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The Degree to Which Secondary School Students in Jordan Possess Digital Citizenship Skills

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children from any exploitation in the digital world. 3) Encouraging the safe use of the Internet by providing protection programs for students, such as anti-virus programs in cooperation with international organizations in the field of digital security.

As implications, private and public schools should increase awareness of students, especially in schools that implement the national curriculum, about the concepts and values of digital citizenship, and providing theoretical and practical training programs for students on the responsible use of technology. Further, students could be provided with sufficient access to digital technologies by providing adequate equipment and Internet in schools, to provide students with equal opportunities to engage in the digital world.

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income exceeds (1250) dinars, as they can acquire various technological means, including smart devices, software, and equipment, which helps them participate in the digital world and acquire digital skills.

The Education System: Table (3) shows that there are statistically significant differences at the level of significance ($\alpha = 0.05$) between the average responses of secondary school students in Jordan due to the education system variable, as the calculated F value was (45.51), with a level of significance (0.00). The differences are for the benefit of students in the international education system with a higher mean (36.88), compared to the mean for students in the national education system with a value of (29.12). This result can be attributed to the fact that schools that apply the international system provide new and interactive technologies to all students in computer laboratories, which helps them to develop various digital skills and enables them to interact in the digital world under school supervision. Moreover, International curriculums motivate students to perform scientific research, use scientific references based on scientific documentation methods, and focus on the concepts of intellectual property, plagiarism, and patents, which are fundamental concepts in digital rights and responsibilities. Besides, international curriculums enrich students' knowledge of digital security to secure their digital data, such as their e-mails on school systems from theft, compared to schools that implement the national system. Some of these schools suffer from problems with technology such as slow computers, frequent breakdowns, and lack of periodic maintenance, which presents an obstacle for students to practice digital skills.

The result can also be attributed to teaching methods in national systems; it often depends on direct teaching. As a result, students do not have internet research skills. Despite the inclusion of several concepts related to digital citizenship in the computer curriculum, the acquisition of skills requires the continuous practice of those skills.

9. Conclusion, Recommendations and Implications

This study aimed to identify the degree to which secondary school students in Jordan possess digital citizenship skills and to identify the extent of statistically significant differences attributed to variables: gender, family monthly income, education system. The study found that the degree to which students possessed digital citizenship skills was medium, and the results showed statistically significant differences attributed to variables: gender, family monthly income, education system. According to these results, recommendations can be made: 1) introducing digital citizenship curriculum in schools. 2) intensifying the efforts exerted by media to spread digital citizenship culture, by educating parents on the importance of digital citizenship; to protect their

than 1250 dinars ($M=29.10$, $SD=8.88$) and exceeds 1250 dinars: ($M=33.31$, $SD=8.60$), 3) education system: national education system ($M=29.12$, $SD=8.50$) and international education system ($M=36.88$, $SD=8.09$). Three-Way ANOVA was performed to examine the observed differences as shown in table (3).

Table 3: Results of Three-Way ANOVA according to study variables

Variable	Sum of Squares	Df	Mean Square	Sig	F
<i>Gender</i>	286.60	1	286.60	0.043	4.13
<i>Family Monthly Income</i>	501.01	1	501.02	0.007	7.22
<i>Education System</i>	3156.88	1	3156.88	0.00	45.51
<i>Error</i>	31356.000	452	69.372		
<i>Total</i>	469994.000	456			
<i>Corrected Total</i>	36847.254	455			

The results in table (3) show statistically significant differences at the level of significance ($\alpha = 0.05$) between the means in the degree to which secondary school students in Jordan possess digital citizenship skills, attributed to variables: (gender, family monthly income, education system) as follows:

Gender: Table (3) shows there are statistically significant differences at the level of ($\alpha = 0.05$) between the average responses of secondary school students in Jordan due to the gender, as the calculated F value reached (4.13), with a significant level (0.043). The differences are for the benefit of females with a higher mean (31.71), compared to the mean for males (29.80). This result can be attributed to the fact that females in Jordanian society live in societal conditions governed by customs and traditions that force them to be extremely careful when engaging in digital societies and to be fully aware of how to protect their data from theft and viruses, especially upon using social media and smart devices. This result is consistent with the result of Al-Muhammad (2018), which revealed that the factors affecting the values of digital citizenship among secondary school students are attributed to gender variable, and for the benefit of females.

