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Digital Citizenship Competencies in Pre-School Settings: The Views of Early Childhood Teachers

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Abstract

The study aimed to examine early childhood teachers' perspectives on digital citizenship competencies in Jordan. It also identifies the influence of some variables on their perspectives of digital citizenship competencies. The study surveyed 91 early childhood teachers, gathering information about their views of the level of digital captainship competencies in Jordanian preschool settings. Later, semi-structured interviews were conducted with 10 teachers. The results showed that the overall level of teachers' digital citizenship competencies was moderate. However, teachers had a high level in one digital citizenship dimension "Resection Dimension". Moreover, the results indicated that teachers' age influenced the levels of digital citizenship competencies as older teachers reported a high level of digital citizenship competencies compared to their younger counterparts. The study's conclusion included the proposal of various suggestions and recommendations relevant to the field.

Keywords: *Digital citizenship, early childhood, preschool settings, Jordan.*

Introduction

Digital citizenship competencies represent crucial requirements for nowadays information and commotion technology users. The availability of information and commotion technologies, the emergence of new technologies, and the rapid growth in the number of users of these technologies made the concepts of the digital divide" or "digital inequality concepts of the past in great parts of the world. At present, it is more reasonable to talk about ways the users of information and communication technology would use such technologies.

The current popular information and communication technologies provide users with great potential to be a creator of digital content rather than a receiver of such content. An example of such technologies is Web 2.0 technology in the forms of Twitter, blogs, YouTube, Facebook, Wikis, and much more. Such technologies allow users to share texts, photos, and videos. In addition, these technologies allow social networking. Besides sharing, such technologies allow users to express their thoughts through the use of either writing or verbal format using blogs, podcasts, and social media. Web 2.0 technologies enable users to collaboratively generate diverse forms of media, including content creation in wikis and multimedia production. Nowadays educational systems, schools, and universities are relying on digital technologies for information sharing and communication for educational

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purposes. Such reliance on digital technologies for information sharing and communication for educational purposes is reinforced by the appearance of the Covid-19 pandemic. Therefore, the reliance on information and communication technology for education requires qualified educators who can deal with and inspire students to deal with the digital world morally. Early childhood teachers should be qualified to teach digital citizenship competencies to their early ages students (Lauricella, Herdzina, & Robb, 2020), what the students learn at an early age stay with them all life.

Background of the study

The new technological capabilities; come with new responsibilities for their users. Such responsibilities are strongly associated with the users' behaviors in the digital world. Therefore, the users of information and communication technologies should be aware of the ethical and moral norms that govern the use of information and communication technologies. Stakeholders should design and implement comprehensive plans to provide the users of information and communication technologies with the required knowledge and skills to be digital citizens. However, teachers should be given extra attention when it comes to providing the users of information and communication technologies with the knowledge and skills to be digital citizens. Teachers set models for their students in their behaviors and they are responsible for teaching their students about the norms that govern their behaviors in the digital world.

The criteria that govern the behaviors of people in the real world are similar to the ones that govern their behaviors in the virtual environment. Therefore, the terms such as digital citizenship, digital terrorism, and digital etiquette have been evolving and concerning stakeholders on all levels. Mastering digital citizenship competencies is becoming critical for all ICT users. Digital citizenship can be described as a set of accepted norms and responsible behaviors related to the use of information and communication technologies (Ribble, 2012). Simsek and Simsek, (2013) presented another definition of digital citizenship as The competencies and understanding required to thrive in the evolving landscape of social media, where traditional roles of producer and consumer are blurred, and the boundaries between public and private realms pose novel ethical dilemmas and prospects for children, adolescents, and adults. However, the International Society for Technology in Education, (ISTE) (2022) proposed what it does mean for an educator to be a citizen in the digital world. Educators play a vital role in guiding students to be responsible and active participants in the digital world. They inspire students to make positive contributions online and exhibit empathetic behavior that fosters relationships and a sense of community. Educators also create a learning culture that encourages curiosity, critical thinking, and digital literacy by examining online resources. They mentor students in safe, legal, and ethical practices with digital tools, including the protection of intellectual rights and property. Furthermore, educators model and promote responsible management of personal data and digital identity, while prioritizing student data privacy (ISTE; 2022)

