cruzado, Santiago Campión, & Sánchez-Compaña, 2021) who discovered that teachers with higher educational attainment reflected a higher perception of digital skills. However, this

was not evident in (Fernández-Cruz & Fernández-Díaz, 2016) where there was no significant difference among teachers with different educational attainment and their digital skills. Teachers with high educational attainment have higher digital communication skills, which are essential for successful professional educational activities (Honcharuk & Honcharuk, 2021).

The result that Lebanese teachers with high educational attainment have higher digital communication skills is significant because digital communication, which refers to the capacity to communicate effectively online, is a key facet of digital citizenship. It is encouraging that respondents with greater levels of education had more favorable and advanced perceptions of digital communication abilities since it suggests that education can be a significant factor in fostering digital citizenship (Hollandsworth, Dowdy, & Donovan, 2011). Teachers with greater levels of education may use digital communication at higher rates for 2 reasons. First, teachers with higher levels of education may have been exposed to more digital technologies during their academic and professional training (Pinto & Leite, 2020; Yeung et al., 2014), which may have resulted in better comfort and familiarity with these technologies. Second, having higher educational attainment may indicate stronger levels of general cognitive capacity (Calvin, Fernandes, Smith, Visscher, & Deary, 2010), including analytical and problem-solving abilities, which may transfer into greater competence with digital communication technologies.

This study also indicates that teachers with various levels of teaching experience do not significantly differ in their perception of digital citizenship and its elements except for digital skills. Particularly, it was discovered that teachers with more experience—more than 30 years—had lower perceptions of digital skills than educators with less experience. This aligns with the previous finding of this study stating that Millennial teachers (26-41 years old) exhibit more positive and higher perceptions of digital skills than the Gen (43-58 years old) and Boomers II (59-68 years old) teachers as teachers with more than 30 years of experience are above 48 years old assuming that the minimum eligible age to teach in Lebanon in 18 years. This can be because of a lack of exposure to modern technology or an unwillingness to adopt innovative teaching strategies that include digital skills. Teachers' digital skills may be influenced by their attitudes toward education. A teacher is more likely to stay current with new technologies and advance their digital skills if they believe in employing modern teaching techniques. However, a teacher may be resistant to change and less likely to advance their digital skills if they believe in using

traditional teaching methods (Alanoglu, Aslan, & Karabatak, 2022). Resistance to change among teachers slows down the implementation of educational reforms and this emphasizes the importance of understanding technology resistance causes, and possible remedies (Hamlaoui, 2020).

The teachers' perception of digital citizenship and all its elements did not show a significant difference based on digital citizenship training workshops received. The results imply that teachers' perceptions of digital citizenship and its elements may not be significantly impacted by participating in digital citizenship training programs. This clearly contradicts many previous studies that emphasize the role of professional development in improving teachers' DC. (Avalos, 2011; Du & Meier, 2023; Snyder, 2016). It is crucial to remember that this outcome could be affected by the caliber of the workshops attended and the perception of teacher participation in the workshops. Therefore, more research is required to fully understand how well teachers' digital citizenship skills are improved by workshops on digital citizenship and whether the workshops meet the real needs of the trainees. Yehya (2021) suggests that some ministries of education focus primarily on acquiring hardware or technology, while neglecting the importance of supporting infrastructure and providing adequate professional development opportunities for teachers.

4.4.2 Perceptions of what constitutes Digital Citizenship

The study's conclusions show that educators have various ideas on what constitutes digital citizenship, emphasizing the necessity for a clear and widely accepted definition of the word. Responsibility, effective technology use, respect, and anti-cyberbullying were highlighted as important values and standards by the study's teachers, who also emphasized the significance of moral and ethical principles in digital citizenship. A sense of nationalism and allegiance can be seen in the emphasis placed on doing one's duty to one's country in the digital world. Digital technologies reproduce our sense of belonging to a world of nations. Additionally, teachers recognized the importance of engaging in various online activities, internet domains, algorithm bias, and the formation of national digital ecosystems. Teachers may encourage their students' responsible and ethical online behavior by fostering a common understanding of the values and principles of digital citizenship. This is consistent with an earlier study (Fraillonet al., 2018) that

highlighted the importance of DCE for promoting responsible online conduct and safeguarding people's privacy and security.