Family Monthly Income: Table (3) shows that there are statistically significant differences at the level ($\alpha = 0.05$) between the average responses of secondary school students in Jordan, due to family monthly income variable, as the calculated F value was (7.22), and with the level of significance (0.07). The differences are for the benefit of students who belong to families whose monthly income exceeds (1250) dinars, with a higher mean (31.33), compared to the mean for students who belong to families whose monthly income of less than (1250) dinars with a mean of (29.10). This result can be attributed to the fact that the monthly income for families whose income is less than (1250) dinars is a key barrier in their ability to provide their children with the capability to access the Internet and acquire technological means, compared to families whose monthly

The degree of digital citizenship possessed by secondary school students in Jordan was medium. This result can be attributed to the absence of a dedicated curriculum to teach digital citizenship in Jordanian schools and not including all elements of digital citizenship in computer curriculum for secondary and elementary schools. Moreover, most of the concepts students learn and that are related to digital citizenship are briefly mentioned in the computer curriculum, in addition to what they learned through their use of technological means and social media. This result is consistent with the results of Al-Muhammad (2018), which concluded that all elements of digital citizenship had achieved a moderate response degree. This result differs from the results of the Al-Maslamani (2014), which revealed that students were unfamiliar with the criteria of correct and acceptable behavior related to the use of technology. This result also differs from the results of Martin et al. (2019), which revealed that the level of students' understanding and practice of digital citizenship was low.

8.2. Second question

“Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the degree to which secondary school students in Jordan possess digital citizenship skills attributed to variables: (gender, family monthly income, education system)?”. To answer this question, means and standard deviations of the degree to which secondary school students in Jordan possess digital citizenship skills were calculated, according to the levels of the study variables: gender, family monthly income, and the education system, as shown in table (2).

Table 2: Means and standard deviations of the degree to which secondary school students in Jordan possess digital citizenship skills according to levels of study variables

Variable		Sample	Mean (M)	Standard deviation (SD)
Gender	Male	213	29.80	9.49
	Female	243	31.71	8.47
Family Monthly Income	Less Than 1250 Dinars	270	29.10	8.88
	More Than 1250 Dinars	186	33.31	8.60
Education System	National	356	29.12	8.50
	International	100	36.88	8.09

The results in table (2) show apparent differences between the means of the degree to which secondary school students in Jordan possess digital citizenship skills, according to the levels of the study variables: 1) gender: males (M=29.80, SD=9.49) and females (M=31.71, SD=8.47), 2) family monthly income: less

and promoting awareness towards the restrictions that govern technology, and the necessity of not sharing digital content that carries copyright without permission and the importance of respecting others in the digital community.

The digital literacy element has achieved fifth percentile rank with a medium degree can be attributed to the widespread adoption of technology among students for both scientific and social purposes. Technology has become an integral part of student lives, as the introduction of distance learning has brought radical changes in the way of education. Nevertheless, students are now challenged, as they have to adopt new technologies in learning.

As for digital access, it has achieved the sixth percentile rank, which is considered low in comparison with prior elements ranks. This can be attributed to low financial capabilities in developing countries. This is what we are witnessing nowadays; some students lacking the connectivity they need to complete schoolwork at home, even though the internet has become an essential part of the educational process. Moreover, some schools do not have sufficient digital equipment or connectivity compared to the number of students, in addition to slow equipment, frequent breakdowns, and lack of periodic maintenance.

Digital commerce has achieved the seventh percentile rank, which is considered low in comparison with prior elements ranks. Even though the world is shifting toward the internet-based transaction, Jordanian society is still adapting to use the internet in financial transactions; this can be attributed to fear of digital fraud and online scammers.

Despite the importance of digital rights and responsibilities element, as it plays an essential role in educating students on the ethics students must adhere to in the digital world and the risks of using digital materials illegally, it has achieved eighth percentile rank. As some students are unfamiliar with the ethics of using digital websites, data, and multimedia and the protocols followed globally to protect digital rights, such as the rights of inventors and copyrights.

Digital communication has achieved the lowest percentile rank; this can be attributed to reasons related to digital access; as some categories of the Jordanian society lack financial resources to secure means of technological communication for their children such as smartphones used to communicate with others through social networks and videoconferences. Besides, some schools do not have sufficient digital equipment or connectivity compared to the number of students, in addition to slow equipment, frequent breakdowns, and lack of periodic maintenance.

