Research Article

Digital Citizenship, Internet Attitudes and Computer Self-Efficacy: Mapping Factors Influencing Middle School Students' Online Participation

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Abstract

Today's technology, transcending barriers of space and time, has increasingly allowed our younger generations to enter a digital world and form online communities in their personal, social and educational lives. Digital citizenship is the norms and standards for appropriate and responsible online behaviour ensuring a positive, optimal, ethical, and safe use of technology. This study aims to understand middle school students' levels of digital citizenship and its relation to their internet attitudes and perceived computer self-efficacy. It also analyses factors affecting students' level of digital citizenship. A survey of 385 middle school students studying in grades 6, 7 and 8 of private schools in Delhi was conducted. The results reveal that students' grade level but not gender influences their digital citizenship level. Students' internet attitudes and computer self-efficacy were positively correlated to their levels of digital citizenship. The paper ends with educational implications for educators and curriculum designers.

Keywords: Digital Behaviour; Digital Citizenship; Middle School; Digital Practices; Computer Self-Efficacy; Internet Attitude; Digital Literacy; Online Participation; Digital Access; Digital Welfare

Introduction

Advancing information and communication technologies are transforming the world we live in into a small yet global village. Technology today has made it possible for us to overcome barriers of space and time. In the current century, humans use technology for a variety of reasons including working from home, searching for information online, payment of utility bills, casting votes, lodging complaints online, attending virtual classes, and communicating with friends and family, shopping and so on. The restrictions posed by governments across the globe to contain the impact of Covid-19, has further pushed more and more people to go digital in different spheres of their life. This participation in the networked society (Van Dijk, 1991) is not only at a personal or professional level but also civic level, say casting votes, sharing one's public opinion, signing petitions, and organisation and participation in public protests, etc. This citizenship in the digital world is more global and more dynamic in nature (Reynolds & Scott, 2016). The communicative functions of digital technologies indicate new and dynamic forms of engagement with democracy (Baddeley, 1997; Moore, 1999) as well as conducting one's citizenship irrespective of the boundaries of the nation-state, for instance, the #MeTooMovement #BlackLivesMatter, #FarmersProtest, etc. More than the adults, it is nowadays the younger generations, also popularly

known as the digital natives (Prensky, 2010), who engage regularly with these digital technologies. With increased exposure to these technologies, yet little or incomplete knowledge about these digital communities and the consequences of one's actions online, our younger generation is left vulnerable to technology disuse, misuse (Miles, 2011) and the evils of the cyber world (Feinberg & Robey, 2008; Mitchell & Ybarra, 2007; VanFossen & Berson, 2008).

Social media and technology access among middle school students compared to primary school students has increased significantly over the past years. According to a 2015 survey conducted by ASSOCHAM, about 95% of teens surveyed used the Internet, about 81% of them were active on social media with about 72% logging into social media more than once a day (IANS, 2015). Middle school is also a time when citizenship education is introduced in the form of civics (political science, a separate subject) in many schools. With continuously increasing online engagement in the personal, social and educational lives of our younger generation, it becomes pertinent to first understand their online digital preparedness, behaviour and practices. This can then help better plan and equip them with relevant skills to actively participate as efficient citizens of the digital world (Ribble, 2004). Achieving 'civic efficiency' or 'good citizenship' based on social and political participation in one's community is one of the primary aims of education (Dewey, 1916). Thus, the present work aims to understand middle school students' preparedness for and participation (i.e., citizenship) in the digital world. It seeks to understand the relation of their internet attitudes and perceived computer self-efficacy on their digital citizenship.