The literature shows that there are several dimensions of digital citizenship. For instance, a scale for measuring digital citizenship among students and teachers consists of five dimensions that include cyber-bullying, digital footprint, digital privacy, digital netiquette, and digital identity (Martin, Gezer, & Wang, 2019). Ribble, Bailey, and Ross, (2004) propose a meaning of digital citizenship based on etiquette, communication, education, access, commerce, responsibility, rights, safety, and security. The adopted scale for measuring teachers' perceptions of their level of digital citizenship competencies consists of only three sub-scales constructed by the previously mentioned nine dimensions of digital citizenship. These sub-scales include 1. Respect Yourself/Others 2. Educate Yourself/Others3. Protect Yourself/Others (Ribble & Miller, 2013). They provide explanations of each of the nine dimensions in these scales as follows:

Respect Yourself/Respect Others

- Digital Etiquette: electronic standards of conduct or procedure.
- Digital Access: full electronic participation in society.
- Digital Law: electronic responsibility for actions and deeds

Educate Yourself/Educate Others

- Digital Communication: electronic exchange of information.
- Digital Literacy: the process of teaching and learning about technology and the use of technology. • Digital Commerce: electronic buying and selling of goods.

Protect Yourself/Protect Others

- Digital Rights and Responsibility: those freedoms extended to everyone in a digital world.
- Digital Security: electronic precautions to guarantee safety.
- Digital Health and Welfare: physical and psychological well-being in a digital technology world. (Ribble & Miller, 2013, p.141)

Reviewing the literature shows the research studies that examine digital citizenship of focus on students' awareness and competencies of digital citizenship (Isman & Gungoren, 2013; Al-Zahrani, 2015; Jones & Mitchell, 2016; Hui & Campbell, 2018; Mata-Domingo and Guerrero, 2018; Jwaifell, 2018; Jwaifell, Aljazi, & Gasaymeh, 2019), however, there is limited research that examines the issue of teachers' level of digital citizenship competencies. One of these studies was conducted in the United States, where Choi, Cristol, and Gimbert, (2018) conducted a study to investigate the digital citizenship levels of teachers and the factors that may influence these levels. A total of 348 in-service classroom teachers participated in the study by completing a questionnaire survey. The survey included various sub-scales of digital citizenship, namely technical skill, local/global awareness, networking agency, internet political activism, and critical perspective, which were used for data collection. The results showed that teachers demonstrated a moderate level of all digital citizenship sub-factors except for two digital citizenship sub-factors: Internet Political Activism and Critical Perspective. In addition, the results showed that four factors; Internet self-efficacy, years of work experience, use of SNSs for teaching, and Internet self-efficacy; had a significant impact on teachers' levels of digital citizenship.

In the last few years, the issue of Arab teachers' level of digital citizenship competencies has been investigated in research in the Arab world. For instance, in Saudi Arabia, Sari (2021) conducted a study that aimed to examine students and their teachers' level of digital citizenship competencies in a group of schools. The participants were 417 female students and teachers in intermediate and secondary schools. The researcher followed a descriptive research design in which a questionnaire instrument was used to collect data from the participants. The results showed that female students and teachers believed that they had a high level of digital citizenship skills in three examined dimensions that were respect, education, and protection. For the female teachers, there were no significant differences in their levels of digital citizenship based on their academic qualifications. Conversely, notable disparities were observed in the digital citizenship levels of female teachers concerning their years of experience, with those having over a decade of experience exhibiting higher levels of digital citizenship. In another study in Saudi Arabia, Mahrous (2018) carried out a study to assess the level of knowledge among female kindergarten teachers regarding the dimensions of digital citizenship. The research followed a descriptive research design, with a sample of 50 teachers who completed a questionnaire. The findings revealed that the level of knowledge among female kindergarten teachers about the dimensions of digital citizenship was found to be low. In another study that was

conducted in the Sultanate of Oman, Al-Maamari and Al-Wahiba (2019) conducted a study aimed to reveal the perceptions of social studies teachers in the post-basic education stage about digital citizenship. To achieve the objectives of the study; A qualitative approach was used in collecting data through semi-structured interviews. An intentional sample of (4) male teachers and (6) female teachers were selected for the interview. The results of the interview showed that the study members' perceptions of digital citizenship were unclear, although some of them succeeded in expressing some of the concepts and issues that are related to it. The study recommended the importance of spreading the culture of digital citizenship among teachers by providing training courses on how to teach digital citizenship to contribute to preparing digital citizens.