Furthermore, the results imply that teachers' idea of digital citizenship encompasses both active participation in the virtual world and ethical behavior. This is in line with the notion of "digital citizenship," which Ribble and Bailey (2007) defined as "a set of competencies and skills that enable individuals to participate effectively in the digital society". This study's conclusions showed that different teachers had different views on digital citizenship. One common view was that practicing good citizenship in the digital age entailed upholding ethical norms and standards including responsibility, respect, and non-offensiveness. Many educators also held the view that good technology use and anti-cyberbullying conduct are essential components of digital citizenship. Some educators stressed the value of respecting others' viewpoints and doing one's duty to one's nation.

The teachers' focus on values such as responsibility, effective technology use, respect, and anti-cyberbullying highlights the moral and ethical dimensions of digital citizenship. Their mention of fulfilling one's duty to one's country underscores a sense of nationalism and loyalty in the digital realm (Mihelj & Jiménez-Martínez, 2020). Additionally, their emphasis on presence in the virtual world and participating in online activities like gaming, research, and browsing the web reflects the increasing importance of digital literacy and competence in contemporary society. Teachers emphasized the importance of active participation in digital society and the virtual world through activities such as gaming, research, and web surfing. The findings align with Sansone and Hakkarainen (2017) who indicated that teachers recognize the importance of individuals actively engaging in digital society, fostering knowledge-creating competencies and promoting collaborative creation and sharing of activities, media, and knowledge. However, the varying interpretations of "digital citizenship" among teachers indicate the need for comprehensive and standardized education and training on the subject. Teachers can support students' responsible and ethical online behavior by fostering a shared understanding of the values and principles of digital citizenship (Al-Abdullatif & Gameil, 2020).

4.4.3 Perceptions of DCE

According to the interviews, teachers view DCE as an essential part of their job descriptions, with a particular emphasis on training students in responsible technology use and virtual world citizenship. This implies that educators view themselves as key players in helping students develop into responsible digital citizens. It is noteworthy how much emphasis is placed on equipping students with the knowledge, skills, and attitudes required to be responsible online citizens, as this emphasizes the necessity of integrating DCE into the curriculum. Additionally, the teachers' focus on enhancing good citizenship standards like responsibility, morality, and respect emphasizes how crucial DCE is to encourage appropriate conduct and attitudes online. Some of the teachers also mentioned including virtual world activities in DCE, which may indicate that using hands-on learning opportunities to teach digital citizenship is a successful strategy. Furthermore, integrating these activities can help students develop critical thinking skills and a deeper understanding of the digital world, promoting a more comprehensive and practical approach to digital citizenship education. This highlights the need for continuous professional development and curriculum updates to ensure teachers are equipped with the necessary tools and strategies to effectively implement DCE in their classrooms.

4.4.3.1 Whose responsibility is it to teach DCE?

DCE requires a village approach, involving teachers, administrators, and parents to promote responsible behavior and prevent problematic student conduct (Hollandsworth, Dowdy, & Donovan, 2011). Regarding the responsibility of teaching DC, the teachers had a variety of views. Some felt that regardless of the subject they teach, all teachers should be active and teach digital citizenship. This is consistent with Yehya (2021) who sees in the process of digitally transforming schools, teachers can successfully promote students' use of digital technologies and engage them in worthwhile learning activities to achieve curriculum goals in addition to their duty to inform students on the value of cybersecurity and how to protect their online privacy. Other participants held that teaching students about digital citizenship is the responsibility of both parents and teachers. This aligns with Rodriguez-Brown and Albom (1999) who consider parental participation as a crucial element for the success of learning and to participate in the educational revolution, communication must be opened up between parents, instructors, and students. Parents can educate their children about responsible technology use and digital

citizenship, which can help address cyberbullying, sexting, and security concerns (Copeland, 2020).