Table (1) shows that the digital security element has achieved the first rank ($P=66.29\%$, $M=4.64$, $SD=2.03$). The second rank is the digital etiquette element ($P=64.50\%$, $M=3.87$, $SD=1.40$). The third rank is digital health and wellness ($P=63.82\%$, $M=3.19$, $SD=1.29$). The fourth rank is the digital laws ($P=60.86\%$, $M=4.26$, $SD=1.74$). The fifth rank is digital literacy ($P=60.71\%$, $M=4.25$, $SD=1.40$). The sixth rank is digital access ($P=55\%$, $M=2.75$, $SD=1.40$). The seventh rank is digital Commerce ($P=54.80\%$, $M=2.74$, $SD=1.35$). The eighth rank is the digital rights and responsibilities ($P=53.02\%$, $M=2.65$, $SD=1.36$). The final rank is the digital communications ($P=49.40\%$, $M=2.47$, $SD=1.27$).

Digital security has achieved the highest percentile rank with a medium degree. This result can be attributed to students' awareness of privacy and information security concepts because they acquired these concepts through their study of computer subjects in school. This result can also be attributed to the interest of Jordanian society, including students, in digital security, as it may help them to protect their technological devices and personal data from viruses and malware, especially after the emergence of programs and sites that may appear safe. This result is consistent with Al-Sehim (2019), which emphasizes that digital security is an important aspect in students' lives to protect their data. This result can be related to what Al-Maslamani's (2014) study concluded that 54.5% of students have encountered problems related to technology, such as identity theft via the Internet which requires them to be aware of all aspects of digital security to protect themselves in the digital community.

The digital etiquette element has achieved the second percentile rank and a medium degree. This result can be attributed to the stunning increase in the use of technology in student daily life, such as using e-mail to communicate with their teachers and building relationships through social media, hence students need to be aware of basic digital etiquette to meet the expectations of the digital world. This result differs from the findings of Martin, Gezer, & Wank (2019), which concluded that students' perceptions of Internet etiquette were low.

As for digital health and wellness, it has achieved third percentile rank and medium degree, which can be attributed to the effective educational role played by the media to raise student awareness of the potential physical and psychological health problems accompanied by the intensive use of technology. This requires them to reconcile the use of modern technology with maintaining health; this result is consistent with Al-Sehim (2019) study, which stated that students must have high awareness in the digital health and wellness as it is considered one of the most important aspects of technology.

Digital laws element has achieved the fourth percentile rank, which can be attributed to the role of media in spreading digital law concept among students

7.5. Statistical treatments

The data were collected for this study out of the target sample, encoded, entered into a computer, and processed using Statistical Program for Social Sciences (SPSS) as follows: 1) means, standard deviations, and percentages were calculated to answer the first question; the, and 2) Three-Way ANOVA was performed to answer the second question.

8. Results and discussion

8.1. First question

“What is the degree of secondary school students in Jordan possess digital citizenship skills?”. The results related to this question showed that the degree of possession of digital citizenship skills among the study sample was medium. Further, the degree of the nine elements of the digital citizenship measured in the study tool was medium, and the elements arranged according to the percentage of the degree of possession in descending order as follows: digital security, digital etiquette, digital health and wellness, digital laws, digital literacy, digital access, digital commerce, digital rights and responsibilities, digital communication. As shown in table (1).

Table 1: Means, standard deviations, and percentages of the degree to which secondary school students in Jordan possess digital citizenship skills, arranged in descending order according to the percentage of possession degree

Element Name	Number of Items	The Percentage of Possession Degree % (P)	Mean (M)	Standard Deviation (SD)	Degree
<i>Digital Security</i>	7	66.29	4.64	2.03	Medium
<i>Digital Etiquette</i>	6	64.50	3.87	1.40	Medium
<i>Digital Health and Wellness</i>	5	63.82	3.19	1.29	Medium
<i>Digital Laws</i>	7	60.86	4.26	1.74	Medium
<i>Digital Literacy</i>	7	60.71	4.25	1.40	Medium
<i>Digital Access</i>	5	.0055	2.75	1.40	Medium
<i>Digital Commerce</i>	5	54.80	2.74	1.35	Medium
<i>Digital Rights and Responsibilities</i>	5	53.02	2.65	1.36	Medium
<i>Digital Communication</i>	5	.4049	2.47	1.27	Medium

to 1.99, 2) medium: the mean is from 2.00 to 3.99, and 3) high: the mean is from 4.00 to 6.00.