In Jordan, in a study conducted by Al-Shuwaili (2019), the perceptions of social studies teachers regarding their level of awareness of digital citizenship were examined. The study included 142 participants, both male and female school teachers. A descriptive research design was employed, utilizing a questionnaire as the data collection instrument. The findings indicated that the teachers exhibited a high level of awareness of digital citizenship. Additionally, the research revealed no significant differences in teachers' awareness of digital citizenship based on their academic qualifications, years of experience, or majors. However, there were notable differences based on gender, with male teachers exhibiting higher levels of awareness compared to their female counterparts. An examination of previous research studies confirms the significance of digital citizenship for both students and their teachers. However, it is noteworthy that the majority of research studies on digital citizenship competencies have primarily focused on students. However, there is a shortage of research studies that examine early childhood female teachers' digital citizenship competencies. The research that examined school teachers' digital citizenship competencies showed varied results that range from low to high levels of digital citizenship competencies. In addition, previous research studies showed that several variables might influence teachers' digital citizenship competencies.

Research questions

Due to the importance of teachers' behavior in the digital world and the influence of such behaviors on their students especially for students in their early ages, the current study aims to investigate early childhood female teachers' perceptions of their levels of digital citizenship competencies. In addition, the study aimed to examine differences in childhood female teachers' perceptions of their levels of digital citizenship competencies based on some variables that include age, number of years of experience, and level of education. The current study has the following research questions:

1) What are early childhood female teachers' perceptions of their levels of digital citizenship competencies?

2) What are the differences (if any) between early childhood female teachers' perceptions of their levels of digital citizenship competencies based on their age, number of years of experience, and academic qualification?

Method

The collected demographic data about the female teachers through the questionnaire instrument were age, Number of years of experience Academic qualification (Table 1).

Table 1: Descriptive Summary of Participants' Demographic Data

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	Category	Frequency	Percent
Age	22-25	12	13.2
	26-30	14	15.4
	31-35	32	35.2
	36-40	19	20.9
	41-45	5	5.5
	46-50	5	5.5
	Above 50	4	4.4
Number of years of experience	1-5	18	19.8
	6-10	25	27.5
	11-15	32	35.2
	16-20	10	11.0
	21-25	2	2.2
	Above 25	3	3.3
Academic qualification	Bachelor	78	85.7
	Master	7	7.7
	Doctorate	2	2.2

The data for this study were collected from 91 female teachers who completed a questionnaire. Among the participants, approximately one-third (35.2%; n=32) were aged between 31 and 35, slightly over one-third (36.3%; n=34) were older than 35, and slightly less than one-third (28.6%; n=26) were younger than 31. In terms of years of experience, the majority of participants (62.7%; n=57) had either 1-6 years or 11-15 years of experience. Out of the 171 participants, 78 had a bachelor's degree, only 7 had a master's degree, and only 2 had a Ph.D. degree.

Instrument

The used instrument to collect data was a questionnaire instrument and semi-structured interviews. A great part of the questionnaire was based on the proposed domains of digital citizenship competencies (Ribble & Miller, 2013). The used questionnaire instrument consisted of four parts. The first part of the questionnaire collected demographic data from participants that include age, number of years of experience, and academic qualification. The rest of the questionnaire consisted of the three sub-scales of digital citizenship competencies that include 1. Respect Yourself/Others 2. Educate Yourself/Others 3. Protect Yourself/Others (Ribble & Miller, 2013). Thirty-five questions, that followed 5-point Likert scale responses, were presented to measure teachers' levels of digital citizenship competencies. The validity of the questionnaire was checked through the use of a panel of experts who reviewed the Arabic language version of the questionnaire that was translated from the English language questionnaire. The reliability of the questionnaire was checked by finding Cronbach's alpha for the three sub-scales and the whole scale (Table 2), the values of Cronbach's alpha suggest that the scales were "good" measures (Aron, Aron, & Coups, 2005).