Other participants stated that there should be specialized teachers, namely civics teachers, for DCE as an independent subject matter. This contradicts with Common Sense Media curriculum (2011) that integrates DCE in all subject matters in an interdisciplinary approach. Some teachers thought that technology (IT) teachers are best qualified to teach digital citizenship. This aligns with Pettersson (2020) who argues that IT teachers must assist educators and instructors in showing their plans and potential in a digital learning environment so that they can accomplish their learning goals. Yehya (2021) finds that providing support and bridging the gap between modern technology and successful teaching methods can be the responsibility of the IT department. Overall, the findings imply that schools need a comprehensive strategy that involves all teachers and a well-equipped IT department to support the integration of technology in the curriculum in order to ensure that children receive adequate teaching on digital citizenship.

It is noteworthy that none of the teachers mentioned the role of the school counselors and librarians in teaching DC and this reflects the underestimation of the role of both in implementing DCE according to Lebanese teachers. School counselors promote responsible use of technology in collaboration with families and educators to increase student safety and promote digital citizenship (Dorn-Medeiros, 2021). Furthermore, librarians play a central role in developing digital literacy initiatives, promoting critical and ethical engagement with information, and fostering collaboration in higher education institutions (Copenhaver, 2018). According to Everhart (2014), school librarians play a role in teaching digital citizenship, which includes self-image, identity, internet safety, digital footprint, privacy, information literacy, cyberbullying, and creative credit. Librarians promote information literacy within digital humanities by offering workshops on digital research tools, teaching critical evaluation skills, and providing guidance on copyright and intellectual property (Makwana & Gadhavi, 2023). Thus, acknowledging the roles of school counselors and librarians can enrich the implementation of DCE and contribute to a more holistic approach to DCE.

4.4.3.2 What is the significance of DCE?

The study explored the factors that make DCE important in Lebanon. Participants cited a number of factors supporting the necessity of DCE. Students' ignorance of their rights and responsibilities online and potential risks associated with the internet were highly emphasized by teachers. This is consistent with many previous studies which show that Lebanese teachers are aware of the negative impacts of online risks such as cyberbullying (Ghamrawi, Ghamrawi, & Shal, 2016). Lebanese students are exposed to pornography and internet addiction (Hawi, 2012). Learners must be informed about the dangers of engaging in online activity as well as the methods that stakeholders can employ to advance cybersecurity education in schools (Rahman, Sairi, Zizi, & Khalid, 2020). Teachers also expressed the requirement for digital critical thinking abilities, especially while identifying reliable resources. Publications on information literacy have emphasized the importance of informing the public about how to spot fake news and the advantages of having digital critical thinking as a life skill (Taala, Franco Jr, & Teresa, 2019).

The difficulties presented by the Lebanese crisis and the COVID-19 pandemic were the main concerns of teachers. A report published by the World Bank (2021) assures that in the current socioeconomic crisis, Lebanon's education sector is under a lot of stress. This load has only increased as a result of the explosion at Port of Beirut and the COVID-19 pandemic, making the education sector desperately in need of creative solutions to the problems it faces. Participants also underlined how crucial it is to give children the skills to build a respectful reputation online since all what an individual posts online, particularly on social media, becomes a part of their digital footprint. This includes everything like images, files, cookies, browsing data, passwords, etc. Students need to understand how every digital footprint they make affects both their social and digital reputation as well as their social and digital identity (Karabatak & Karabatak, 2020).

The participants also emphasized the necessity of parents and educators working together to support students in navigating the digital environment. It is the responsibility of teachers to help students and teachers understand the advantages and risks of digital technology (Yehya, 2021). The participants agreed that teaching children about digital citizenship is crucial in the Lebanese context because it can give students the information and skills they need to use the internet safely and responsibly. This is consistent with the finding of a recent study done in Lebanon that suggests that both high school and university graduates face major obstacles related

to technology and digital literacy, namely specific challenges were writing appropriate emails, using laptops or computers, doing research using search engines, creating multimedia presentations, and using software programs like Microsoft Word and Excel (Joukoulian, 2021).