Group 4: the total score, that is, the total sum of the items of the study tool. The maximum score value (52) and the degrees of this group as follows: 1) low: the mean is from zero to 17.33, 2) medium: the mean is from 17.34 to 34.66, and 3) high: the mean is from 34.67 to 52.00.

7.3. Validity and reliability

The test in its initial stages consisting of (54) items was presented to a group of arbitrators, to ensure the validity and reliability of each item and to determine how they relate to the objectives of the study. The items with less than 80% have been deleted, and some were amended. The tool final form consisted of (52) items, distributed over the nine dimensions of digital citizenship.

Further, the reliability of the study tool items was verified by applying it to an exploratory sample from outside the study sample consisting of (30) male and female students, Pearson correlation coefficient was calculated between the score of each item and the total degree of the field to which it belongs. The results showed relatively high correlation coefficients and statistically significant function at the level of significance ($\alpha = 0.05$) between the score of each item and the total score for the field to which it belongs, where the values ranged between (0.38-0.67), which are suitable coefficients for this study to fulfill its objectives.

Pearson correlation coefficient was calculated between the degree of each field and the total score of the study tool, the values ranged between (0.50 - 0.824), which are high, statistically significant at the function level ($\alpha = 0.05$), and suitable to conducting this study.

Furthermore, the reliability of the study tool items was verified by applying it to an exploratory sample from outside the study sample consisting of (30) male and female students, and the reliability of the study tool was verified by calculating the internal consistency coefficient in terms of Cronbach's Alpha equation, and its value was (0.89). This value is considered high and indicates the high reliability of the tool.

7.4. Study variables

The study included two types of variables. First, the independent variables: 1) gender (male, female), 2) family monthly income (less than 1250 Dinars, more than 1250 Dinars), and system education (national system, international system). Second, the dependent variable, which is the degree to which secondary school students in Jordan possess digital citizenship skills.

Hence one level of the variables, which is the international system variable in the education system, constitutes (7%) of the study population. That is, the size of the sample at this level is (26) students and this sample is small and does not present accurate statistical significance results. The sample size was increased at this level to become (100) students from the international system, i.e., (21.9%) of the study sample. The study sample became (456) male and female students chosen by the stratified random method according to variables gender, family monthly income, and education system.

7.2. Study tool

The researchers reviewed related literature and previous studies and developed a test to achieve the purposes of the study. The test consisted in its final form of (52) items divided into two main parts: the first section; included study variables: gender, monthly household income, and the education system. The second section included (52) multiple-choice questions, for each question four alternatives. The answers were limited to the alternatives presented so that the correct answer represents only one answer from the proposed alternatives. The respondent on the item received a score (1) for each correct answer and zero for each wrong answer. The test items were divided into the nine areas of digital citizenship: digital literacy included (7) items, digital etiquette included (6) items, digital laws included (7) items, digital health and wellness included (5) items, digital access included (5) item, digital communications included (5) items, digital security included (7) items, digital commerce included (5) items, and digital rights and responsibilities included (5) items.

The following statistical standard was used to interpret the means of the study sample responses to the study tool, as the means of the sample scores were divided into three degrees: (low, medium, and high), then dividing the fields into groups according to the maximum score for each field.

Group 1: include the following dimensions: digital literacy, digital laws, and digital security. The maximum score value is (7), and the degrees of this group as follows: 1) low: the mean is from zero to 2.33, 2) medium: the mean is from 2.34 to 4.66, and 3) high: the mean is from 4.67 to 7.00.

Group 2: include the following dimensions: digital health and wellness, digital access, digital communications, digital commerce, and digital rights and responsibilities. The maximum score value is (5), and the degrees of this group as follows: 1) low: the mean is from zero to 1.66, 2) medium: the mean is from 1.67 to 3.33, and 3) high: the mean is from 3.34 to 5.00.

Group 3: include the digital etiquette dimension. The maximum score value is (6), and the degrees of this group as follows: 1) low: the mean is from zero

5. Definition of terms

Several terms were mentioned in this study, to ensure consistency throughout the study, the following operational definitions are provided.