Table 2: Summary of Reliability Analysis

Scale	Number of scale items	Cronbach's Alpha (N =132)
Respect Yourself/Others	13	0.95
Educate Yourself/Others	9	0.90
Protect Yourself/Others	13	0.92

Whole scale	35	0.97

Concerning the interviews, the first researcher of this article conducted interviews in the schools. The interviews took place in the teachers' room at a mutually convenient time. The duration of the interviews ranged from 20 to 30 minutes.

Data collection procedure

The data was gathered using a questionnaire instrument. The early childhood female teachers were requested to complete an online questionnaire at the commencement of the first semester in the academic year of 2021/2022. The female teachers received their invitation to complete the questionnaire using WhatsApp. The researchers contacted the school administrators and asked for the contact information for the female teachers who were teaching kindergartens, first, second, and third grades. The female teachers were serving in public and private schools and kindergartens in a city in the south of Jordan. The teachers were able to complete the online questionnaire using their smartphones.

Data analysis

Data analysis was performed using SPSS 25.0 software. The demographic data of the participants were presented through frequency distributions. Means and standard deviations were utilized to convey the perceptions of female teachers regarding their level of digital citizenship competencies. Independent sample t-tests were conducted to investigate potential differences in perceptions based on age, with participants categorized into two groups: 35 years or older, and below 35 years. Analysis of Variance (ANOVA) tests were employed to examine potential differences in perceptions based on years of experience and level of education among the female teachers.

To provide a qualitative description of the perceptions of female teachers regarding their level of digital citizenship competencies, the mean scores on a 5-point Likert scale were utilized and adapted (Table 3).

Table 3: The levels of the mean scores on a 5-point Likert scale

Mean scores	Level
1 to 2.33	low
2.34 to 3.66	Moderate
3.66 to 5	High

The interviews were recorded and transcribed, and the information obtained from them was categorized based on the types of knowledge statements relevant to the research aims. Main themes were established within each category, and relevant findings were described. Quotes were used as evidence to support the themes identified.

Results and Discussion

Participants' Level of digital citizenship competencies

The findings regarding the participants' level of digital citizenship competencies indicate that they had a moderate to a high level of digital citizenship competencies. Overall, the female teachers' responses to the questionnaire indicated that they believed they had a moderate level (M=3.59, SD=.92) of digital citizenship competencies. These results are consistent with previous research studies that showed teachers demonstrated a moderate level of digital citizenship competencies in most dimensions (Choi, Cristol, & Gimbert, 2018). However, these findings did not align with other research studies that showed teachers demonstrated a high level of digital citizenship competencies in most dimensions (Al-Shuwaili, 2019; Sari, 2021). and the research studies showed that teachers

demonstrated a low level of most of the digital citizenship dimensions (Mahrous, 2018; Al-Maamari & Al-Wahiba, 2019)

The female teachers' perceptions of their levels of digital citizenship competencies were measured using three sub-scales: 1. Respect Yourself/Others 2. Educate Yourself/Others 3. Protect Yourself/Others (Ribble & Miller, 2013). The female teachers reported high-level digital citizenship competencies in the "Respect Yourself/Others Dimension" (M=3.74, SD=1.03). The participants reported moderate levels of digital citizenship competencies in "Educate Yourself/Other Dimension s" (M=3.49, SD=.95) and "Dimension 3: Protect Yourself/Others" (M=3.50, SD=.96). The results showed that the female teachers' believed that they had the highest level of competencies in the "Respect Yourself/Others Dimension", while they had the lowest level of competencies in the "Educate Yourself/Other Dimension s". These results are presented in Table 4.

Table 4: Descriptive Statistics of Participants' Responses to the Scale of Digital Citizenship Competencies

