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The Extent of Comprehension and Knowledge with Respect to Digital Citizenship Among Middle Eastern and US students at UNC

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Abstract
Digital technologies have revolutionized the way people acquire information and gain new knowledge. With a click or touch on the screen, anybody who is online can sail in the digital world and accomplish many things. As such, the optimal use of information and communication technology involves user comprehension, knowledge, and awareness of positive digital citizenship. The purpose of this study was to examine the scope of knowledge and understanding about digital citizenship among Middle Eastern and US students at the University of Northern Colorado. It also examines the difference among Middle Eastern and US students at the University of Northern Colorado in three categories: respect, education and protection. The study was based on a questionnaire that was distributed to 51 students at the University of Northern Colorado. The result reveals that there was not a significant difference between Middle Eastern and US students at the University of Northern Colorado in term of digital citizenship awareness. This study recommends examining other variables that may affect on digital citizenship.
Keywords: Digital citizenship, awareness, respect, educate, protect, Middle East.

1. Introduction

Information and communication technologies have transformed the world into a small village. A person on one side of the world can instantly reach another person on the other side of the world. Such widespread and easy communication throughout the world could lead to the use of these technologies in inappropriate ways. The massive use of technology in the 21st century will increase students' interaction with the digital world. As such, the optimal use of information and communication technology involves user comprehension, knowledge, and awareness of positive digital citizenship.

Digital citizenship encompasses rules and regulations, standards and norms, ideas, and principles followed to ensure the optimal and positive use of technology. Moreover, the development of digital citizenship is an integral part of the digital communications revolution, which has provided ease and speed communication processes, as well as access to information sources. Some positive elements of the digital revolution include opportunities for individuals and society to use media, communications, and technology optimally. However, some negative elements of the digital revolution include rebellion against ethical rules, legal controls, and fundamental principles that govern the daily life affairs of humanity.

In previous centuries, we were able to monitor our children's relationships with other people. But, today the mission has become more complicated. Communicating with unknown people through digital communication introduces inevitable and substantial threats to the safety and privacy of children. On the other hand, observing every browser page or knowing whom children are contacting is impossible due to the spread of digital devices to every time and place. Also, some research has indicated that the digital revolution has had negative impact on children's social behavior and attitudes. Research conducted by Alqurashi, Almaslamani, and Alqahtani (2015) indicates that digital devices can set back children's behavior by isolating them socially. Also, according to Ribble (2006), negative attitudes and use of digital devices has become a notable problem among students.

It remains for us to choose either to accept this negative impact or to direct and care for our children by positively teaching them how to use the rules and principles of positive digital citizenship to protect them from the potential liabilities and misuses of the technology that is available to them. Currently, parents, educators, and students are in dire need of a prevention and stimulus policy that provides protection against the potential dangers involved with the use of today's advanced technology and motivates users to benefit optimally from positive elements of the digital revolution. According to Al-Zahrani (2015), it is broadly recognized that expanded skills and understanding of technology with practice are associated with enhanced motivation and readiness to utilize technology.

To date, definitions of digital citizenship have been inconsistent, and research regarding current knowledge and awareness regarding digital citizenship is limited. Ribble (2006) discusses the categories of protection, respect, and education as a framework for understanding digital citizenship. Pescetta (2011) identified the necessity of establishing guidance in the use of communications technology to help students to be

safe in digital environments. Richards (2010) suggested three levels of citizenship that can be used to guide instructional designers in efforts to improve the maturity of digital citizenship on the part of students: (a) the personally responsible citizen, egger to help his or her community by doing things like recycling or participating in local school district meeting, (b) the participatory citizen actively participates in civil and social life in all level, and need to understand the policy and regulations of government, and (c) the justice oriented citizen are who represent the social justice by focusing on poor people for example in providing a food instead of donating it. However, Richards (2010) mentioned to ISTE digital citizen practices of technology stander that do not promote important characteristics of a digital citizen, but still applicable to integrate it together.

In addition, Alzahrani (2015) conducted a study that examined higher education students' understanding of digital citizenship in Saudi Arabia. And he found that most important elements that play significant role in digital citizenship are computer experience, daily average technology use, students' attitudes toward the Internet, and computer self-efficacy.

There is a lack of research studies that compare international with US students' levels of digital citizenship. More research is needed to attempt to examine the scope of knowledge and understanding about digital citizenship among Middle Eastern and US students.

The research question and sub-questions for this study are:

1. What is the level of Middle Eastern and US students at the University of Northern Colorado in digital citizenship awareness based on Ribble's (2012) categories?
    a. Is there a significant difference between Middle Eastern and US students at the University of Northern Colorado based on respect level in the digital citizenship awareness?
    b. Is there a significant difference between Middle Eastern and US students at the University of Northern Colorado based on education level in the digital citizenship awareness?
    c. Is there a significant difference between Middle Eastern and US students at the University of Northern Colorado based on protection level in the digital citizenship awareness?