The degree of possession: The level of theoretical and practical knowledge of digital citizenship skills that secondary school students possess in Jordan and is measured by the degree expressing the mean of the total scores of secondary school students in Jordan on the items of the study tool prepared for this purpose.

Skills: Practices represented in being able to accomplish activities or tasks related to digital citizenship with extreme accuracy, speed in implementation, sequential and coordinated manner, which are estimated by the total score that the student obtains on the items of the study tool prepared for this purpose.

Digital Citizenship: A group of practices that secondary school students in Jordan perform correctly and consistently in their interaction in the digital world, based on a set of humanitarian and societal rules, ideas, and principles. It is related to topics such as digital access, and digital commerce, digital communication, digital literacy, digital etiquette, digital laws, digital rights and responsibilities, digital security, and digital health and wellness. It is measured by the total score students obtain by responding to the study tool.

6. Study limitations

The current study was limited to revealing the degree to which secondary school students in Jordan possess digital citizenship skills. Further, it is limited to A representative sample of the eleventh and twelfth-grade students was selected from secondary schools in the directorates of education in the governorate of the capital, Amman. Jordan, in the first semester of the academic year 2020-2021. Furthermore, the results of this study are determined by the psychometric properties of the study tool and the study sample objectivity.

7. Study methodology

The study adopted the descriptive survey approach to reveal the degree to which secondary school students in Jordan possess digital citizenship skills.

7.1. Study population and sample

The study population consisted of all secondary school students in grades eleventh and twelfth from the directorates of education in the capital Amman governorate, for the academic year 2020/2021. Their number (85,544) students. Richard Geiger's equation was used to calculate the sample size, and by applying this formula to the study population. The study sample size is (382) students.

Through the researchers' experience in the education field and their concern as parents and observers of the technological influences in all areas of children's lives, especially that they can find various attractive and easy to access digital sites available for individuals. Moreover, social networks are becoming an integral part of youth's life, especially secondary school students as they are spending much time on social media and are considered among the largest category that uses these applications, which necessitates a high awareness in dealing with technology in the digital world (Al-Debaisi & Al-Tahat, 2013). Therefore, the researcher found that it is important to conduct a study to reveal the degree to which secondary school students in Jordan possess digital citizenship skills to identify the skills that should be developed for this category, which contributes to the preparation of digital citizens who know how to use digital technologies legally and safely. This study aimed to reveal the degree to which secondary school students in Jordan possess digital citizenship skills, and to answer the following questions:

1. What is the degree to which secondary school students in Jordan possess digital citizenship skills?
2. Are there statistically significant differences at the level of significance ($\alpha = 0.05$) in the degree to which secondary school students in Jordan possess digital citizenship skills attributed to variables: (gender, family monthly income, education system)?

4. Study objectives and significance

This study aims to identify the degree to which secondary school students in Jordan possess digital citizenship skills attributable to variables: gender, family monthly income, and the education system.

The significance of the study can be determined as follows: Firstly, this study reveals the degree to which secondary school students in Jordanian schools possess digital citizenship skills, as they are considered among the largest category that uses the internet and social networks and it discusses the skills required for interaction and communication in the digital age. Secondly, it is expected that this study will provide a theoretical framework about the degree to which secondary school students in Jordan possess digital citizenship skills, which may help raise awareness among students to help them protect their digital data. Thirdly, the results of this study can provide guidance to educational institutions on the extent to which secondary school students are aware of digital citizenship skills. Fourthly, the results of this study may help in conducting further researches and studies related to the degree to which secondary school students possess digital citizenship skills.

grade in the following areas: Cyberbullying, Digital footprint, digital privacy, internet etiquette, and digital identity. The researchers adopted the descriptive approach and (107) questionnaires were distributed to the study sample. The results of the study showed that the level of students' understanding and practices of digital citizenship was low, there were no statistically significant differences in the teachers' perceptions according to the school level, and the study showed that teachers who teach digital citizenship have positive perceptions of the digital citizenship practices of their students.