Review of Related Literature

Traditional, Critical and Digital Citizenship

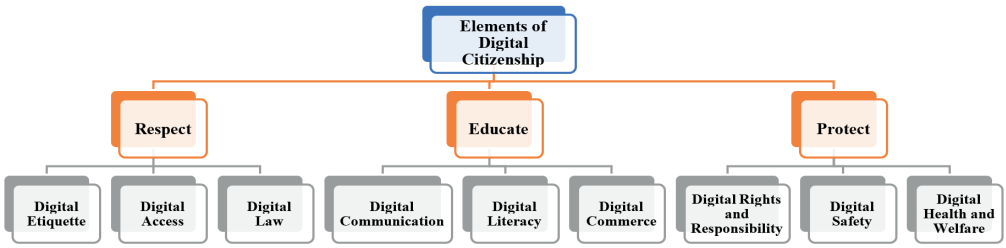
Traditionally, the concept of citizenship is understood as a "legal status/ membership" (Banks, 2008) or a "nationally-bounded membership" (Fischman & Haas, 2012). The phrase 'citizen of a nation-state' has a nationalist right- and responsibilities-based connotation, i.e., the people who are citizens of a nation enjoy certain civil, political, economic, and social rights and responsibilities (Castles & Davidson, 2000). Therefore, a good citizen, from this perspective, obeys laws, follows rules and regulations, and knows and performs their rights and responsibilities, such as voting, paying taxes, preserving national civic culture, heritage, etc. This traditional notion was challenged by many scholars in the late 1990s and 2000s to pave the way for critical conceptions of citizenship. The critical perspective on citizenship recognises the need for expanding the traditional understanding of citizenship by including phenomena like multiculturalism and globalisation, thereby, voicing the inclusion of many ethnically, religiously, linguistically, and culturally marginalised groups to get full citizenship rights (Abu El-Haj, 2007; Agbaria, 2011; Banks, 2008; Ong, 1996; Pike, 2000). Critical Citizenship is a critical form of citizenship wherein a 'good' citizen recognises local, national and global identities and cultural backgrounds and is active and empowered enough to challenge the existing power structures and pursue social equality and justice (Banks, 2008; Westheimer & Kahne, 2004). The prevalent and pervasive use of the Internet in human life paved the way for a new form of citizenship – Digital

Citizenship. Digital citizenship is the "norms of acceptable behaviour with regard to technology use" (Nordin et al., 2016; Ribble, 2004) in social as well as educational environments (Nosko & Wood, 2011). Farmer (2011) explains that digital citizenship is the "ability to use technology safely, critically, productively and civically". It is the users' ability to participate in the online society which in turn requires regular and effective access to the internet and the skills for technology use (Mossberger, Tolbert & McNeal, 2011). This concept emphasizes the internet's empowering capacity for the exercise of economic, political, and social rights and other opportunities often associated with citizenship (Jenson, 2008; Marshall, 1992). For this research, the term digital citizenship is operationalised as norms and standards for appropriate and responsible behaviour (ISTE, 2000; Ribble, 2014) by the users to use technology in an effective, safe, ethical, sensible, critical, reasonable, and productive manner (Farmer, 2011; Miles, 2011), hence, ensuring a positive and optimal use of technology (Alqahtani, Alqahtani & Alqurashi, 2017). Furthermore, education for digital citizenship can offer ways to deal with variegated issues arising from technology use, thereby, also preparing the younger generations with enough knowledge and skills to participate as effective citizens of the twenty-first-century digital world (Ribble, 2011). The sections below elicit the knowledge, actions and skills that encompass digital citizenship and the factors that influence digital citizenship behaviours.

