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The Effect of Digital Citizenship on Negative Online Behaviors and Learning Outcomes in Higher Education

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ABSTRACT

With the increase in Internet use, there has been an upsurge in negative online behaviors (such as cyberbullying and online harassment) among college students. As a result of the negative online behaviors, many students may experience anxiety, depression, feelings of loneliness, and alienation, which ultimately can impact their well-being and interfere with their ability to learn. It is envisaged that extending *digital citizenship* behavior to educational settings will arrest, or at the very least help mitigate, the impact of these negative behaviors on student learning outcomes. Using data collected from 184 university students, results show that perceived learning outcomes indirectly impact the relationship between digital citizenship and cyberbullying behaviors.

Keywords: Digital citizenship, Cyberbullying, Higher education, Online engagement, College students, Learning goals & outcomes

1. INTRODUCTION

Due to their Internet activity, especially on social media, it is popular to assume that college students are tech-savvy and, thus, versant and responsible within the online environment. Subsequently, parents, educators, and other stakeholders often do not make much effort to engage with them in training and education, or at the very least, in conversations and discussions on appropriate Internet behavior. Within online contexts, Internet users are often exposed to negative online behavior, such as cyberbullying and online harassment, which is facilitated by the ubiquity and accessibility of the Internet (McCosker & Johns, 2014). In particular, young people and college students are especially vulnerable to Internet bullying, harassment, and other high-risk behaviors (Chisholm, 2014; Luker & Curchack, 2017; Washington, 2015; Watts et al., 2017). Pew Research Center reports that 48% of younger adults aged between 18 and 29 have been targeted online with more severe behaviors than 32% of those aged 30 to 49 and 12% of those 50 and older (Vogels, 2021). Moreover, cyberbullying and online harassment have been shown to cause a decline in academic performance, lead to increased absences and truancy, and interfere with educational and learning processes

(Hargittai, 2013; Kahn & Liñares-Zegarra, 2016; Luker & Curchack, 2017; Tokunaga, 2010).

Negative online behaviors threaten society as a whole because they sometimes traverse offline settings leading to severe consequences. For example, researchers believe that bullying and harassment on social media have primarily been responsible for increasing cases of loneliness, alienation, emotional distress, depression, and suicide among young people (Chisholm, 2014; Curtin & Heron, 2019; Rosenberg, 2019). These and other such distressing outcomes demonstrate the need to understand the link between moral and ethical norms of appropriate online behavior, cyberbullying, and the impact on learning in higher education nationally and globally (Blaya et al., 2018; Faucher et al., 2014; Ndiege & Kanyi, 2018; Washington, 2015; Xu et al., 2019).

Norms of appropriate online behavior and positive engagement on the Internet point to *digital citizenship*, a concept which arises from the notions of “traditional” citizenship, which entails being a legal member of a social, political, or national community, and comes with rights and responsibilities (Caves, 2004; Choi, 2016). Prior research shows that when individuals have a sense of citizenship, belonging, or community, their behavior tends to reflect moral

or ethical codes of practice (Meyer-Bisch, 1995). In that regard, and by extension, a good citizen embodies such qualities as obeying laws and regulations, voting, and paying taxes, similar to digital citizenship in an online context (Choi, 2016).

Mossberger et al.'s (2007) seminal work conceptualized digital citizenship as an online-enabled ability to participate in society as democratic citizens; and a digital citizen as "one who uses the Internet regularly and effectively" perhaps to obtain political information or support civic causes. However, it is well known that individuals engage online in more superficial ways, such as participating in online games, visiting popular culture websites, or connecting with others on social media platforms (Choi, 2016). Thus, many researchers have viewed digital citizenship beyond civic engagement, no matter the type of an individual's online activity. By so doing, it is hoped they will be propelled toward more positive, safe, responsible online engagement and away from negative, harmful interactions. Indeed, more extant research on the concept of digital citizenship (e.g., Atif & Chou, 2018; Choi, 2016) has recognized the important dimensions of "ethics" in online spaces, whereby people interact on the Internet in a safe, responsible, and ethical manner. It is this notion of online civility that propelled some of the earlier work to define digital citizenship as the "norms" of behavior in the context of using technology, with references to concepts such as "etiquette" and "responsibility" (e.g., Ribble et al., 2004). Therefore, we define digital citizenship as *the norms of appropriate, responsible behavior, including critical thinking and making ethical choices while using the Internet* (Atif & Chou, 2018; Choi, 2016; Mossberger et al., 2007; Ribble et al., 2004).

Much of the prior research on digital citizenship has focused on defining digital citizenship to describe the dimensions that comprise digital citizenship through the development of a digital citizenship scale and examining the relationship between the constructs that encompass digital citizenship (e.g., Cheng & Chau, 2016; Choi, 2016; Choi et al., 2017). A possible reason for this is that the concept is complex and encapsulates such diverse dimensions that scholars have struggled to come to a consensus on what it means (Atif & Chou, 2018). While much of the work has framed digital citizen as a social justice concept aimed at encouraging active civic engagement (e.g., Heath, 2018; Mossberger, 2008; Mossberger et al., 2007), other researchers have used a digital literacy focus, viewing it as a way to teach Internet safety and responsibility (e.g., Choi 2016).

Despite the research done on digital citizenship, negative online behavior remains a problem on the increase, which points to the need for more work to be done, especially with respect to understanding the interplay between digital citizenship behavior and negative online behavior and learning outcomes. Several studies have proposed that digital citizenship is important in higher education settings (Al-Zahrani, 2015; Kim & Choi, 2018; Pedersen et al., 2018); however, research on this phenomenon is scant. Thus, the purpose of this study is to empirically examine the impact of student digital citizenship behaviors on learning outcomes and negative online behaviors to advance support of the need for digital citizenship pedagogy in higher education. Therefore, our main research questions address the following: (1) *What are the impacts of digital citizenship behavior on negative online behavior and on learning outcomes?* (2) *Does perceived learning outcomes change the relationship between digital citizenship and*

negative behaviors? and (3) *What are the salient digital citizenship behaviors among students in higher education?*

The goal of including digital citizenship in higher education curriculum is behavior modification. In our study, we leverage Social Learning Theory (SLT) to explain digital citizenship behavior because of its emphasis on learning and its ability to modify behavior. Through various means of associated learning, it is possible to learn new behaviors, values, and attitudes. We argue that digital citizenship behavior can be learned and thereby help to modify or replace unacceptable risky online behavior with positive interactions and engagement. Thus, digital citizenship has potential to reduce cyberbullying behavior and positively impact learning outcomes.

The results of this study will enrich our understanding of the interplay between digital citizenship behaviors and learning outcomes on cyberbullying behaviors in higher education. We hope to uncover ways to anticipate and moderate negative online behaviors through student learning to strengthen digital citizenship behavior. At the same time, because IS educators share some responsibility in preparing students to be aware of potential risks and threats that lurk online (McLoughlin & Alam, 2014; Pawlowski & Jung, 2015), we hope our research contributes to research in IS pedagogy by providing a starting point for directing students toward positive online interactions.

2. BACKGROUND LITERATURE: DIGITAL CITIZENSHIP

Based on Mossberger et al.'s (2007) definition of digital citizenship and combining it with extant literature on online participation, online civility, and responsible, ethical engagement (specifically, Atif & Chou, 2018; Choi, 2016; Ribble et al., 2004), we define digital citizenship as the norms of appropriate, responsible behavior, including critical thinking and making ethical choices while using the Internet. It follows then that a digital citizen is an individual who is aware of the opportunities and benefits of online platforms and who exercises ethical values online and encourages and promotes appropriate responsible behavior while engaging with others online (Çubukçu & Çubukçu, 2017). Digital citizenship extends traditional citizenship notions—which refer to being a legal member of a social, political, or national community with the rights and responsibilities accorded to them—onto an online context (Caves, 2004; Choi, 2016).

The concept of digital citizenship is based on three schemas that enable us to understand how digital citizenship behaviors operate: (1) Feenberg's (1991) critical approach: the idea that individuals control behavioral trajectories offered by new technologies, such as the Internet; (2) Castell's (1996) civic citizenship in the space of flows: the understanding that the Internet has provided increased abilities to network within new contexts and more ways in which information flows within these spaces; and (3) the choice availability approach: the focus on the possibility of users to move easily within online spaces and the abilities which allow them to do so (e.g., Choi et al., 2017). These theoretical frameworks derive five digital citizenship constructs, namely an individual's involvement with *Internet Political Activism*, their *Critical Perspective*, their *Local/Global Awareness* of issues, their *Technical Skills*, and their *Networking Agency*.