Furthermore, many studies investigated the level of digital citizenship among university students from their perspective. For instance, Al-Sulayhat, Al-Falouh & Al-Sarhan (2018) aimed at identifying the degree of awareness of digital citizenship concept among undergraduate students in Educational Sciences College in Jordan. The study adopted the descriptive approach, and a questionnaire was distributed to the study sample of (230) students selected randomly. The study found that the degree of students' awareness of the digital citizenship concept was moderate and accordingly, the study recommended the necessity of educating students to protect themselves while participating in the Internet community. Al-Rashed (2019) aimed to reveal the level of digital citizenship of students in Jordanian public universities from their perspective, it was applied to a total sample of (5200) students randomly selected from (6) universities, the researcher used the descriptive analytical approach, and a questionnaire consisting of (45) was distributed to the study sample. The results indicated that their average was (3.82) out of (5), and the study recommended raising the awareness of digital citizenship among Jordanian public university students.

To the researchers' best knowledge, this study is the first study that investigated the level of digital citizenship among secondary school students in Jordan and the first study to conduct a test consisting of items formulated to express behavioral responses to life situations that students are exposed in the digital world to measure their digital citizenship skills.

3. Study problem and questions

Digital citizenship aims to prepare students to engage in society and actively participate in serving the interests of the nation, especially in terms of the increase in the number of users of new digital media in Jordanian society. For instance, the number of Facebook users reached about (4) million users, while the number of YouTube users reached about (2) million, and the number of Google site users reached about (2) million, while the number of Amazon e-commerce website reached about (550) thousands (Alexa, 2020).

effective strategies to raise good digital citizen who is aware of the ethical and safety concerns while using technology (Sadiq, 2019).

1.5. The role of education in developing digital citizenship

The term "digital citizenship education" refers to promote the responsible use of technology by providing students with the required skills to deal with digital content, which protects them from the dangers of using technologies (Coyle & Hood, 2010). Al-Mallah (2017) explains that digital education is concerned with preparing teachers and students to interact positively and responsibly through various digital resources and technologies.

Sadiq (2019) emphasizes that educational institutions are primarily responsible for spreading digital citizenship culture among members of the society, by adopting effective strategies and scientific methodology and applying known digital citizenship standards to evade technological hazards resulting from the digital revolution.

2. Previous studies

Both researchers devoted much time to review the most recent studies relevant to the subject of the study. Of these studies that investigated the level of digital citizenship among secondary school students from their perspective: Al-Maslamani (2014) aimed to define the concept of digital citizenship and the extent of the importance of it in this age group. The study proposed a vision to support the role of education in instilling the values of digital citizenship. The study sample consisted of (300) students and a questionnaire was distributed to reveal the tendency of secondary education students in Egypt towards the use of digital technology. The results of the study revealed that students are not familiar with the standards of correct and acceptable behavior related to the use of technology, and they are not qualified to deal with technology communities.

On the other hand, some studies investigated the level of digital citizenship among secondary school students from teachers' perspective: Al-Muhammad (2018) aimed to discuss the factors affecting the values of digital citizenship among secondary school students from teachers' perspective in Jordan, and the impact of gender, Experience, educational qualification, and training courses variables. The study sample consisted of (208) teachers chosen by random stratified method, and the researcher used a questionnaire and adopted the descriptive and analytical approach. The results showed that the values of digital citizenship among secondary school students from the teachers' perspective were medium. Among these studies, a study conducted by Martin, Gezer, & Wang (2019) in the United States of America aimed to reveal teachers' perceptions of digital citizenship practices among their students, from kindergarten to twelfth

Element 6: digital laws: which refers to the digital responsibility for actions and deeds. Technology has made it easier for users to share information, but users often overlook what is appropriate or inappropriate, or even illegal when publishing information on the Internet (Ribble, 2011).

Element 7: Digital rights and responsibilities: this element describes the requirements and freedoms extended to individuals in the digital world, which allow them to access various technologies. As the digital citizen has a set of rights, such as sharing personal opinions under legitimate frameworks and blocking suspicious sites, these rights are associated with a set of responsibilities, such as the ethical use of online resources, including citing sources and requesting permissions, and reporting cyberbullying and threats (Al-Sayed, 2016; Al-Qahtani, 2017).

Element 8: Digital health and wellness: many technology users, especially youth, are at particular risk of developing internet addiction due to excessive Internet use; these users need to be aware of the health risks inherent in the use of digital technology, as experts often recommend resisting this type of addiction by avoiding its causes (Al-Qahtani, 2017).