4.4.3.2 What are teachers' expectations for future support?

Teachers widely agree on the importance of participating in training workshops that specifically target DCE (DCE). These workshops are viewed as crucial in providing teachers with the required expertise and abilities to effectively instruct students on different elements of DC. Workshops for enhancing teachers' awareness of DC successfully heightened their attention to digital law, commerce, and safety and security (Chong & Pao, 2021). This also aligns with Elsayary (2023) who indicated that an upskilling training program effectively developed teachers' digital competence. Educators stress the significance of training to remain informed about trends and approaches, in implementing DC's different elements in their classrooms. This highlights the importance of training Pre-service classroom teachers who need more training in its sub-dimensions before beginning their careers (Kansu & Öksüz, 2019).

Teachers also highlight the need for additional time dedicated to DCE within the school curriculum. They suggest allocating 2 to 5 hours per week for extracurricular activities related to DCE to ensure comprehensive coverage of digital citizenship topics without compromising other educational objectives. Moreover, teachers stress the importance of having access to pre-made lesson plans and resources to streamline the teaching process and maximize instructional time. Since in Lebanon the curriculum is still outdated, there is no time nor resources within the curriculum allocated to DC, teachers find themselves struggling to integrate DCE in their teaching practices. Farmer (2021) indicated that DC in schools is interdisciplinary and involves curriculum, standards, learning resources, and implementation for the school community. Integrating digital literacy and digital citizenship into curriculum and course designs is crucial for making global citizens at all levels of education (Gazi, 2016). The concept of citizenship is evolving in the 21st century due to globalization and social media, requiring a broader curriculum for DCE. (Law, Chow, & Fu, 2017).

The participants in this study expressed that adequate access to dependable internet connection and technology tools is essential for the effective delivery of DCE. Teachers

emphasize the necessity of computers, tablets, and internet access to facilitate interactive and engaging learning experiences that prepare students for the challenges of the digital age. This aligns with the study that indicated that the pervasive accessibility of the Internet and rise of social media create opportunities for empowerment and connectedness, influencing the concept of citizenship and its implementation in education (Law, Chow, & Fu, 2017).

Teachers advocate for collaborative efforts between schools and parents to raise awareness of digital citizenship principles. This aligns with Hollandsworth et. al (2017) who stated that there is a need for improved digital citizenship awareness by parents. They stress the importance of involving parents in discussions about online safety and responsible digital behavior to ensure consistency in messaging and reinforcement across home and school environments. This also aligns with previous finding of this study where teachers consider parents as key players in teaching DC to their kids. Teachers believe that parental involvement is critical for instilling positive digital habits in students and fostering a supportive online community. This finding aligns with the study done by Martin et al. (2020) which emphasized the need for parental monitoring and teaching at both school and home to help students implement digital citizenship practices. Morgan (2020) also shed light on the importance of parental engagement and involvement in parent-school relationships for ensuring the safety and physical and mental health of children in DCE. Parents play a crucial role in DCE by fostering a positive relationship with their children and promoting responsible use of technology (Burridge, 2010).

Some teachers advocate for the allocation of a dedicated technology teacher to provide ongoing support and guidance for digital citizenship education (DCE) implementation. This supports previous findings that IT teachers are seen as primarily responsible for teaching DC (Hollandsworth et al., 2011). Technology experts can assist students in becoming better digital citizens by addressing awareness and education gaps in K-12 schools (Hollandsworth et al., 2011). Despite teachers' high perceptions of their digital skills, it is important to distinguish between these skills and the comprehensive understanding required for effective DCE implementation. The technology curriculum in Lebanon typically focuses on teaching basic digital skills, such as operating computers and using applications like Microsoft Word (MEHE, 2012). However, digital citizenship involves broader concepts beyond technical proficiency,

encompassing online safety, digital ethics, and responsible digital behavior (Al-Dahshan & Al-Fuwaihi, 2015). Therefore, teachers recognize the specialized expertise of technology teachers in addressing the complexities of DCE and integrating it into the curriculum. By offering expert assistance and resources, a technology teacher could play a pivotal role in promoting effective DCE practices across the school community. Creating specialized support roles, such as technology teacher mentors or digital citizenship coordinators, can provide targeted assistance to educators in implementing DCE initiatives. Policy makers should allocate staffing resources and define roles and responsibilities to ensure that schools have dedicated personnel to support DCE implementation. Furthermore, collaboration with educational researchers and professional associations can inform the development of evidence-based practices and resources to guide the work of these specialized support roles. In summary, by addressing teachers' expectations for future support in DCE implementation, policy makers, school administrators, parents, and technology specialists can collaboratively create a supportive ecosystem that empowers educators to deliver comprehensive DCE programs and prepares students for responsible digital citizenship in the digital age.