2. Literature Review

2.1. Conceptual definitions of digital citizenship and its components

Digital citizenship has several definitions that have the same implied meaning. According to Ribble (2009), "digital citizenship means using technology appropriately and responsibly" (p. 13). Ribble & Bailey (2004) also stated that "digital citizenship can be defined as the norms of behavior concerning technology use" (p. 13). Jones and Mitchell (2015) argue that digital citizenship is different from digital literacy and cyberbullying in that digital citizenship focuses on the use of internet resources to enhance respectful and tolerant behavior among students and to increase civic collaboration activities. Isikli (2015) states that, "digital citizenship is a socio-technical phenomenon", and that digital citizens have specific "…cognitive, affective and psychomotor skills related to digital (numeric) and virtual world [*sic*]" (p. 25).

Previous definitions of digital citizenship center on the individual's interaction with others using digital tools and resources, such as computers of varying types, with the internet serving as a medium for communication with others utilizing a variety of means such as email, blogs, websites, and various social media applications. The digital citizen is aware that behaviors and practices should be decent in online interactions. A digital citizen is defined as one who has improved skills and behaviors that endorse positive interactions with others in the digital world.

Based on the definitions of digital citizenship, one can determine the properties of this concept in the following areas: awareness of digital citizenship components, ownership of effective practice skills in using the digital world, and the practice of the ethical rules of technological behavior that characterize socially acceptable interaction with others. In this regard, Ribble (2012) proposed three categories of digital citizenship: Respect, Educate, and Protect (REP). Each category includes three elements, which further define the challenges of digital citizenship and potential misuse of technology. The three categories that Ribble developed are considered a corner stone in education processes. Embedding these three principles (REP) in the curriculum potentially will enhance teachers' and students' awareness and understanding about the appropriate use of technology (Ribble, 2012). These three categories have nine elements that explain in detail the digital citizenship framework as shown in Table 1.

Table 1. Main categories and elements of digital citizenship (reprinted from Ribble, 2012).

Categories	Elements
Respect (Yourself/Respect Others)	Etiquette (electronic standards of conduct or procedure) Access (full electronic participation in society) Law (electronic responsibility for actions and deeds)
Educate (Yourself/Connect with Others)	Communication (electronic exchange of information) Literacy (process of teaching and learning about technology and the use of technology) Commerce (electronic buying and selling of goods)
Protect (Yourself/Protect Others)	Rights and Responsibility (those freedoms extended to everyone in a digital world) Safety (electronic precautions to guarantee safety) Health and Welfare (physical and psychological well-being in a digital technology world)

2.2. Digital citizenship awareness

Digital citizenship, aims to set boundaries and create obstacles to those who would use technology to command and control users in a way that is contrary to the values of freedom, justice, and of social and human rights. Efforts at promoting digital citizenship focus on finding the right way to guide and protect all users, especially children and adolescents, encouraging desired behaviors, and preventing outcast behaviors in digital transactions, for the real digital citizen, loves his country and strives to offer an excellent image of a digital citizen.

Digital native and *digital immigrant* are distinguished in the literature. A digital native is a user who was born with 21st century digital technology, and a digital immigrant is a person who has adopted digital technology and may be fascinated by many aspects of it (Ribble, 2007). Digital citizenship offers guidelines for life. Every one of us benefits from understanding the current digital technology that is used and what will be applied in future. It is necessary to respect the limits of this technology, the impact of the technology on ourselves and others, and then to understand the best way to use it. Lissitsa (2015) researched digital usage patterns among groups differing in their sociopolitical status and found that the groups with higher financial gain and education tended toward capital-enhancing uses; whereas, those with lower education and financial gain levels tended toward recreational uses.

According to Ribble (2012), good digital citizens have a significant role in technological society by assisting the development of enhanced usability. Hamutoğlu and Ünal (2015), contend that a digital citizen needs to be aware of crime on the internet the same as crime in real life. For protecting students from the digital threats that are present in daily life, Oxley (2010) explained that teachers' roles in protection processes of students include educating them about appropriate use, and teaching students how to make wise choices when interacting in the digital world. Lindsey and Davis (2010), argued that when students have authority and personalization of digital tools, they have control over the learning process, and they develop global citizenship along with appropriate online content and digital fluency.