Per Castells' (1996) and Feenberg's (1991) arguments, the Internet provides new contexts and spaces within which individuals can network, collaborate, and share ideas and information. Within these spaces, individuals can be manipulated towards more participatory expression and critique of traditional systems. Thus, an individual's *Internet Political Activism*—defined as action-oriented and transformation-driven actions within online communities—can be formed and nurtured as individuals exchange ideas on issues that concern them (Xu et al., 2019).

Similarly, an individual's *Critical Perspective*—views on issues of macro contexts (i.e., those at the historical, social, and political level), power, relevance, and culture—can be influenced by these interactions and cause an individual to rethink their online participation (Halualani et al., 2009; Xu et al., 2019). Furthermore, by engaging and interacting with others online, and by participating in online discussions within online communities, an individual's *Local/Global Awareness*—or their ethical consumption of information deals with local and global issues—can be activated, especially once they learn how to search, organize and differentiate this information for themselves (Choi et al., 2017; Xu et al., 2019). Therefore, the higher the levels of Internet political activism, critical perspective, and local/global awareness, the more individuals will exhibit digital citizenship qualities.

Technical skills are those capabilities that allow one to use a tool competently. Therefore, in an online environment, they refer to those abilities that enable an individual to navigate the Internet skillfully. When viewed as a tool, the Internet has many potential uses and benefits; and therefore, as with any tool, proficiency is determined by the skill level and the type and quality of prior (Internet-based) experience (Glassman, 2013). Extrapolating from the arguments behind Castells' (1996) civic citizenship in the space of flows and the choice availability approach, the capacity to practice digital citizenship depends on an individual's abilities to navigate the Internet (Glassman & Kang, 2016). It is envisaged that the more proficient one's technical skills, the better they will be at practicing digital citizenship behavior.

Networking Agency refers to higher media literacy levels and more advanced choice availability abilities and includes generating content and collaborating with others in online communities (Glassman & Kang, 2016; Xu et al., 2019). Within these online communities, the skills required include not only: (1) the basic technical skills that allow users to move easily within online spaces *but also*, (2) individual and psychological abilities (such as the cognitive-intellectual abilities required to analyze and interpret information), as well as, (3) the socio-communicative skills to network with others (Choi et al., 2017). Technical skills and online proficiency as evidenced by an ability to effectively interact with Internet-based applications (Wells et al., 2003) do not necessarily translate into an ability to develop new understanding, communicate effectively with others or even distinguish between negative and positive online engagement (Apps, 2015). However, students can be trained on appropriate online engagement, such as that which comes from applying and practicing digital citizenship.

3. THEORY DEVELOPMENT: SOCIAL LEARNING THEORY

According to psychology literature, intelligent behavior is the product of associated learning, known as psychological behaviorism. Behaviorism explains that when a stimulus is provided to induce behavior, an association—which can be positive or negative—is made in the learner's mind, and consequently, learning occurs (Stevens-Fullbrook, 2019). For instance, an individual who has had a bad experience with dogs may learn to fear all dogs. Alternately, an individual wishing to discontinue an addiction could learn to make a negative association with the addiction trigger (i.e., Pavlov's conditioning; Stevens-Fullbrook, 2019). Also, learning by conditioning takes place via a system of rewards and punishments, where an individual learns by making an association between a particular behavior and reward (e.g., a child learning to associate completing homework with being allowed to watch television) or with punishment (e.g., a child learning to associate fighting in school with suspension; Skinner, 2019).

Social Learning Theory (SLT), which stems from Albert Bandura's work in the 1960s, builds upon and combines these ideas on behaviorism and conditioning with the notion of reinforcement to explain how learning occurs. Reinforcement happens when a behavior is rewarded and can be either positive (e.g., receiving gifts for particular behavior) or negative (e.g., getting punished for actions), internal (e.g., feeling happy from personal actions), external (e.g., receiving approval from others), or vicarious, when it occurs by observing another individual being rewarded or punished (McLeod, 2016). SLT provides a foundation to explain why people engage or do not engage in criminal, delinquent, or deviant behavior (Akers, 1985; Akers & Jennings, 2009; Akers & Sellers, 2013). People can learn new behaviors, values, and attitudes by observing and imitating others. Similarly, individuals observing and imitating positive role models learn positive behaviors or individuals associating with deviant peers learn deviant behaviors. Thus, with its arguments on behaviorism, conditioning, and reinforcement, social learning theory provides a theoretical foundation to explain how college students can learn the norms and values of digital citizenship.

4. RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

4.1 Digital Citizenship

The dimensions of digital citizenship behaviors are *Technical Skills* (TS) or the instrumental and technical competencies needed for using the Internet; *Local/Global Awareness* (LGA), or the ability to search and obtain information at the local and global level, and the ability to participate on the Internet; *Internet Political Activism* (IPA), or engaging in political actions; a *Critical Perspective* (CP), which means critically thinking about issues of injustice, bias, and power structure on the Internet; and *Networking Agency* (NA), or being involved with Internet communities through commenting, co-operating and online collaboration.

4.2 Perceived Learning Outcomes

Learning outcomes are defined as what a student is expected to know, understand, and/or demonstrate at the end of the learning process (ECTS, 2005). Learning outcomes are comprised of: (1) subject-specific outcomes, relating to the given or taught content, (2) personal outcomes, celebrating student

achievement (which includes and transcends subject-specific goals), and (3) generic academic outcomes, involving a balance of knowledge, skills, creative thought and motivation (Allan, 1996). Subject-specific outcomes are cognitive and measured by formal assessments and credits as designed in the curriculum, while personal and generic academic outcomes are more behavioral. Furthermore, personal and generic academic outcomes are transferrable in the sense that the student acquires core skills in some areas of competence and contexts (e.g., problem-solving, communication skills, numeracy, personal effectiveness, IT skills) that can be generalized or transferred to other contexts which employ the same skills (Allan, 1996).

In general, the cognitive outcomes (i.e., the subject-specific outcomes) can be positively influenced by digital citizenship. These outcomes can transpire when students are not distracted by the psychological consequences—such as anger and fear—from both cyberbullying perpetration and victimization (Watts et al., 2017). At the same time, the behavioral outcomes (i.e., the personal and generic academic outcomes) align with the positive online engagement that digital citizenship seeks to encourage. Thus, when students are trained on and encouraged to have positive engagement online, it is expected that they will achieve high learning outcomes through conditioning and positive reinforcement. Furthermore, the proposed positive impact of digital citizenship on high learning outcomes implies that there will be a reduced likelihood of cyberbullying and other negative online behaviors. Subsequently, we propose that digital citizenship behaviors will have a positive impact on perceived learning outcomes. Thus, we hypothesize:

H1: Digital citizenship positively impacts perceived learning outcomes in higher education settings.

4.3 Cyberbullying Perpetration

With the ubiquity of the Internet and its increased use worldwide, there has been an increase in aggressive and negative online behavior, representing less than desirable citizenship behavior (McCosker & Johns, 2014). Prior research on negative online behaviors primarily focused on cyberbullying (a term used to refer to aggressive online behavior involving an imbalance of power and strength, performed repeatedly with the intent of harming, embarrassing, or damaging the other individual), especially among adolescents and students (Jameson, 2008; Watts et al., 2017). However, “cyberbullying” only covers a segment of types of negative engagement that occur online. More extant research reveals that negative online behavior can take various forms, some more extreme or aggressive than others, including cyberbullying, cyber harassment, revenge porn, online vitriol, death, and rape threats. In contrast, other types, such as the non-deviant forms of trolling, are viewed as being on the less severe end of the spectrum (Cruz et al., 2018; Fichman & Sanfilippo, 2016; Phillips, 2015). Research on cyberbullying and online harassment also reveals that there is a sub-genre of this type of behavior that focuses on online sexual harassment including, non-consensual sharing and distribution of sexual images, revenge porn, and cyberstalking—behaviors which tend to be gendered and mainly aimed at women, girls and gender minorities (Fox & Tang, 2017; Gardiner, 2018).