Element 9: Digital security: which are the procedures for ensuring electronic data protection. The idea of protecting what we have is not foreign to anyone; people put locks on the doors of their homes, and install security systems to protect their possessions, it is also imperative in the digital community to protect your data, by installing and updating antivirus program and backing up data (Al-Shayab & Toualbeh, 2018).

1.3. The significance of digital citizenship in education

The new media reality necessitates introducing digital citizenship education, especially in the absence of censorship in families and educational institutions and the transformation of communication channels into portable personal devices. This imposes new responsibilities on the educational systems, to educate and train the individuals on the proper use of media and technology, to protect them, and encourage critical thinking skills, which allows them to make the right decisions in the digital world (Saudi Ministry of Education, 2020).

1.4. Challenges to promoting digital citizenship

Rapid technological change has posed additional challenges in developing countries; these challenges are related to the appropriate use of technology including *social* impact and *ethical* implications of new *technologies* (Al-Mallah, 2017). Therefore, it is important to promote digital citizenship among members of the society, which requires educational institutions to adopt

Further, it is represented in the duties or obligations that they should adhere to while using technology.

1.2. Digital citizenship elements

Digital citizenship has nine elements agreed upon by the International Society for Education Technology (ISTE, 2020). These elements have been identified to provide a better understanding of digital citizenship subjects, and an organized method for learning them, as follows:

Element 1: digital communications: which refers to the electronic exchange of information. Social networks and smartphones have changed the means of communication in societies; students can easily communicate around the world. Accordingly, educational institutions have developed a set of policies and laws for digital communications; some see that adopting digital communication tools in schools and classrooms provide various learning opportunities, while others are against using such tools (Ribble, 2011).

Element 2: digital commerce: which can be defined as selling and buying goods electronically. Furthermore, it is known as the combination of technologies and services to accelerate the performance of commerce exchange operations (Hussein, 2011). It is often considered the most difficult element for educators to address in the classroom, as teachers may believe it is not their responsibility to teach students to be careful consumers, though, online purchasing has become an important aspect of students' lives. (Ribble, 2011).

Element 3: digital access: which means full electronic participation in society, as the use of technology requires equal opportunities for all individuals (Ohler, 2010).

Element 4: digital literacy: which refers to the process of learning about technology and the use of technology, as understanding how technology works is considered one of the most important aspects of it so that it can be used in the most appropriate manner. Despite the importance of this aspect; it is often overlooked; the focus is on learning the technology itself, with little time to discuss what is appropriate or inappropriate (Ribble, 2011).

Element 5: digital etiquette: which refers to the electronic standards of conduct when using e-mail, social networking sites, chat rooms, newsgroups, and other technological means of communication. It can be defined as the set of rules that a digital citizen must follow while using the Internet, such as avoiding publishing false statements or disturbing others by sending unwanted emails, in large quantities (Abdel Tawab, 2019).

1. Introduction and Background

The rapid spread and growth of the Internet have helped the gradual emergence of a new type of societies, namely virtual societies. These Societies are known to be a new space inhabited by groups in which conferences are held, institutions and museums are established, and it differs in its topography, nature, laws, and norms from the space of reality, as no central authority to govern it (Al-Ghaffar, 2015). These societies require individuals to possess a set of distinct skills that enable them to interact efficiently in the digital world and ensures their awareness of their duties and rights, which is so-called digital citizenship (Mabrok & Metwally, 2017). That is, digital citizenship is based on the use of information and communication technology to establish new citizenship relations in a virtual world that provides its members with greater opportunities to participate, express their identity and ideas without any limits or restrictions. Further, it helps individuals build ideological relations within virtual groups that enable them to overcome the limits of time and space, or what some have expressed with the end of geography and the end of the traditional state, and the emergence of the so-called hypothetical state. (Al-Koot, 2015)

1.1. Digital citizenship definition

Ribble (2006) explains that digital citizenship is a new concept in digital education, as it aims to find ideal methods, programs, and means to guide and protect technology users, especially children, and adolescents, by identifying what is right and wrong while dealing with new technologies, as it became almost impossible to monitor what they watch on their mobile phones. Digital citizenship aims to find a digital citizen who uses modern technology effectively and seeks to protect his country and its interest, especially when using social media, by avoiding abusing and defaming others (Ribble, 2006).