CHAPTER 5

CONCLUSION

5.1 Conclusion

This study aimed to identify the Lebanese teachers' perceptions of digital citizenship and its elements and explore the relationship between the DCE training workshops received and their perception of digital citizenship. In addition, the study aimed to investigate the teachers' perceptions of DCE and the teachers' expectations of future support for effective implementation of DCE. Three research questions guided this study and the answers to each of the questions are presented below.

5.1.1 RQ1: How do Lebanese Teachers' perceptions of DC and its elements vary according to their demographic factors (age, educational level and teaching experience)?

The Lebanese teachers' perception of digital citizenship is unsure. Regarding its elements, the teachers' perception of digital communication is low, while their perceptions of digital ethics, digital skills and digital trade are high and their perception of digital rights and responsibilities, participation, security and critical thinking is unsure. The study explored the differences in the perception of DC and its elements in terms of some of the participants' demographic factors (age, educational attainment and teaching experience)

5.1.1.1 The effect of age on teachers' perception of DC:

The results show the perceptions of teachers' DC and its elements did not show a significant variation by their age except on digital skills such that Millennial teachers and Gen Z exhibit more positive and higher perceptions of digital skills than the Gen X and Boomers II teachers.

5.1.1.2 The effect of educational levels on teachers' perception of DC

The study reveals that there is no significant difference in the overall perceptions of DC across the educational levels except for the elements digital communication and digital skills. Teachers whose educational attainment is higher had more positive and higher perceptions of digital communication and skills than the teachers who have lower educational attainment to reach its minimum for those with no university certificate.

5.1.1.3 The effect of teaching experience on the teachers' perceptions of DC

The teachers' perceptions of DC and its elements did not show any significant difference across teaching experience except for digital skills such that teachers with over 30 years of experience held less positive and lower perceptions of digital citizenship skills compared to teachers with less experience.

5.1.2 RQ2: What are the Lebanese middle school teachers' perceptions of DCE?

Teachers in Lebanon view DCE as a crucial part of their duties in the classroom. They believe that DCE is essential to preparing students to behave responsibly online and as decent citizens in the digital age. This emphasizes how important it is to incorporate DCE into the curriculum in order to provide students with the information, abilities, and mindset needed to behave responsibly online.

Teachers disagree over who should be in charge of DCE. Some teachers think that all educators, no matter what subject they teach, ought to actively promote digital citizenship. Others emphasise the value of parental involvement in promoting safe technology use and feel that educators and parents share this duty. There are also many who believe that DCE should be

taught by specialists, such IT or civics teachers. However, school counselors and librarians are generally overlooked in this context, indicating a potential gap in utilizing their expertise in promoting DCE.

The necessity of addressing students' lack of awareness of their online rights and duties and the dangers of internet use highlights the importance of DCE in Lebanon. Teachers stress the value of helping students build their digital critical thinking abilities so they can recognise trustworthy sources and steer clear of online hazards. The ongoing Lebanese crisis and the impact of the COVID-19 pandemic further highlight the urgency of implementing effective DCE to support students in navigating the digital world safely and responsibly.

In conclusion, Lebanese educators support a cooperative approach involving all educators and parents to provide comprehensive and successful digital citizenship education for kids, viewing DCE as an essential component of their teaching position.

5.1.3 RQ3: What impact do DCE training workshops have on teachers' perceptions of digital citizenship?

The Lebanese teachers' perceptions of digital citizenship and its various elements did not exhibit a significant difference based on whether they had received digital citizenship training workshops, suggesting that factors beyond workshop attendance, such as ongoing professional development opportunities and school support, may also influence their understanding and integration of digital citizenship principles into their teaching practices.

5.1.4 RQ4: What are the teachers' expectations of future support for a better digital citizenship education implementation?