		N	M	SD
	Dimension 1: Respect Yourself/Others			
1.	I am aware that everyone possesses fundamental digital rights, including privacy, freedom of expression, and freedom of speech.	90	3.78	1.39
2.	I am aware of the potential risks associated with the excessive use of digital technologies, such as addiction and stress.	91	3.78	1.34
3.	I am aware that activities such as creating destructive worms or viruses, creating Trojan Horses, and sending spam are considered digital crimes.	91	3.91	1.36
4.	I am aware that engaging in activities such as unauthorized access to others' information, downloading copyrighted material without proper authorization, committing plagiarism, or stealing someone's identification or property is considered morally and ethically wrong.	90	3.93	1.40
5.	I consistently demonstrate respect for the opinions and knowledge of others in the digital environment.	87	3.82	1.30
6.	I consistently show respect for the feelings of others in the digital environment.	90	3.82	1.34
7.	In the digital environment, I am mindful not to interrupt others when it's their turn to speak.	90	3.78	1.35
8.	When I experience dissatisfaction or discomfort in an online digital environment, I make an effort to express my feelings rationally.	89	3.52	1.31
9.	"I am aware that comprehending digital rights and responsibilities contributes to productivity for everyone	90	3.68	1.24
10.	I assume accountability for my online actions and behaviors.	89	3.76	1.38
11.	Digital communication tools facilitate the formation of new friendships with individuals from diverse parts of the world	88	3.47	1.26
12.	In my digital communication, I consistently honor the human rights, cultural diversity, and freedom of expression of others.	90	3.83	1.28
13.	In the online digital environment, I strive to ensure equitable opportunities for speech and discussion for everyone.	90	3.42	1.29
	Total	91	3.74	1.03
	Dimension 2: Educate Yourself/Others			
14.	I utilize the Internet to assist friends or other educators in general.	90	3.60	1.27
15.	I collaborate with others online to address local, national, or global challenges.	90	3.54	1.21
16.	I conduct thorough research before making online purchases.	90	3.60	1.26
17.	I dedicate a portion of my time to engaging with social media platforms like Facebook and Twitter.	89	3.62	1.25
18.	I utilize online communication methods to articulate my viewpoints, acquire knowledge, and exchange my expertise.	90	3.42	1.35

19.	I possess the ability to proficiently employ modern educational skills that are intertwined with digital technologies, specifically geared toward the demands of the 21st century.	89	3.38	1.24
20.	I am proficient in utilizing the Internet to search for and download applications (apps) that are relevant and beneficial to my needs.	89	3.66	1.39
21.	I create and share authentic content, including messages, audio recordings, pictures, or videos, to vividly convey my emotions, ideas, and perspectives.	88	3.27	1.29
22.	I have received formal training on incorporating cutting-edge digital technologies into my prospective teaching endeavors.	88	3.28	1.19
	Total	90	3.49	.95
	Dimension 3: Protect Yourself/Others			
23.	I refrain from sharing my personal information with unfamiliar online entities.	87	3.72	1.49
24.	I consistently safeguard critical data by creating backups in secure locations or external hard drives.	89	3.28	1.35
25.	I refrain from storing any significant information on public computers for security reasons.	89	3.60	1.35
26.	I have implemented antivirus and Internet security measures on my computer to safeguard against potential threats.	89	3.43	1.31
27.	I consistently secure personal and critical information in files that are protected with passwords.	89	3.51	1.34
28.	I proactively update my passwords at regular intervals to safeguard my privacy.	90	3.53	1.30
29.	I consistently review the privacy statement before installing new software to ensure my privacy is protected.	89	3.42	1.33
30.	I consistently perform routine maintenance tasks to swiftly eliminate unnecessary files and programs from my computer.	90	3.52	1.27
31.	I am aware of the potential risks associated with the use of emerging digital technologies.	90	3.34	1.29
32.	I consistently visit reputable and secure websites that are free from any potential harm. .	90	3.48	1.33
33.	Upon noticing any unusual occurrences with my computer, I promptly take it to a maintenance center for investigation and resolution.	89	3.30	1.33
34.	I promptly remove emails from suspicious sources or senders without delay.	89	3.66	1.38
35.	I refrain from opening any files that are unknown or untrusted to ensure security.	90	3.78	1.35
	Total	90	3.50	.96
	Total for the whole scale	91	3.59	.92

Note. 1 = 'Strongly Disagree', 2 = 'Disagree', 3 = 'Neutral', 4 = ' Agree', 5 = 'Strongly Agree

In the first dimension of the level of digital citizenship competencies questionnaire under the title "Respect Yourself/Others " participants were found to have responded most positively to item 4 "I am aware that engaging in activities such as unauthorized access to others' information, downloading copyrighted material without proper authorization,

committing plagiarism, or stealing someone's identification or property is considered morally and ethically wrong..” (M=3.93, SD =1. 40). A possible explanation of such results might be attributed to the culture of Arab in which females pay great attention to avoiding hacking and privacy violations in the digital world, where there is a high percentage of Arab women who are still generally unenthusiastic to put their real faces on social media. In the same dimension, participants responded least positively to item 13 “In the online digital environment, I strive to ensure equitable opportunities for speech and discussion for everyone" (M=3.42, SD = 1.29). A possible explanation for such results is that the teachers do not highly involve in online discussion.