The Internet possesses certain features that particularly enable these types of negative online behavior so that face-to-face interactions do not (Suler, 2004). For instance, some social media platforms allow an individual to interact anonymously;

meanwhile, online anonymity has been shown to encourage disinhibition, a sense of impunity, a loss of self-awareness, and a likelihood of acting upon normally inhibited impulses (Hardaker, 2010, 2013; Sia et al., 2002). In turn, these allowances motivate cyberbullying and cyber harassment behavior because the perpetrator is aware that there are few or no consequences for their actions.

A review of the literature reveals an abundance of studies on negative online behavior, especially in the realm of cyberbullying and online harassment. In addition, cyberbullying scholars have proposed interventions to combat such behavior, including parental monitoring and restricted Internet use (e.g., Bleakley et al., 2016). Despite proposed offline and online interventions, they often fall short of expectation. There remains a need to do more about the prevention of cyberbullying and support for cyberbullying victims (Bonanno & Hymel, 2013). Cyberbullying victims often suffer from poor academic performance, experience anger, and psychological consequences when cyberbullying is not addressed. They sometimes become cyberbullies themselves (Watts et al., 2017).

Although much of the prior cyberbullying research focuses on school-age children and adolescents, more extant research reveals that cyberbullying also occurs in institutions of higher learning. [We note that cyberbullying in higher education is experienced by students, instructors and faculty (Minor et al., 2013), however in our study we focused only on college students as we were interested in its impact on learning outcomes]. Evidence shows that school bullying continues into the university as students who bullied their fellow students in high school also bully their fellow college mates and that those who had been victimized in high school report that they are subject to bullying while they are in college (Yubero et al., 2017). A more significant concern with college students is that they tend to bring their attitudes towards cyberbullying behavior and victimization into the workplace (Watts et al., 2017).

Students are often subject to less parental supervision of Internet use and greater access to digital and social media with entry into colleges and universities. Thus, there are high possibilities for cyberbullying and victimization behaviors (Yubero et al., 2017). Further, many young people leaving the protection and familiarity of home and family to attend a college may experience euphoria at the idea of independence, but at times, also loneliness and social isolation. These feelings of loneliness may cause some to turn to the Internet for more extended periods to avoid isolation, further increasing the chances of being cyberbullied (Yubero et al., 2017). To compound this, research shows that students often do not believe that institutions can do anything to prevent or intervene in cyberbullying situations, especially if the perpetrator is “hidden” behind the Internet’s anonymity; thus, the victims feel helpless (Baldasare et al., 2012). In many cases, students are not even aware that there are legal consequences associated with cyberbullying (Paullet & Pinchot, 2014). To add to this, cyberbullying is difficult to detect or prove, and many institutions do not have a specific university policy to address it (Baldasare et al., 2012).

However, highlighting to learners actual cases of individuals who have been caught and have received some form of punishment and consequences for their actions (i.e., learning by conditioning) could be a very effective tool for teaching

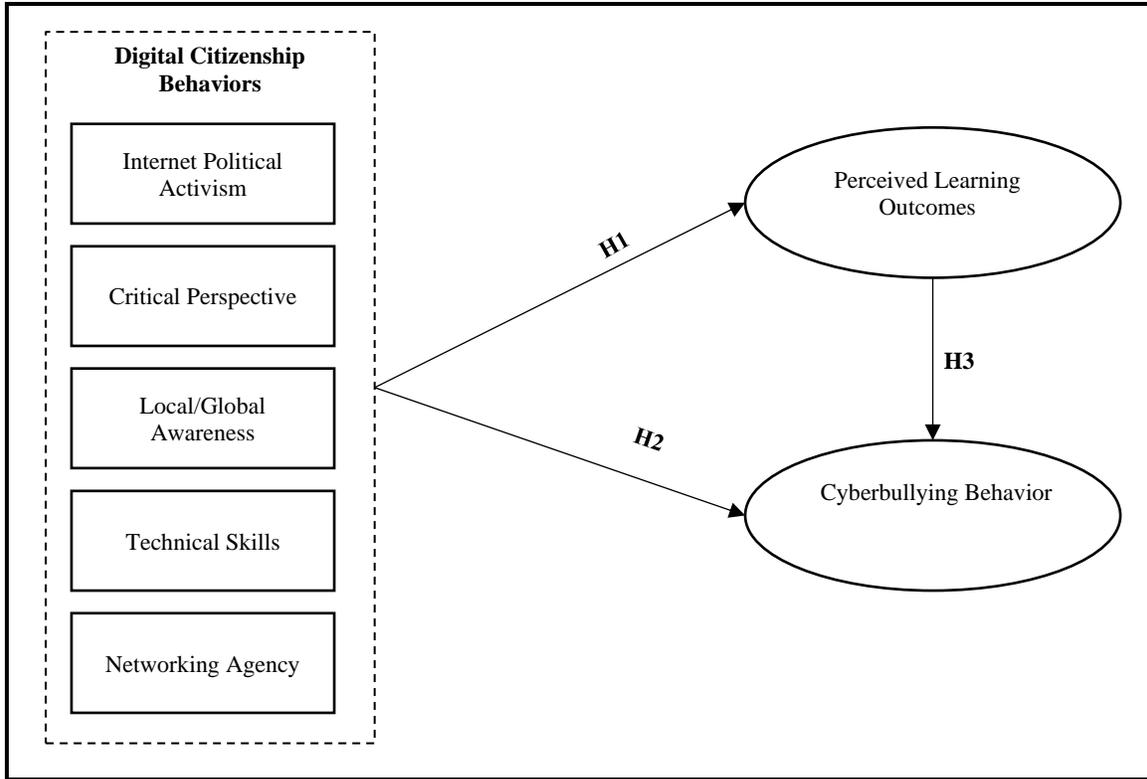


Figure 1. Research Model

digital citizenship behaviors. At the same time, exposing them to real-life situations in which individuals have gained or been rewarded for positive online engagement (i.e., positive reinforcement) could help with directing them towards ethical and moral norms of online interactions and adopting digital citizenship behaviors. Thus, digital citizenship behaviors can reduce the effects of cyberbullying and other negative online behaviors. Therefore, we have our second (H2) and third hypotheses (H3).

H2: Digital citizenship influences cyberbullying behavior in higher education settings.

H3: Perceived learning outcomes influences cyberbullying behaviors in higher education settings.

Figure 1 shows the proposed hypothesized relationships in the research model.

5. RESEARCH METHODOLOGY

5.1 Survey Administration and Data Collection

To test our hypotheses, we conducted an online survey administered to college students in a mid-sized university in the Midwest United States during the Fall 2019 semester. The survey instrument was developed using scales that have previously been developed, validated, and published in IS literature (the Appendix shows the validated scales). Students were informed of the study purpose and asked to provide their responses to their Internet experiences and the Management Information Systems (MIS) course they were currently enrolled. Participation was voluntary. They were also asked questions regarding the digital citizenship dimensions, their weekly web usage, perceived learning outcomes, and

perceptions and experiences with cyberbullying behavior. The data was collected over two months, and responses were anonymized using the Qualtrics platform. Each IS faculty designated extra credit points that students could receive for participating in the research study.

5.2 Participants

The sample comprised IS students from a mid-sized university in the Midwest United States. All students were primarily undergraduate students enrolled in MIS courses, which aimed at presenting IS principles and expanding their understanding of IT systems required to support business processes as applied in the various business functions (e.g., Accounting, Human Resources, Economics, Management). The students were enrolled across three MIS courses: Information Systems for Business, Structured Systems Analysis, and Computer Concepts and Applications.

There were 184 participants consisting of 173 undergraduate (94%) and 11 graduate students (6%) at a large Midwest university. Based on Tapscott's (2009) definition of net generation, most participants are first-generation users in the digital age. The mean age of the subjects was 22 years, with the range being 18 to 55 years. There were 106 males (57.6%) and 77 females (41.8%), with 1 unidentified as other (see Table 1). The racial composition of the sample was: 137 Whites (74.4%), 25 Asian (13.5%), 9 Blacks (4.89%), 10 Hispanics (5.43%), and 3 other (1.6%) (see Table 2). The participants were primarily majoring in disciplines within the School of Business (160, 90%) or other university disciplines (24, 10%). The majority of students reported using the Internet weekly for more than 14 hours.