2.3. Cultural diversity in digital citizenship awareness

There are many cultural, legal, and environmental differences that may affect students' levels of digital citizenship awareness. These differences may significantly affect the ways that people use modern technologies. According to the International Society for Technology in Education's (ISTE) standards for teachers (2016), Standard 4 is to: promote and model digital citizenship and responsibility, teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. This standard makes us more aware of our responsibility to the global and digital culture. Ohler (2010) considered digital citizenship as a term that describes the culture of the times in which we live now, and the author emphasized the importance of proactively engaging issues of digital citizenship in schools. Pescetta (2011) stated that for a student to be considered a knowledgeable citizen, they will need to own skills that contain include global awareness, the ability to learn and work collaboratively, and respect for other cultures. Such standards and statements make it clear that managing diversity and cultural differences are major elements of digital citizenship awareness.

Although global citizenship is a large part of digital citizenship awareness, Shelley et. al. (2004) found that race, age, language, socioeconomic status, and disabilities are significant indicators of students' access to and use of technology. The researchers also mentioned that computer ownership and internet access have rapidly increased among all racial and ethnic groups, with the exception of Blacks and Hispanics. The percentage of each group owning home computers was as follows: Whites (56%), Blacks (33%), and Hispanics (33%) Asian (4%). According to Lissitsa (2015), the digital divide in developed countries is narrowest in terms of computer and internet usability. Lissitsa (2015) reported that, in the United States, the percentage of technology users

among Afro- Americans and Hispanics is lower than that of Whites and those from Asiatic countries.

2.4. Summary and Conclusions

There is clear evidence of misuse and mishandling of technology in digital society, as indicated by results from studies and research conducted by activists in the field of technology (Ribble & Bailey, 2004b). This problem has been investigated in schools, and some issues have been the use of websites on the Internet to frighten and intimidate, the creation of rumors, commercial fraud (such as downloading programs without licenses), fraudulent fees, and penetrating sites for impersonation or to leak information (Ribble, 2007; Ribble & Bailey, 2004b; Ribble et. al., 2004). These behaviors are facilitated and spread through the use of smartphones, play using computers, and portable devices because offenders can move from one place to another quickly and be hidden with ease. As such, educators are responsible for promoting, supporting, and encouraging digital citizenship awareness, and ISTE standards address the need for commitment on the part of educators promote awareness and responsibility in the use of digital technology.

Ribble (2015) provided a logical structure that instructional designers can use to embed the principles and behaviors of digital citizenship into ongoing education. This comprehensive model provides guidelines for behavior within and beyond the classroom. The principles of digital citizenship also promote global awareness and positive regard for managing diversity. Promoting digital citizenship awareness through education is likely to provide primary prevention relative to the many dangers that children (and others) face as global, digital citizens.

The important questions for focus on the part of researchers are, (a) How can we address these issues? (b) How do we control the use of technology? and (c) How we can protect our children from this threat?

3. Methodology

3.1. Participants

The strategy used in the current study is convenience sampling in which the participants are willing and available to be studied (Creswell, 2008). The population was all University of Northern Colorado students in Greeley, which totaled 10,959 students. Participants were (n = 51) Middle Eastern and US students who were studying at the University of Northern Colorado. This accomplished via convenience sampling of Middle Eastern and US students at the University of Northern Colorado using a survey about digital citizenship awareness. There were 20 male students and 31 female students. The age of participants ranged from 18 to 66 years.

3.2. Data Collection Procedures

This study used a non-experimental quantitative methodology. After determining the participants for this study, an online questionnaire was used to investigate differences between Middle Eastern and US students at a midsize university located in the Rocky Mountain region of the United States in terms of their digital citizenship awareness. No one under 18 invited to participate in this study. This study utilized only survey research. Participation in the survey was voluntary and respondents choose not to respond to any questions that they did not wish to answer.

The questionnaire included three major sections: (a) Respect (Yourself/Respect Others), (b) Educate (Yourself/Connect with Others and (c) Protect (Yourself/Protect Others). A five-point Likert scale (5 = strongly agree, 1 = strongly disagree) was used to classify the students' responses.

The digital citizenship awareness scale was developed by Al-Zahrani (2015). It includes 46 items categorized in three main sections (Subscales), which intended to meet the three main themes of REPs (see Appendix B). The number of items included in each subscale is presented in Table 2.

Table 2. Digital citizenship scale (REPs)

Subscale	N
Respect Yourself/Respect Others	24
Educate Yourself/Connect with Others	11
Protect Yourself/Protect Others	11
Total	46

3.3. Data Analysis

Data was analyzed using quantitative methodologies. In most instances, some descriptive statistics was reported; however, a MANOVA was used to determine differences based on students' cultural backgrounds. All data collection occurred online. A random sample of students were sent an email inviting them to participate in the study.

The obtained data from the questionnaire was uploaded to SPSS for statistical analysis. For the main research question, descriptive statistics were used to investigate the demographic data between the Middle Eastern and US students at the University of Northern Colorado. the sub-questions were analyzed by using A

one-way between-groups multivariate analysis of variance (MANOVA), because there were more than one dependent variable, (the respect, educate and protect) and two independent variables (Middle Eastern and US students).