Teachers have a number of expectations for future help in integrating DCE (DCE) into their teaching practices, based on the analysis of the data. Teachers emphasized the need to be well-versed in the most recent trends and methodologies in order to effectively teach DCE to their pupils. They stated a great demand for DCE training and workshops. Also, many teachers felt they needed more time to adequately teach DCE, including time for extracurricular activities and extra classes during the school day. To save time on planning and preparation, some teachers

also stated that they would like access to lesson plans that have already been created. In addition, teachers stressed the significance of having dependable access to technological resources, including computers, tablets, and internet connections, to effectively teach DCE. Furthermore, teachers stressed the significance of working together with parents to ensure that pupils receive a thorough education about DCE. Some teachers indicated the need for a specialized technology teacher to offer assistance and direction to both teachers and students in order to adopt DCE successfully.

Results indicate that teachers understand the value of DCE in preparing students for the digital world, but they need more assistance and materials to put it into practice in their classrooms. By addressing these needs, schools might better implement DCE and encourage kids to use technology responsibly. This could be done by providing training, more time, access to technological tools, parent collaboration, and assistance from technology teachers.

5.2 Limitations of the study

Although self-reported data is frequently utilized in social science research, it has some drawbacks. Social desirability bias, which happens when participants answer questions in a way they believe to be socially acceptable or anticipated rather than expressing their genuine thoughts or behaviors, is one of the key issues (Fernandes & Randall, 1992). To look knowledgeable in their area or to avoid coming off as incompetent, teachers in the context of this study might exaggerate their expertise with or knowledge of digital citizenship. This may provide erroneous results and compromise the validity and dependability of the study's conclusions.

The fact that participants can have trouble remembering or accurately reporting their experiences, especially if they happened in the past, is another possible drawback of self-reported data (Moller et al., 2013). If the study depends on retrospective data, such as the participants' memories of their DCE training sessions, this can be extremely troublesome. Participants may misremember certain details, or their memory may be skewed by their present beliefs or perspective on digital citizenship.

As a result, it is crucial to acknowledge that the results of this study regarding the association between DCE training workshops and teachers' digital citizenship skills should be interpreted cautiously. Future research should aim to account for additional factors that could affect teachers'

digital citizenship skills such as ongoing support from school administration, availability of digital resources and technology infrastructure, and the integration of digital citizenship into the broader curriculum.

5.3 Implications and Recommendations that emerged from the study

This research offers insights into how teachers in Lebanon view digital citizenship (DC) and what kind of support they anticipate for its implementation in the future. The study's findings provide recommendations that can influence policy making, teaching methods and further research concerning citizenship education (DCE).

The emphasis on training workshops underscores the importance of ongoing professional development for educators. Policy makers can collaborate with educational organizations and technology experts to design and implement tailored training programs that equip teachers with the knowledge, skills, and resources necessary to effectively integrate DCE into their teaching practices. By investing in professional development opportunities, policy makers can empower teachers to navigate the complexities of digital citizenship and stay abreast of emerging trends and best practices in online safety and responsible digital behavior and incorporating digital citizenship principles into their teaching approaches.

Additionally, the research underscores the significance of integrating citizenship education within the educational framework. Policymakers and educators can leverage these findings to create and execute DCE initiatives that cater to students' needs while aligning with teachers' perspectives and expectations. Emphasizing DCE guarantees that students gain skills and knowledge to navigate the internet securely and responsibly promoting a conscientious and secure use of digital technologies, among Lebanese students. The study's conclusions propose establishing tailored DCE programs that cater to teachers of all ages and educational backgrounds.

The call for the allocation of extra time within the curriculum highlights the need for dedicated instructional time to address digital citizenship concepts comprehensively. Policy makers can work with curriculum developers to integrate DCE into existing subject areas or allocate specific time slots for standalone digital citizenship lessons. Additionally, policymakers

can advocate for the inclusion of digital citizenship objectives in educational standards and assessment frameworks to ensure accountability and alignment with learning goals.