Variable		Weekly Web Usage				
		0-3 hrs	4-7 hrs	8-13 hrs	More than 14 hrs	Total
Age	18-20	1	11	16	24	52
	21-25	2	15	43	47	107
	26-30	0	3	7	8	18
	31-55	0	1	3	3	7
College Level	Freshman	1	7	9	6	23
	Sophomore	0	3	2	8	13
	Junior	2	7	18	23	50
	Senior	0	13	36	38	87
	Master's	0	0	4	7	11

Table 1. Participant Web Usage Profile

Race	White	Asian	Black / African American	Hispanic	Other	Total # of Participants
Female	56	8	6	5	2	77 (41.8%)
Male	80	17	3	5	1	106 (57.6%)
Other	1	0	0	0	0	1 (0.5%)
	137 (74.4%)	25 (13.5%)	9 (4.89%)	10 (5.43%)	3 (1.6%)	184

Table 2. Participant Demographic Profile

5.3 Measures

All constructs included in this study were operationalized using scales that have been validated and have demonstrated good psychometric properties in disparate studies (see the Appendix). The survey items were measured at the individual level. Four dimensions characterize the digital citizenship construct: Ethics, Media and Information Literacy, Participation/Engagement, and Critical Resistance (Choi et al., 2017). The four dimensions (Ethics, Media and Information Literacy, Participation/Engagement, and Critical Resistance) are measured as five constructs operationalized as a second-order construct. Higher-order modeling involves summarizing the first-order constructs into a single multidimensional construct (Hair et al., 2017). First-order constructs capture a single-level of abstraction. Certain instances of complex research can be operationalized at higher levels of abstraction to capture more concrete attributes of the observed behavior. Thus, the lower-order construct attributes form the higher-order construct. This process can be extended to any number of layers resulting, in third, fourth, etc. models; most researchers restrict their modeling to two layers (i.e., second-order models). Digital Citizenship consists of these five constructs: (a) Internet Political Activism (IPA), (b) Technical Skills (TS), (c) Local/Global Awareness (LGA), (d) Critical Perspective (CP), and (e) Networking Agency (NA) comprising digital citizenship. A 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used. Figure 2 shows each Digital citizenship dimension average score based on the participant responses.

Four items are used to measure Perceived Learning outcomes. A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used. Learning outcomes are measured with direct and indirect assessment methods. Rajkumar et al. (2011, p. 538) described these measures as:

“direct measures involve a systematic and objective examination of actual student products to determine the extent to which the students are able to do what the program’s student-learning outcomes state they should be able to do” and “indirect assessment measures perceptions of students’ abilities.” Self-assessment is the most popular method in indirect assessments. This self-assessment measure reported is characterized as perceived learning outcomes. The perceived learning outcomes are often gathered via methods such as surveys and interviews, among others, and can be useful in research (Rajkumar et al., 2011).

Negative Online Behavior is measured as cyberbullying perpetration. Cyberbullying perpetration was measured using a 3-item scale adapted from Ybarra et al. (2007). Students were asked to rate their frequency of cyberbullying perpetration behavior in the last 12 months from 1 (not at all) to 7 (very frequently).

Variance inflation factor (VIF) is used to test for multicollinearity. A VIF value of 5 and higher can indicate a potential problem (Hair et al., 2011). VIF values for the formative indicators ranged from 1.2 to 5.2. Two indicators VIF (CBP2-5.1 and CP3- 5.5) values were above the 3.0 threshold, and it is acceptable if it is less than 10 (Hair et al., 1995). All other indicator VIF values were below the threshold of 3.3 (Petter et al., 2007) indicated multicollinearity is not a major issue.

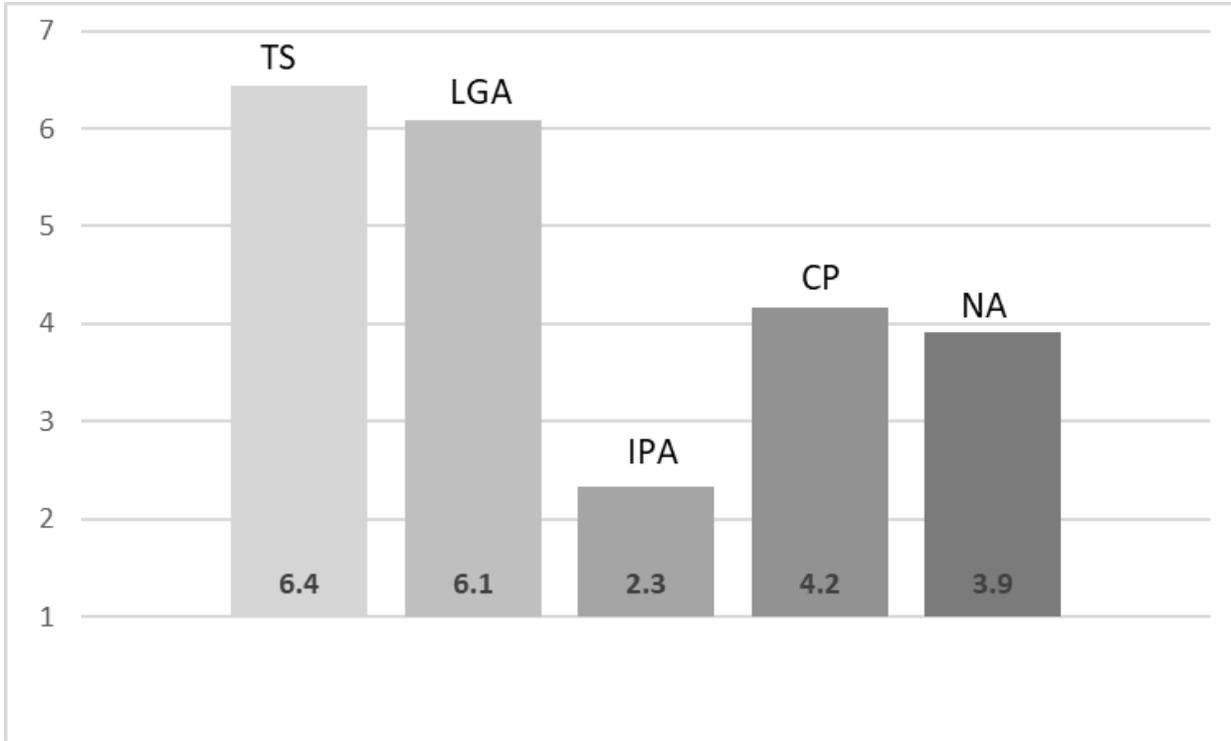


Figure 2. Digital Citizenship Response Average Score

6. RESULTS AND DISCUSSION

6.1 Measurement Reliability and Validity

The results from testing the measurement and structural model using PLS-SEM (Partial Least Squares-Structural Equation Modeling) are presented next. PLS-SEM is deemed appropriate for the study because of the existence of a second-order formative construct (Ringle et al., 2015). Digital citizenship was measured as a second-order construct to achieve a higher-level of abstraction to show a more concrete view of

the lower-order subdimensions. (Sarstedt et al., 2011). Higher-order constructs also have several advantageous features. For instance, a higher-order construct creates a parsimonious path model (Edwards, 2001; Johnson et al., 2012; Polites et al., 2012). Higher-order constructs also provide a means for reducing collinearity among formative indicators by rearranging the indicators across different concrete subdimensions of the abstract construct (Hair et al., 2018).

Latent Variables	CR	AVE	Cronbach Alpha
Technical Skills (TS)	0.85	0.65	0.73
Local/Global Awareness (LGA)	0.91	0.85	0.82
Internet Political Activism (IPA)	0.90	0.89	0.88
Critical Perspective (CP)	0.85	0.56	0.80
Networking Agency (NA)	0.85	0.58	0.73
Perceived Learning Outcomes (PLO)	0.90	0.68	0.85
Cyberbullying Perpetration (CBP)	0.95	0.86	0.92

Table 3. Assessment of the Measurement Model

We tested convergent validity using PLS-SEM version 3.3.2 by extracting all indicator items' factor and cross-loading to their respective latent constructs. Additionally, we used PLS-SEM to test the structural model. Furthermore, we assessed the possibility of multicollinearity across the formative indicators of digital citizenship, reflective indicators of perceived learning outcomes, and cyberbullying perpetration items.