According to Ribble (2008) digital citizenship involves preparing individuals for a society full of technology, by providing them with various technological skills, and preparing them to adhere to standards of acceptable behavior while using technology, this contributes to preserving the country's national identity and strengthening the ties between members of society. Alberta Education (2014) demonstrates that digital citizenship requires following ethical principles, and finding a balance between enabling individuals to use technology and being responsible for the benefit of the digital community. Further, it requires participation from local and regional communities to prepare youth for effective participation in these societies.

Al-Dahshan (2015) adds that digital citizenship is defined as the standards and principles adopted in all uses of digital technology, which are represented in the set of rights that the individuals should possess while using technology.

درجة امتلاك طلبة المرحلة الثانوية في الأردن لمهارات المواطنة الرقمية

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ملخص

هدفت الدراسة إلى تعرف درجة امتلاك طلبة المرحلة الثانوية في الأردن لمهارات المواطنة الرقمية، والتعرف على مدى وجود فروق ذات دلالة إحصائية تعزى لمتغيرات: الجنس، والدخل الشهري للأسرة، ونظام التعليم (وطني/دولي). وقد استخدمت الباحثة المنهج الوصفي المسحي لتحقيق أهداف الدراسة، وتم إعداد أداة الدراسة (اختبار) مكونة من (52) فقرة مصنفة حسب مجالات المواطنة الرقمية التسعة: التنور الرقمي، واللياقة الرقمية، والقوانين الرقمية، والصحة والسلامة الرقمية، والوصول الرقمي، والاتصالات الرقمية، والأمن الرقمي، والتجارة الرقمية، والحقوق والمسؤوليات الرقمية. ووزعت أداة الدراسة بعد التأكد من صدقها وثباتها على عينة الدراسة المكونة من (456) طالبا وطالبة من طلبة المرحلة الثانوية، الذين تم اختيارهم بالطريقة العشوائية الطبقية. وأظهرت نتائج الدراسة بعد إجراء التحليلات الإحصائية المناسبة أن درجة امتلاك طلبة المرحلة الثانوية في الأردن لمهارات المواطنة الرقمية كانت متوسطة، كما أظهرت نتائج الدراسة وجود فروق ذات دلالة إحصائية تعزى لمتغير الجنس ولصالح الإناث، ولمتغير الدخل الشهري للأسرة ولصالح الطلبة الذين ينتمون إلى أسر يزيد دخلها شهري عن 1250 دينار، ولمتغير نظام التعليم ولصالح الطلبة في النظام الدولي. وأوصت الدراسة بزيادة الوعي لدى الطلبة -وخاصة في المدارس التي تطبق المنهج الوطني- بمفاهيم وقيم المواطنة الرقمية وتدريبهم على السلوك الإيجابي في التعامل مع التكنولوجيا، كما أوصت باستحداث مقرر للمواطنة الرقمية، وإقراره ضمن الخطط والمسارات الدراسية.

الكلمات المفتاحية: المواطنة الرقمية، طلبة المرحلة الثانوية، درجة امتلاك، الأردن.

The Degree to Which Secondary School Students in Jordan Possess Digital Citizenship Skills

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Abstract

The purpose of this study was to identify the degree to which secondary school students in Jordan possess digital citizenship skills and to identify the extent of statistically significant differences attributed to variables: gender, family monthly income, education system. The researcher used the descriptive survey analysis approach to conduct the study; the study tool (A test) was prepared consisting of (52) items and they were classified according to the nine elements of digital citizenship as follows: digital literacy, digital etiquette, digital laws, digital health and wellness, digital access, digital communications, digital security, digital commerce, digital rights and responsibilities. After verifying the test validity and reliability, it was distributed to the study sample consisting of (456) male and female students, they were chosen by the stratified randomized method. The study found that the degree to which secondary school students in Jordan possessed digital citizenship skills was medium, and the results of the study showed statistically significant differences attributed to the gender and for the benefit of females, and the results indicated that there were statistically significant differences attributed to the income and for the benefit of students who belong to families whose monthly income exceeds 1250 Dinars, and the results indicated that there were statistically significant differences attributed to the education system and for the benefit of students in the international system. The study recommended the introduction of a digital citizenship curriculum in schools and endorsing it within the educational plans and paths.

Keywords: Digital citizenship, Secondary school students, Degree of possession, Jordan.

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