The provision of technology resources, such as reliable internet connectivity and digital devices, is essential for delivering effective DCE instruction. Policy makers can allocate funding for infrastructure improvements and technology upgrades to ensure equitable access to digital learning resources for all students. Moreover, partnerships with technology companies and community organizations can facilitate the provision of subsidized or donated devices and software licenses to schools in need. Collaboration with parents is vital for reinforcing digital citizenship principles beyond the classroom. Policy makers can support parent education initiatives that provide resources and guidance on promoting responsible technology use at home. Additionally, schools can establish communication channels, such as newsletters, workshops, and online forums, to facilitate ongoing dialogue between educators and parents about digital citizenship strategies and challenges.

The research indicates it is crucial to offer development opportunities to all teachers to improve their literacy skills. Bridging the gap in communication and skills between teachers with education levels and those without degrees is essential for ensuring that all educators have the necessary digital competencies for effective teaching. Furthermore, the study underscores the importance of development for experienced teachers especially considering their lower perceptions of digital citizenship skills particularly in terms of digital abilities. It is recommended to include courses on citizenship education in teacher training programs and university curricula to prepare educators with the knowledge and skills required to incorporate digital citizenship lessons into their teaching effectively.

In conclusion, this study's results underscore the need for strategies to promote the integration of citizenship education in Lebanese schools. By implementing the suggestions mentioned above, stakeholders, education can strive towards nurturing a responsible generation capable of navigating the complexities of the digital world confidently and ethically.

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APPENDIX 1: Questionnaire

Dear Teachers,

The purpose of this questionnaire is to gather information about teachers' perceptions of digital citizenship education. Your participation is voluntary, and your responses will remain anonymous and will not be used in any way for evaluation.

Thank you for your time and careful consideration as you complete each section.

Section 1 Demographic Information

These questions are about you, your education and the time you have spent in teaching. In responding to the questions, please mark the appropriate choice(s).

1.What is your age group?

a) 18 - 25
b) 26 - 41
c) 42 - 57
d) 58 - 64

2. What is your gender?

a) Male
b) Female

3. What type of school are you teaching in?

a) Public
b) Private
c) Both

4. How long have you been teaching?

a) 1 - 5 years
b) 6 - 10 years
c) 11 - 15 years
d) 16 - 20 years
e) 21- 30 years
f) More than 30 years

5. What is the highest level of your university education?

a) Teaching Diploma
b) Bachelor's degree
c) Masters Degree
d) Doctorate Degree
e) I do not have a university degree

Section 2 Training

These questions are about your training in this field. In responding to the questions, please mark the appropriate choice(s).

7.What is the number of training workshops related to digital citizenship you have received?

a) 0
b) 1
c) 2
d) 3
e) 4
f) 5
g) More than 5

8. What is (are) the dimension(s) that you feel you need training in?

a) Digital access
b) Digital commerce
c) Digital communication
d) Digital literacy
e) Digital ethics
f) Digital laws
g) Digital rights and responsibility
h) Digital health
i) Digital security
j) All of the above

Section 3 THE DIGITAL CITIZENSHIP SCALE (DCS)

Indicate your level of agreement with the following statements (5) Strongly Agree, (4) Agree, (3) Undecided, (2) Disagree, (1) Strongly Disagree

Items of DCS

Digital Communication

1. I don't mind everyone seeing what I share on social media.
2. I send images, videos or information to someone I don't know.
3. If my comments were responded to with bullying and rude comments, I respond in the same way.
4. I like sharing everything I do on social media (Facebook, twitter, etc.).
5. I communicate on digital platforms with people I don't know.
6. I use abbreviations (wb, omg, ok, etc.) in my text on digital platforms.

Digital Right and Responsibilities

1. I report the situations that bother me on digital platforms to the respective department.
2. I stay away from all kinds of insulting things in digital media.
3. I am aware that my freedom is over where someone else's freedom begins when it comes to communication on the Internet.
4. I don't know exactly the rights I have on digital platforms.
5. I display behaviors that I do not embrace in real life by hiding my identity on the Internet.
6. I don't access websites with inappropriate content (racism, bigotry and vulgarity).
7. I access blocked websites in different ways.