Reliability results are given in Table 3. The data indicates that the measures are robust in terms of their internal consistency reliability as indexed by the composite reliability. The composite reliabilities of the different measures range from 0.85 to 0.95, which exceeds the recommended threshold value of 0.70 (Nunnally 1978). Consistent with the Fornell and Larcker guideline (1981), the average variance extracted (AVE) for each measure exceeded 0.5. For example, the Perceived Learning (PLO) measure reached a level of

reliability: $\alpha = 0.85$, and the Cyberbullying Perpetration (CBP) measure reached an adequate level of reliability: $\alpha = 0.92$. The rest of the measures are shown in Table 3.

Table 4 reports the results testing the discriminant validity of the measurement scales. The elements in the matrix diagonals representing the square root of the AVEs, are greater in all cases than the off-diagonal elements in their corresponding row and column, supporting the discriminant validity of our scales.

These results from PLS-SEM, presented in Table 5, indicated that all items loaded on their respective construct from a lower bound of 0.70 to an upper bound of 0.96, and more highly on their respective construct than on any other. Furthermore, each item's factor loading on its respective

construct was highly significant ($p < 0.001$), as indicated by the T-statistics of the outer model loadings in the PLS-SEM output. These values ranged from a low of 2.06 to a high value of 10.43. The construct's items' loadings and cross-loading are presented in Table 5. The highly significant T-statistic for each individual item loading confirms the indicators' convergent validity as representing distinct latent constructs. Six items (TS1, IPA1, IPA2, IPA3, IPA4, CP2, CP5, and NA3) T-statistic loaded below 1.96 were removed from the model. The dimensions, including individual items retained in the final scale and their factor loading, are provided in Table 5. Consistent with prior literature (Choi et al., 2017), the Local/Global Awareness construct loaded and is measured as a two-item factor.

Latent variables		1	2	3	4	5	6	7	8
1	Cyberbullying Perpetration (CBP)	.93							
2	Critical Perspective (CP)	-.05	.75						
4	Internet Political Activism (IPA)	.15	.46	.77					
5	Local/Global Awareness (LGA)	.03	.23	.10	.92				
6	Network Agency (NA)	.02	.53	.41	.09	.81			
7	Perceived Learning Outcomes (PLO)	-.30	.12	.04	.16	.26	.83		
8	Technical Skills (TS)	-.07	.08	-.09	.31	.09	.18	.80	-

Table 4. Discriminant Validity (Intercorrelations) of Variables

	Cyberbullying Perpetration	Critical Perspective	Internet Political Activism	Local/Global Awareness	Networking Agency	Perceived Learning Outcomes	Technical Skills
CBP1	0.872	-0.060	0.152	-0.007	0.107	-0.209	-0.058
CBP2	0.952	-0.020	0.174	0.052	0.037	-0.280	-0.054
CBP3	0.962	-0.054	0.152	0.034	0.036	-0.320	-0.046
CP1	-0.027	0.800	0.297	0.157	0.314	0.019	0.123
CP3	-0.116	0.853	0.235	0.236	0.389	0.160	0.041
CP4	-0.081	0.700	0.151	0.104	0.413	0.214	0.020
CP6	-0.002	0.700	0.267	0.126	0.420	0.032	0.051
CP7	0.035	0.714	0.588	0.216	0.446	0.040	0.062
IPA5	0.124	0.321	0.840	0.025	0.245	-0.004	0.005
IPA6	0.110	0.372	0.829	0.065	0.454	0.041	0.050
IPA7	0.018	0.449	0.752	0.223	0.246	0.120	0.045
IPA8	0.240	0.290	0.761	-0.060	0.293	-0.088	-0.059
IPA9	0.218	0.229	0.712	0.127	0.100	-0.051	0.066
LG1	-0.001	0.191	0.031	0.899	0.055	0.131	0.306
LG2	0.053	0.232	0.138	0.940	0.058	0.161	0.269
NA1	0.139	0.464	0.405	0.090	0.810	0.226	0.039
NA2	-0.060	0.405	0.170	0.107	0.785	0.229	0.131
NA4	-0.046	0.421	0.296	0.020	0.760	0.173	0.081
PLO1	-0.159	0.030	0.002	0.101	0.180	0.732	0.209
PLO2	-0.258	0.082	-0.030	0.133	0.141	0.848	0.193
PLO3	-0.207	0.039	-0.024	0.053	0.170	0.808	0.065
PLO4	-0.308	0.180	0.065	0.196	0.278	0.899	0.181
TS1	-0.107	-0.027	-0.151	0.132	-0.068	0.097	0.797
TS2	-0.061	0.028	-0.032	0.214	0.059	0.105	0.734
TS3	-0.090	0.068	-0.031	0.319	0.044	0.234	0.885

Note: Factor loadings are shown in bold.

Table 5. Factor Loadings and Cross-Loadings

6.2 Path Modeling and Hypothesis Testing

Since we conceptualized digital citizenship as a second-order formative construct formed, we looked at the weights of these

constructs. We found that the path coefficients are significant for all dimensions except Technical Skills ($\beta = .225, p > .05$). The resulting four constructs significantly contribute to the

underlying overall digital citizen construct; thus, technical skills were eliminated from the final model. All other beta path coefficients are positive (i.e., in the expected direction) and statistically significant (at $p < .05$).

The results of the structural model are illustrated in Figure 3. As we predicted, digital citizenship positively affects perceived learning outcomes ($\beta = .240, p < .05$). Digital citizenship affects cyberbullying perpetration behavior ($\beta = .108, p < .05$). Perceived learning outcomes positively influence cyberbullying behaviors ($\beta = .994, p < .000$) is significant. The results show a significant indirect effect of digital citizenship behaviors on cyberbullying perpetration through students' perceived learning outcomes ($p < .05$).

Surprisingly, the results showed the influence of technical skills on digital citizenship was not significant. This result could be likely explained by the sample composition. The majority of student participants were between 18 and 30, an age group commonly characterized as *digital natives*. Digital natives are described as those born during or after the introduction of digital technologies and who prefer and are quite adept at using digital media (Palfrey & Gasser, 2011; Prensky, 2001). Digital natives have access to networked digital technologies and appear to have innate skills to use them effectively; hence they may not need as much technical training as other age groups.

6.3 Post-Hoc Analysis

A priori theorizing for mediation testing was not considered in our initial research model. Since Digital Citizenship behaviors in IS higher education students are emerging, this study provided an opportunity to advance research in this area. Mediation occurs when a third mediator variable intervenes between two related constructs. According to Venkatraman (1989), mediation is the "...existence of a significant intervening mechanism between antecedent and the consequent variables" (p. 428). Consequently, the mediator variable becomes the underlying mechanism of the relationship between the two constructs. The analysis performed in our research showed strong support for an indirect effect of digital citizenship behaviors on the relationship of cyberbullying

perpetration through students' perceived learning outcomes. The Post-Hoc analysis will help gain insights into the impact of perceived learning as a mediator between digital citizenship and cyberbullying behaviors.

Mediation testing was executed following the recommendations to researchers (Hair et al., 2017). They recommend that researchers bootstrap the sampling distribution of the indirect effect. Bootstrapping makes no assumptions about the shape of the variables' distribution or the statistics sampling distribution. This approach is well-suited for PLS-SEM and implemented in SmartPLS 3 software. Additionally, bootstrapping the indirect effect yields higher statistical power levels than other mediation tests, such as the Sobel test.

The bootstrapping analysis showed that the indirect effect is significant ($\beta = .758, p < .05$). Further evaluation to determine full or partial mediation results the direct effect of DS > CBP significant ($\beta = .769, p < .05$). Thus, resulting in a partial mediation effect. Partial mediation maintains that the mediating variable accounts for some, but not all, of the relationship between the independent and dependent variables. Perceived learning outcomes is a mediator of the relationship between digital citizenship behaviors and cyberbullying behavior. Students' learning perceptions play a significant role in the outcome of their cyberbullying behavior. Table 6 shows the mediation test results.