In the second dimension of the level of digital citizenship competencies questionnaire under the title “Educate Yourself/Others “ participants were found to have responded most positively to item 20 “I am proficient in utilizing the Internet to search for and download applications (apps) that are relevant and beneficial to my needs.” (M=3.66, SD =1. 39). Such findings is supported by previous studies that reported that downloading applications represent popular types of use of intent in the Arab world (Alfawareh, & Jusoh, 2014; Gasaymeh, 2018). In the same dimension, participants responded least positively to item 21 “I create and share authentic content, including messages, audio recordings, pictures, or videos, to vividly convey my emotions, ideas, and perspectives.” (M=3.27, SD = 1.29). A possible explanation of such results might be attributed to the culture of Arabs in which females pay great attention to protecting their privacy in the digital world; therefore they deal with the intent with caution and they do not rely on the internet to express their real feelings and thoughts.

In the third dimension of the level of digital citizenship competencies questionnaire under the title “Protect Yourself/Others “ participants were found to have responded most positively to item 35 “I refrain from opening any files that are unknown or untrusted to ensure security.” (M=3.78, SD =1. 35). In the same dimension, participants responded least positively to item 24 “I consistently safeguard critical data by creating backups in secure locations or external hard drives.” (M=3.42, SD = 1.35). Such findings suggest that female teachers would be more scared to have their information stolen rather than lost.

The interview results

The results of the interviews showed that there are different perceptions of teachers regarding their understanding of digital citizenship. The majority of teachers interviewed indicated that digital citizenship is the use of technology in educating children and integrating it into education. This was evident in the words of one of the teachers:

However, some teachers pointed out that technology goes beyond the effective use of technology in educating children and that it is a set of rules, standards, norms, and ideas followed in the appropriate use of technology.

Concerning the technological tools used by teachers in teaching children, the majority of the teachers interviewed referred to a set of tools, such as educational games, digital stories, and computerized applications as well as the use of smartphones. However, some educators adhere to a predefined set of guidelines and standards when utilizing technology, such as setting a time, using technology for useful purposes, and the safe and cautious use of technology. One teacher said:

It is very important to follow ethical rules and pay attention to the times and places of using technological devices Teachers interviewed were asked about how to integrate information and communication technology into the learning environment, the teachers referred to a set of procedures that can be summarized as follows:

- Presenting technological lessons

Employing online learning

Providing virtual environments and simulation systems

- Employing technological games and activities

Concerning teachers' rights and responsibilities in the digital society, most of the teachers interviewed mentioned some of the rights represented in the right to expression, privacy, data protection, respect in dealing, and the right to obtain safe content. While their most prominent responsibilities in the digital society were the appropriate and responsible use of technology. As one of the teachers said:

We must use technology with great responsibility and awareness, adhere to the policies of acceptable use by the competent authorities, regulations, laws, and ethical systems, not harm others and report unacceptable behavior.

Teachers were also asked about the main procedures taken to ensure the protection of the digital environment. They mentioned the following procedures:

- Obtaining permission from the rights holder before using them.
- Respecting website laws.
- Exchanging meaningful content that serves the learning and teaching process.
- Accuracy in transmitting information
- Do not expose others to risks.

Concerning the inappropriate use of the digital environment, some teachers expressed their concern about the inappropriate use of the digital environment in the exposure of children to discrimination due to their exclusion from the use of technology, as well as the excessive use of technology that leads to addiction. One of the teachers says:

The excessive use of technology leads to physical risks such as back pain and eye problems, in addition to the unsafe use of technology that can lead to the spread of undesirable moral values in society.

Participants' Level of digital citizenship competencies and Age

To simplify the comparison of the participant's perceptions of their levels of digital citizenship competencies based on their age. The participants were grouped into two groups based on their ages. The first group was for the ones with ages thirty-five years old and less while another group was for the ones who were older than 35 years old. Participants' responses to their levels of digital citizenship competencies scale were compared based on these two groups of ages using independent sample t-tests (Table 5).