Critical Thinking

8. Internet is a reliable source for economic, political and social issues.
9. I participate in campaigns on digital platforms after searching in detail..
10. I use internet platforms to criticize issues that I consider unfair.
11. I accept without question the accuracy of the information I read digitally.
12. I do not investigate the accuracy of the information which is shared by my friends.
13. The information I read on digital platforms influences my thoughts and decisions in daily life.
14. I use shared information (repost, retweet, share the post) without investigating the accuracy of this information.

Digital Participation

15. I support social, economic, and cultural campaigns initiated through digital platforms.
16. I contact official institutions through the Internet about the issues I consider important.
17. I collaborate with other people on digital platforms for problems concerning my city, my country or the world.
18. I use my right to obtain information from the official websites of official agencies.
19. I use social media to express my thoughts related to issues I consider important.

Digital Security

1. I share my personal information with people I don't know on online platforms.
2. I click on all kinds of links that I receive on digital platforms.
3. I use an anti-virus program for my security on digital platforms.
4. I download all kinds of programs I need from digital platforms.
5. I usually use the same passwords on digital platforms.
6. I get together in real life with people I meet on digital platforms.

Digital Skills

7. I can edit my personal settings in my social accounts.
8. I can easily use digital tools (computers, smart phones, etc.) for my needs.
9. I can easily access the information I need over the Internet.
10. I can download and use the applications / programs I need from digital platforms.
11. If I have a problem with digital tools, I can solve it myself.

Digital Ethics

12. I use someone else's ideas and thoughts without citing them.
13. I am aware of copyright infringement situations.
14. I use the content and information of others (images, articles, graphics, etc.) without obtaining permission.
15. I only install or download copyrighted works such as games, music, and films after paying the copyright.

Digital Trade

16. I prefer the website with the cheapest product.
17. I do shopping on digital platforms.
18. I take into account reviews when I choose or not choose a product.
19. I make sure that the websites I shop on are institutional and reliable.
20. I note details of the websites I shop on (name, phone, address, price).
21. I prefer to do a price search on the Internet before purchasing a product from digital platforms.
22. I am aware of my rights about shopping I do/ will do in digital platforms.

APPENDIX 2: Consent Form

UNIVERSITY OF BALAMAND

Faculty of Arts and Social Sciences

Dear Educator,

I am conducting a study on Digital Citizenship Education (DCE) among Lebanese middle school teachers. The purpose of this research is to explore your perceptions of Digital Citizenship and Digital Citizenship Education and your future support expected for a better implementation of Digital Citizenship Education.

You are invited to participate in a recorded interview to discuss your perceptions and experiences with Digital Citizenship and Digital Citizenship Education. The interview will be conducted at a time and place convenient for you and will take approximately 20 to 30 minutes. The recording will be used for transcription and analysis purposes only. There are no anticipated risks associated with participating in this study. The benefit of participating is contributing to research on an important topic in education. Your identity will remain confidential. Any personal information collected will be stored securely and only accessible to the researcher and the thesis supervisor. Participation in this study is voluntary. You may withdraw at any time without penalty. Your decision whether or not to participate will not affect your current or future relations with the me or your institution.

If you have any questions about the study or your rights as a participant, you may contact the principal investigator, Fatin Sleem at faten_sleem@hotmail.com

Thank you for considering participation in this study.

Permission to Record:

I give my permission for the interview to be recorded.

Contact Information:

Participant's Signature: _____

Date: _____

By signing this form, you acknowledge that you have read and understood the information

provided above and agree to participate in the study under the terms described.

APPENDIX 3: Teacher's Interview Protocol

I. **Background information**:

- How long have you been teaching?
- What is your educational attainment?
- What subject do you teach?
- Which school sector do you teach in?

II. **Perceptions**

- How would you define digital citizenship and digital citizenship education?
- Should teachers be responsible for teaching digital citizenship? Why or why not?
- Who should be responsible for teaching digital citizenship?
- Why is it important to implement digital citizenship education today, particularly for Lebanese students?

III. **Future Expectations**

- What are the difficulties that you face or expecting to face during the implementation of the digital citizenship education?
- What kind of support do you expect to receive to overcome these difficulties and who is responsible to provide such support?