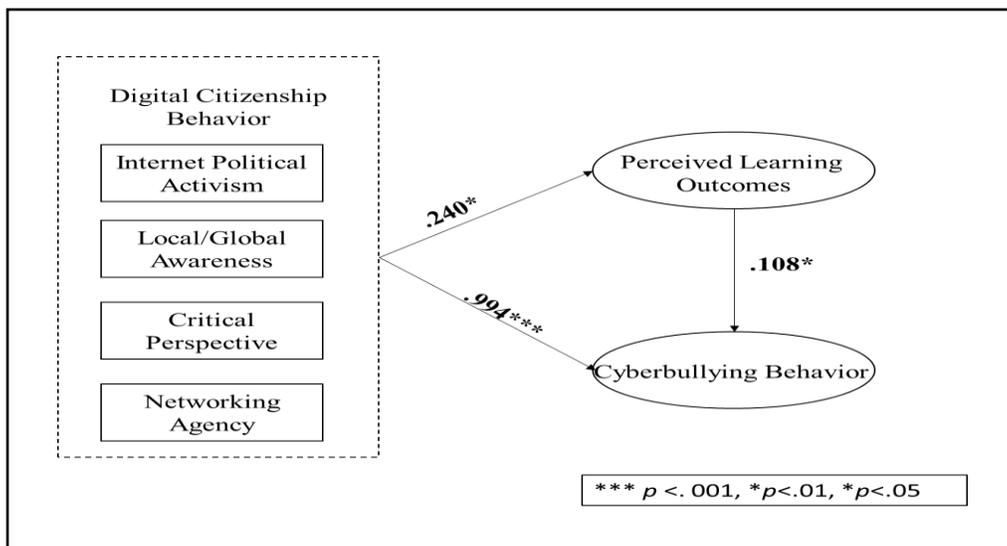


Figure 3. Emergent Structural Model

Mediation Results					
DC -> PLO -> CBP	Original Sample(O)	Sample Mean(M)	Standard Deviation	T Statistics	P Values
	0.758	0.74	0.275	2.758	0.006
Partial Mediation Results					
DC-> CBP	Original Sample(O)	Sample Mean(M)	Standard Deviation	T Statistics	P Values
	0.769	0.757	0.286	2.689	0.007

Table 6. Post Hoc Mediation Results

6.4 Limitations and Suggestions for Future Research

Today’s increasingly digitally connected world has witnessed an increase in cyberbullying and other negative online behaviors. Although this phenomenon was initially prevalent among school-age children and adolescents, there has been a growing trend of negative online behavior among college students. Consequently, there is an increasing urgency for educating college students—especially digital native students who are often assumed to be tech-savvy—on the norms of online behavior in an attempt to mitigate the effects of these negative online behaviors. Studies in this realm have mostly been in pedagogical and psychology research. However, extending digital citizenship research to the IS discipline is relevant and necessary because of its focus on digital technology and social media. It provides a different lens for a greater understanding of how its effects could influence learning outcomes.

We used cross-sectional data in our study, where learning outcomes and cyberbullying perpetration were measured at a single point in time among students. A longitudinal study examining whether there is a long-term change brought about by incorporating digital citizenship education into pedagogy would be beneficial. For example, adding a discussion focused on digital citizenship behaviors to bring awareness of the ethical and social issues in IS to existing or new IS courses. Also, a pre-, post-test with a digital citizenship education intervention would be an effective way of showing the impact that training students on the norms of positive online engagement. Such a study would survey students at the start of their college career, apply a digital citizenship training invention throughout their time in college, and then survey students before they graduate. The post analysis would shed insights to determine whether the intervention impacted their learning, Internet use practices, and negative online behaviors.

6.2 Implications for IS Education

We propose that digital citizenship behavior can be learned, and therefore, it is hoped that facilitating digital citizenship education to students will propel them towards positive online engagement. We build on arguments such as those advanced by Jones and Mitchell (2016) that digital citizenship education will help the youth practice online civic engagement, respectful online disagreements, and debates. Further, it will contribute to efforts to reduce online bullying and harassment behaviors and victimization.

Digital citizenship awareness could be provided at the college level as required or integrated into IS courses with a learning objective of educating students on socially responsible behavior online. In this way, students can be encouraged to

adopt moral and ethical codes of practice and norms that will govern their behavior in online contexts within their college or university setting, providing them the skills to contribute positively to debates in online forums, participate in support of collective action, and engage in online support communities (Atif & Chou, 2018; Choi, 2016).

In particular, when taught in higher education settings, digital citizenship can help mitigate the impact of negative online behaviors and benefit students as they prepare for personal and professional success beyond college. It is further anticipated that proposed interventions and education can help eradicate negative online behaviors leading to improved academic performance.

7. CONCLUSION

In this paper, we examined digital citizenship and explored its ability to mitigate negative online behaviors’ impact on student learning outcomes. There has been an increasing trend of negative online engagement, including cyberbullying and cyberharassment, which can interfere with students’ performance. We propose that digital citizenship awareness can provide a valuable direction for IS educators attempting to teach, encourage, and promote positive online behavior and improve learning outcomes.

8. REFERENCES

Akers, R. L. (1985). *Deviant Behavior: A Social Learning Approach* (3rd ed.). Belmont, CA: Wadsworth.

Akers, R. L., & Jennings, W. (2009). Social Learning Theory. In J. Miller (Ed.), *21st Century Criminology: A Reference Handbook* (pp. 323-332). Thousand Oaks, CA: Sage Publications, Inc.

Akers, R. L., & Sellers, C. S. (2013). *Criminological Theories: Introduction, Evaluation, and Application* (6th ed.). New York: Oxford University Press.

Allan, J. (1996). Learning Outcomes in Higher Education. *Studies in Higher Education*, 21(1), 93-108.

Al-Zahrani, A. (2015). Toward Digital Citizenship: Examining Factors Affecting Participation and Involvement in the Internet Society among Higher Education Students. *International Education Studies*, 8(12), 203-217.

Apps, T. L. (2015). *ICT Literacy and the Digital Divide: Understanding Primary Students’ ICT Practices and Possibilities*. University of Wollongong Thesis Collection.

Atif, Y. & Chou, C. (2018). Digital Citizenship: Innovations in Education, Practice, and Pedagogy. *Journal of Educational Technology & Society*, 21(1), 152-154.