Table 5: The results of t-tests and descriptive statistics for the Level of digital citizenship competencies by two age groups

Outcome	Group								
	Equal or Less than 35			More than 35					
	M	SD	n	M	SD	n	t	df	p
*Overall level of digital citizenship competencies scale	3.40	1.01	58	3.92	.64	33	-2.67	89	.00

Data analysis showed that there were differences in the early childhood female teachers' perceptions of their levels of digital citizenship competencies based on their age. The older participants reported higher levels of digital citizenship competencies compared to the younger ones. A possible explanation of such results is that the accumulated life experience made the older participants report a higher level of digital citizenship compared to the younger ones.

Participants' Level of digital citizenship competencies and number of years of experience

A one-way ANOVA was employed to assess how participants' perceptions of their digital citizenship competencies varied based on their years of experience (as shown in Table 6). The findings revealed that there were no significant differences in participants' perceptions of their digital citizenship competencies based on their years of experience.

Table 6: One-Way ANOVA- Participants' perceptions of their levels of digital citizenship competencies for their number of years of experience

Outcome	df	F	p
Perceptions of Levels of digital citizenship competencies	5	1.316	.265

The findings regarding the lack of influence of participants' number of years of experience on their perceptions of their levels of digital citizenship competencies do not align with the findings of previous research studies that show that participants' number of years of experience would influence their perceptions of their levels of digital citizenship competencies (Choi, Cristol, & Gimbert, 2018; Sari, 2021). However, such findings did not align with the findings of other research studies (Al-Shuwaili, 2019). A possible explanation of the lack of influence of participants' number of years of experience on their perceptions of their levels of digital citizenship competencies is that there were moderate variations in percipients' number of years of experience; the majority of them had 10 to 15 years of experience.

Participants' Level of digital citizenship competencies and academic qualification

A one-way ANOVA was employed to examine how participants' perceptions of their digital citizenship competencies varied based on their academic qualifications (as indicated in Table 7). The findings indicated that there were no statistically significant differences in the perceptions of digital citizenship competencies among student participants based on their academic qualifications.

Table 7: One-Way ANOVA- Participants' perceptions of their levels of digital citizenship competencies for their level of education

Outcome	df	F	p
Perceptions of Levels of digital citizenship competencies	2	0.160	.852

The findings regarding the lack of influence of participants' academic qualifications on their perceptions of their levels of digital citizenship competencies align with the findings of previous research studies (Al-Shuwaili, 2019; Sari, 2021). A possible explanation is that graduate programs usually focus on the specific content of the program. Therefore, the participants who had master's or Ph.D. degrees did not differ in their level of digital citizenship competencies from the teachers with bachelor's degrees.

Conclusion and Recommendations

The results of the present study add to the existing understanding of digital citizenship competencies among Jordanian teachers, particularly in the context of early childhood education and female teachers. Examining the perceptions of digital citizenship competencies among this group of educators is significant for various stakeholders involved in the field. Early childhood female teachers' had a moderate level of digital citizenship competencies. However, the participants believed that they had a high level in one digital citizenship dimension which was the "Respect Yourself/Others Dimension". The variations in teachers' levels in three dimensions of digital citizenship competencies

would suggest the need to enhance teachers' competencies in specific areas of digital citizenship, these subjects encompass various aspects of digital citizenship, such as digital communication, digital literacy, digital commerce, digital rights and responsibilities, digital security, and digital health and well-being.

Not like the number of years of experience and academic qualification, the age of percipients had influenced female teachers' perceptions of their levels of digital citizenship competencies. The findings suggest that teachers acquire their digital citizenship competencies from general life experience rather than from formal education or professional experience. Such findings guide school education practitioners' efforts to enhance levels of digital citizenship competencies by providing the teacher with proper, systematic, and continual training on digital citizenship.

Furthermore, the results of this study provide valuable insights for higher education practitioners, informing their endeavors to improve students' digital citizenship competencies. This could be achieved by integrating the topic of digital citizenship into graduate programs.

There is ample opportunity for future research to explore the levels of digital citizenship competencies among teachers, taking into consideration various demographic characteristics such as gender, age, level of schools, and major. Additionally, further studies could investigate the impact of additional variables on teachers' digital citizenship competencies.

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