3.4. Validity and Reliability

The questionnaires were for Middle Eastern and US students. Students from the Middle East spoke English due to the fact that the dominant language is English in the United States. For that reason, the use of English led the researcher to believe that the responses would be accurate. Also, the questionnaire validity was tested by having a panel of experts check its relevance, content, and construction by Al-Zahrani (2015). In this study, reliability statistics were obtained using Cronbach's alpha coefficient that indicated acceptable internal consistency levels exceeding .7 (Pallant, 2007). See Table 3.

Table 3. Reliability statistics

Subscale		α	N
Digital Citizenship Awareness	Respect Yourself/Respect Others	.86	24
	Educate Yourself/Connect with Others	.84	11
	Protect Yourself/Protect Others	.74	11
Total Digital Citizenship Awareness		.91	46

4. Findings

4.1. Demographic Characteristics

The purpose of this study was to understand the difference of students' level of digital citizenship awareness, students' demographic characteristics were collected in this research. According these data, 20 males and 31 females. Participants' age ranges were between 18 and 66 years old. The education level of the students was 9 undergraduates (17.6%) and 42 graduate students (82.4%). The students' origins were 29 Middle Eastern students (56.9%) and 22 US students (43.1%).

4.2. Statistical Tests

As previously discussed, the digital citizenship scale was divided into three subscales. The overall mean score for each subscale, as well as the total mean for the scale, are shown in Table 4.

Table 4. Digital citizenship (n=51)

Subscale	*M*	*SD*
Total Respect (Yourself/Respect Others)	*4.28*	*.380*
Total Educate (Yourself/Connect with Others)	*4.06*	*.495*
Total Protect (Yourself/Protect Others)	*3.64*	*.658*
Total Digital Citizenship Awareness	*4.08*	*.410*

According to the data on table 1, the total mean for students' digital citizenship awareness is 4.08, which indicates a good level based on Al-Zahrani scale (2015). The awareness of digital citizenship appeared in the highest level in Total Respect ($\bar{x}$ = 4.28) on using digital technology by (M = 4.28). This is followed by Total Educate ($\bar{x}$ = 4.06) and Total Protect ($\bar{x}$ = 3.64).

The data of the scale was assumed to have a normal distribution. Therefore, a one-way between-groups multivariate analysis of variance (MANOVA) was performed to understand the difference of respect, education, and protection levels (as dependent variable) among students with respect to digital citizenship awareness (as independent variable). Accordingly, Wilks' lambda values (λ) are shown in Table 5.

Table 5. (MANOVA)

Effect	**Wilks' λ**	**F**	**Hypothesis df**	**Error df**	**Sig.**
Digital Citizenship Awareness	**.935**	**1.092**	**3**	**47.000**	**.362**

The MANOVA results indicated no statistical difference between respect, education, and protection levels among students with respect to digital citizenship awareness [F (3, 47) = 1.092, p = .362; Wilks' λ = .935].

Table 6 shows no statistical significance Difference of (REP) levels on students' digital citizenship awareness when the results for the dependent variables were considered separately.

Table 6. Test results for between-subjects' effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Digital Citizenship Awareness	Respect (Yourself/Respect Others)	.01	1	.01	.06	.80
	Educate (Yourself/Connect with Others)	.34	1	.34	1.43	.23
	Protect (Yourself/Protect Others)	.82	1	.82	1.93	.17

5. Discussion and Conclusion

The results of this study indicated that the students have a high level of respecting themselves and respecting other people in the virtual world environment. Also, the students believe the digital right to participate and practice on any type of digital aspect. The students showed a desired of working digitally in a proper environment by providing a positive attitude on technology applications that support life learning, collaboration, personal pursuit, and productivity (Ribble, Bailey, & Ross, 2004).

This study also showed no significant deference between Middle Eastern and US students in regard to digital citizenship awareness. The findings indicate that all students have acceptable levels of respect, educate, and protect categories of digital citizenship awareness.

A limitation of this study is based on a questionnaire conducted in one university and thus, the result may not be generalizable to other parts of the world. Also, the researcher was not able to find a significant difference, possibly because one group of the sample had a different primary language and thus may not have understood some difficult technical terms in the survey. However, this study may help future studies to find the factors of best practice of digital citizenship based on 21st century.

There are many recommendations for future research on similar topics. Future studies may need to examine other variables such as students' internet attitude and computer experience. Moreover, as the study was limited to one university, it is recommended that this study be replicated and extended to other populations. If more universities and types of international students were involved, the results of the study would be more generalizable to the entire population. Also, the survey language was not the primary language of some of the participants, and that these students may not have understood some technical words written in English, so might be another study conducted using a survey written in Arabic for those students will be find more result.

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