- Baldasare, A., Bauman, S., Goldman, L., & Robie, A. (2012). Cyberbullying? Voices of College Students. In *Misbehavior Online in Higher Education*. Emerald Group Publishing Limited.
- Blaya, C., Kaur, K., Sandhu, D., & Sundaram, S. (2018). Cyberbullying in Higher Education in India and France: An Empirical Investigation. In P. K. Smith, S. Sundaram, B. A. Spears, C. Blaya, M. Schäfer, & D. Sandhu (Eds.), *Bullying, Cyberbullying and Student Well-being in Schools: Comparing European, Australian and Indian Perspectives* (pp. 107-129). Cambridge University Press.
- Bleakley, A., Ellithorpe, M., & Romer, D. (2016). The Role of Parents in Problematic Internet Use Among US Adolescents. *Media and Communication, 4*(3), 24-34.
- Castells, M. (1996). *The Rise of the Network Society: The Information Age: Economy, Society, and Culture* (1). Oxford: Blackwell Publishers.
- Caves, R. W. (2004). *Encyclopedia of the City*. Routledge.
- Cheng, G., & Chau, J. (2016). Exploring the Relationships Between Learning Styles, Online Participation, Learning Achievement, and Course Satisfaction: An Empirical Study of a Blended Learning Course. *British Journal of Educational Technology, 47*(2), 257-278.
- Chisholm, J. F. (2014). Review of the Status of Cyberbullying and Cyberbullying Prevention. *Journal of Information Systems Education, 25*(1), 77-87.
- Choi, M. (2016). A Concept Analysis of Digital Citizenship for Democratic Citizenship Education in the Internet Age. *Theory & Research in Social Education, 44*(4), 565-607.
- Choi, M., Cristol, D., & Gimbert, B. (2018). Teachers as Digital Citizens: The Influence of Individual Backgrounds, Internet Use and Psychological Characteristics on Teachers' Levels of Digital Citizenship. *Computers & Education, 121*, 143-161.
- Choi, M., Glassman, M., & Cristol, D. (2017). What It Means to Be a Citizen in the Internet Age: Development of a Reliable and Valid Digital Citizenship Scale. *Computers & Education, 107*, 100-112.
- Cruz, A. G. B., Seo, Y., & Rex, M. (2018). Trolling in Online Communities: A Practice-Based Theoretical Perspective. *The Information Society, 34*(1), 15-26.
- Çubukçu, Z., & Çubukçu, A. (2017). The Detection of Public Policy in the Formation of Digital Citizenship. *PESA International Journal of Social Studies, 3*(3), 140-150.
- Curtin, S. C., & Heron, M. (2019, October). Death Rates Due to Suicide and Homicide Among Persons Aged 10-24: United States, 2000-2017. U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Health Statistics, NCHS Data Brief, No. 352. <https://www.cdc.gov/nchs/data/databriefs/db352-h.pdf>
- ECTS. (2005). *ECTS Users' Guide, 2005*. Directorate-General for Education and Culture, Brussels. https://ec.europa.eu/education/ects/users-guide/docs/ects-users-guide_en.pdf
- Edwards, J. R. (2001). Multidimensional Constructs in Organizational Behavior Research: An Integrative Analytical Framework. *Organizational Research Methods, 4*(2), 144-192.
- Faucher, C., Jackson, M., & Cassidy, W. (2014). Cyberbullying Among University Students: Gendered Experiences, Impacts, and Perspectives. *Education Research International, 1*-10.
- Feenberg, A. (1991). *Critical Theory of Technology*. NY: Oxford University Press.
- Fichman, P., & Sanfilippo, M. R. (2016). *Online Trolling and Its Perpetrators: Under the Cyberbridge*. London: Rowman & Littlefield.
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39-50.
- Fox, J., & Tang, W. Y. (2017). Women's Experiences with General and Sexual Harassment in Online Video Games: Rumination, Organizational Responsiveness, Withdrawal, and Coping Strategies. *New Media & Society, 19*(8), 1290-1307.
- Gardiner, B. (2018). It's a Terrible Way to Go to Work: What 70 Million Readers' Comments on the Guardian Revealed about Hostility to Women and Minorities Online. *Feminist Media Studies, 18*(4), 592-608.
- Glassman, M. (2013). Open Source Theory .01. *Theory & Psychology, 23*(5), 675-692.
- Glassman, M., & Kang, M. J. (2016). Teaching and Learning Through Open Source Educative Processes. *Teaching and Teacher Education, 60*, 281-290.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate Data Analysis* (3rd ed.). New York: Macmillan.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (2nd ed.). Thousand Oaks, CA: Sage.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice, 19*(2), 139-152.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2018). *Advanced Issues in Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks, CA: Sage.
- Halualani, R. T., Mendoza, S. L., & Drzewiecka, J. A. (2009). "Critical" Junctures in Intercultural Communication Studies: A Review. *The Review of Communication, 9*(1), 17-35.
- Hargittai, E. (2013). Connected and Concerned: Variation in Parents' Online Safety Concerns. *Policy and Internet, 5*(3), 245-269.
- Heath, M. K. (2018). What Kind of (Digital) Citizen?: A Between-Studies Analysis of Research and Teaching for Democracy. *International Journal of Information and Learning Technology, 35*(5), 342-356.
- Ho, S. S., Chen, L., & Ng, A. P. (2017). Comparing Cyberbullying Perpetration on Social Media Between Primary and Secondary School Students. *Computers & Education, 109*, 74-84.
- Jameson, S. (2008). Cyberharrasment: Striking a Balance Between Free Speech and Privacy. *CommLaw Conspectus, 17*, 231-266.
- Johnson, R. E., Rosen, C. C., Djurdjevic, E., & Taing, M. U. (2012). Recommendations for Improving the Construct Clarity of Higher-Order Multidimensional Constructs. *Human Resource Management Review, 22*(2), 62-72.
- Jones, L. M., & Mitchell, K. J. (2016). Defining and Measuring Youth Digital Citizenship. *New Media & Society, 18*(9), 2063-2079.

- Kahn, C. M., & Liñares-Zegarra, J. M. (2016). Identity Theft and Consumer Payment Choice: Does Security Really Matter? *Journal of Financial Services Research*, 50, 121-159.
- Kim, M., & Choi, D. (2018). Development of Youth Digital Citizenship Scale and Implication for Educational Setting. *Journal of Educational Technology & Society*, 21(1), 155-171.
- Luker, J. M., & Curchack, B. C. (2017). International Perceptions of Cyberbullying Within Higher Education. *Adult Learning*, 28(4), 144-156.
- McCosker, A., & Johns, A. (2014). Contested Publics: Racist Rants, Bystander Action and Social Media Acts of Citizenship. *Media International Australia*, 151(1), 66-72.
- McLeod, S. (2016). Simply Psychology. Albert Bandura - Social Learning Theory. <https://www.simplypsychology.org/bandura.html>
- McLoughlin, C. E., & Alam, S. L. (2014). A Case Study of Instructor Scaffolding Using Web 2.0 Tools to Teach Social Informatics. *Journal of Information Systems Education*, 25(2), 125-136.
- Meyer-Bisch, P. (Ed.). (1995). *Culture of Democracy: A Challenge for Schools*. Paris, France: Cultures of peace, United Nations Educational, Scientific and Cultural Organization (UNESCO) Publishing.
- Minor, M. A., Smith, G. S., & Brashen, H. (2013). Cyberbullying in Higher Education. *Journal of Educational Research and Practice*, 3(1), 15-29.
- Mossberger, K. (2008). Toward Digital Citizenship: Addressing Inequality in the Information Age. In *Routledge Handbook of Internet Politics* (pp. 189-201). Abingdon, United Kingdom: Routledge.
- Mossberger, K., Tolbert, C. J., & McNeal, R. S. (2007). *Digital Citizenship: The Internet, Society, and Participation*. MIT Press.
- Ndiege, J. R. A., & Kanyi, P. W. (2018). Cyberbullying in Institutions of Higher Learning in Developing Countries: Evidence from Kenya. In *2018 IEEE International Symposium on Technology and Society (ISTAS)* (pp. 108-112). IEEE.
- Nunnally, J. C. (1978). *Psychometric Theory*. New York: McGraw Hill.
- Palfrey, J. G., & Gasser, U. (2011). *Born Digital: Understanding the First Generation of Digital Natives*. ReadHowYouWant.com.
- Paullet, K., & Pinchot, J. (2014). Behind the Screen Where Today's Bully Plays: Perceptions of College Students on Cyberbullying. *Journal of Information Systems Education*, 25(1), 63-70.
- Pawlowski, S. D., & Jung, Y. (2015). Social Representations of Cybersecurity by University Students and Implications for Instructional Design. *Journal of Information Systems Education*, 26(4), 281-294.
- Pedersen, A. Y., Nørgaard, R. T., & Köppe, C. (2018). Patterns of Inclusion: Fostering Digital Citizenship Through Hybrid Education. *Journal of Educational Technology & Society*, 21(1), 225-236.
- Petter, S., Straub, D., & Rai, A. (2007) Specifying Formative Constructs in Information Systems Research. *MIS Quarterly*, 31(4), 623-656.
- Phillips, W. (2015). *This Is Why We Can't Have Nice Things: Mapping the Relationship Between Online Trolling and Mainstream Culture*. Cambridge, MA: MIT Press.
- Polites, G. L., Roberts, N., & Thatcher, J. (2012). Conceptualizing Models Using Multidimensional Constructs: A Review and Guidelines for Their Use. *European Journal of Information Systems*, 21(1), 22-48.
- Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, 9(5), 1-6.
- Rajkumar, T. M., Anderson, P., Benamati, J., & Merhout, J. W. (2011). Are Student Self-Assessments a Valid Proxy for Direct Assessments in Efforts to Improve Information Systems Courses and Programs? An Empirical Study. *Communications of the Association for Information Systems*, 28, 537-548.
- Ribble, M. S., Bailey, G. D., & Ross, T. W. (2004). Digital Citizenship: Addressing Appropriate Technology Behavior. *Learning & Leading with Technology*, 32(1), 6-9.
- Ringle, C. M., Wende, S., and Becker, J.-M. (2015). PLS-SEM 3. Boenningstedt: PLS-SEM GmbH. <http://www.PLS-SEM.com>
- Rosenberg, J. (2019). Mental Health Issues on the Rise Among Adolescents, Young Adults. AMJC Peer Exchange. In *Focus Blog* (March 19, 2019). <https://www.ajmc.com/focus-of-the-week/mental-health-issues-on-the-rise-among-adolescents-young-adults>
- Sarstedt, M., Becker, J. M., Ringle, C. M., & Schwaiger, M. (2011). Uncovering and Treating Unobserved Heterogeneity with FIMIX-PLS: Which Model Selection Criterion Provides an Appropriate Number of Segments? *Schmalenbach Business Review*, 63(1), 34-62.
- Sia, C. L., Tan, B. C., & Wei, K. K. (2002). Group Polarization and Computer-Mediated Communication: Effects of Communication Cues, Social Presence, and Anonymity. *Information Systems Research*, 13(1), 70-90.
- Skinner, B. F. (2019). *The Behavior of Organisms: An Experimental Analysis*. BF Skinner Foundation.
- Stevens-Fullbrook, P. (2019). 15 Learning Theories in Education (A Complete Summary). *Learning Theories*. <https://teacherofsci.com/learning-theories-in-education/>
- Suler, J. (2004). The Online Disinhibition Effect. *Cyberpsychology & Behavior*, 7(3), 321-326.
- Tapscott, D. (2009). *Grown Up Digital: How the Net Generation Is Changing Your World*. New York: McGraw-Hill.
- Tokunaga, R. S. (2010). Following You Home from School: A Critical Review and Synthesis of Research on Cyberbullying Victimization. *Computers in Human Behavior*, 26(3), 277-287.
- Venkatraman, N. (1989). The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence. *Academy of Management Review*, 14(3), 423-444.
- Vogels, E. (2021). *The State of Online Harassment*. Pew Research. <https://www.pewresearch.org/internet/2021/01/13/the-state-of-online-harassment/>
- Washington, E. T. (2015). An Overview of Cyberbullying in Higher Education. *Adult Learning*, 26(1), 21-27.
- Watts, L. K., Wagner, J., Velasquez, B., & Behrens, P. I. (2017). Cyberbullying in Higher Education: A Literature Review. *Computers in Human Behavior*, 69, 268-274.

- Wells, J. D., Sarker, S., Urbaczewski, A., & Sarker, S. U. (2003). Studying Customer Evaluations of Electronic Commerce Applications: A Review and Adaptation of the Task-Technology Fit Perspective. *Proceedings of the 36th Annual Hawaii International Conference on System Sciences* (pp. 10-pp). IEEE.
- Xu, S., Yang, H., & Zhu, S. (2019). An Investigation of 21st-Century Digital Skills on Digital Citizenship Among College Students. In *2019 International Symposium on Educational Technology (ISET)* (pp. 236-240). IEEE.
- Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the Overlap in Internet Harassment and School Bullying: Implications for School Intervention. *Journal of Adolescent Health, 41(6)*, S42-S50.
- Yubero, S., Navarro, R., Elche, M., Larrañaga, E., & Ovejero, A. (2017). Cyberbullying Victimization in Higher Education: An Exploratory Analysis of Its Association with Social and Emotional Factors Among Spanish Students. *Computers in Human Behavior, 75*, 439-449.

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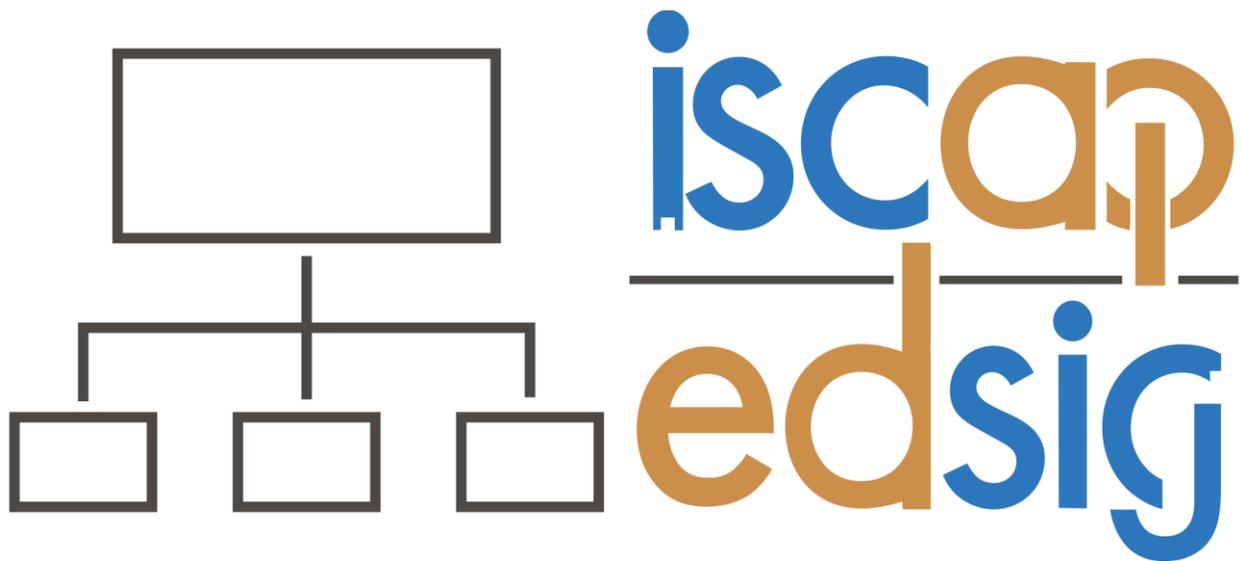
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APPENDIX

Survey Instrument

Variable	Question Text
Digital Citizenship	<p>Technical Skills (Choi et al., 2018)</p> <p>I can use the Internet to find information I need I can use the Internet to find and download application (apps) that are useful to me. I am able to use digital technologies (e.g. mobile/smartphones Tablet PCs, Laptops, PCs) to achieve the goals I pursue. I can access the Internet through digital technologies (e.g. mobile/smartphones, Tablet PCs, Laptops, PCs) whenever I want.</p>
	<p>Local/Global Awareness (Choi et al., 2018)</p> <p>I am more aware of global issues through using the Internet. I am more informed with regard to political or social issues through using the Internet.</p>
	<p>Internet Political Activism (Choi et al., 2018)</p> <p>I attend political meetings or public forums on local, town, or school affairs via online methods. I work with others online to solve local, national, or global issues. I organize petitions about social, cultural, political, or economic issues online. I regularly post thoughts related to political or social issues online. I sometime contact government officials about an issue that is important to me via online methods. I express my opinions online to challenge dominant perspective or the status quo with regard to political or social issues. I sign petitions about social, cultural, political, or economic issues online. I work or volunteer for a political party or candidate via online methods. I belong to online groups that are involved in political or social issues.</p>
	<p>Critical Perspective (Choi et al., 2018)</p> <p>I think online participation is an effective way to make a change to something I believe to be unfair or unjust. I think I am given to rethink my beliefs regarding a particular issue/topic when I use the Internet. I think online participation is an effective way to engage with political or social issues. I think online participation promotes offline engagement. I think the Internet reflects the biases and dominance present in offline power structures. I am more socially or politically engaged when I am online than offline. I use the Internet in order to participate in social movement/change or protest.</p>
	<p>Networking Agency (Choi et al., 2018)</p> <p>Where possible, I comment on other people's writings in new websites, blogs, or Social Networking sites I visit. I enjoy communicating with others online. I enjoy collaborating with others online more than I do offline. I post original messages, audio, pictures, or videos to express my feelings/thoughts/ideas/opinions on the Internet.</p>
	<p>Perceived Learning Outcomes (Rajukumar et al., 2011)</p> <p>I prefer to try different methods to deal with the same thing. I feel I have gained a hands-on understanding of the concepts underlying Management Information Systems (MIS). I feel I have experienced the benefits of MIS firsthand I feel I have learned how to create, execute, and adapt business knowledge in real-time environments utilizing the concepts, case studies, activities learned in this course. I believe that learning is essential to me.</p>
Negative Online Behaviors	<p>Cyberbullying Perpetration (Ho et al., 2017)</p> <p>Students were asked to rate their frequency of cyberbullying perpetration behavior in the last 12 months from 1 (not at all) to 7 (very frequently) for the following statements: Made rude or mean comments to someone on social media Spread rumors about someone on social media, whether they are true or not Made aggressive or threatening comments to someone on social media</p>
Demographics	<p>Gender</p> <p>Male, Female or other</p>
	<p>Weekly Web Usage</p> <p>Weekly Web usage</p>
	<p>Race</p> <p>Choose the race that you consider yourself to be (Asian, White, Black, Hispanic, Other)</p>



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