Elements of Digital Citizenship

Bailey, Ribble and Ross (2004) offer a comprehensive framework of nine elements (or skills) of digital citizenship. These elements can be super classified into 3 main themes: 1) Respect oneself and others; 2) Educate oneself and others; and 3) Protect oneself and others. Together, these are popularly known as REP. Each of the themes further consists of 3 basic elements (See figure 1). The first theme Respecting oneself and others in a digital environment involves i) Digital Etiquette (electronic standards for conduct or procedure and being mindful of consequences of one's digital actions on others); ii) Digital Access (extent of individual's participation in society and equitable distribution of technology and e-resources) and iii) Digital Law (Electronic responsibility for owning up one's actions and deeds viz. rules and policies that are meant to address digital issues). The second theme Educate oneself and others about the digital world, its advantages, limitations, etc. also involves 3 basic elements: i) Digital Literacy (being fluent in using technology and being critical of different platforms and information available online); ii) Digital Commerce (ability to engage in e-buying and selling of goods, net banking, etc.); iii) Digital Communication (exchange of information electronically). The third theme Protecting oneself and others from the dangers of the digital world comprises another 3 basic elements (abilities): i) Digital Rights and Responsibilities (being aware of the rights and responsibilities extended to every member in the digital world); ii) Digital Health and Welfare (psychological and physical well-being in a digital world; maintaining a healthy balance); iii) Digital Security (precautions, prevention, privacy and safety in a digital world). Together, these become a set of nine elements of digital citizenship behaviour.

Figure-1: Main themes and elements of digital citizenship behaviour (Bailey, Ribble and Ross, 2004)



Factors Influencing Digital Citizenship

With increased exposure to technology, people are no longer passive receivers of information but rather have become active information processors and producers (Simsek & Simsek, 2013). Several studies have sought to understand different factors influencing a person's digital citizenship such as their racial and educational differences (Shelly, et. al, 2004), the extent of digital access and exposure (Isman & Canan-Gungoren, 2013; Mossberger, Tolbert & Anderson, 2017), technology attitudes (Al-Zahrani, 2015; ISTE, 2000; Shelley et al., 2004) and computer self-efficacy (Al-Zahrani, 2015; Wangpipatwong, Chutimaskul & Papasraton, 2008). Ohler (2011) argues that if technology is integrated into the school curriculum it can be helpful for enhanced teaching-learning as well as open up opportunities for teaching about responsible internet participation to the learners. Such discussions and interventions, according to Orth and Chen (2013) should start early in children's lives, as early as they start getting exposed to digital technologies.

Digital Citizenship, Computer Self-efficacy, and Internet Attitudes

Self-efficacy, according to Bandura (1994) is an individual's belief or judgement about one's capabilities to produce designated levels of performance on a task. Self-efficacy levels in individuals can differ depending on how individuals construe themselves, their perceived capabilities and achievements, the roles they are expected to play, the views they share with others and their perception of what others think about them (Bong and Skaalvik, 2003). In a study on people's intention to use e-government websites, Wangpipatwong, Chutimaskul and Papasratorn (2008) indicated that an individual's intention to use e-government websites and their perceived computer self-efficacy are positively correlated. Furthermore, students' attitudes towards technology and the internet are essential in promoting their digital citizenship (ISTE, 2000; Shelly, et. al, 2004). The research by Shelly, et. al (2004) reported a direct link between technology attitudes and digital citizenship, thereby, bridging the digital divide in the US. According to Sam, Othman and Nordin (2005) students' attitudes towards technology should be continuously enhanced to use technology in teaching-learning approaches. Al-Zahrani's (2015) research on 174 university students in Saudi Arabia reported a positive link between students' perceived computer self-efficacy and their higher levels of digital citizenship. In the Indian context, however, there seems to be very little research in the area of digital citizenship, computer self-efficacy and internet attitudes as factors affecting an individual's digital citizenship.

Significance of the Study

Over the past few years, digital penetration, especially for mobile technologies has significantly increased in India. The availability of cheaper and high-speed internet packages due to intense corporate competition and the push from the government policies has further accelerated the adoption of Internet, mobile and other digital technologies in urban and rural India. This is true more so in the context of urban and metropolitan cities like Delhi NCR. In the educational sphere, the Government of India is undertaking several measures to integrate technology into teaching-learning practices at all educational levels, thereby, making learning equitable and accessible to all. Examples of such initiatives include subsidies to technology companies (especially start-ups), public-private partnerships to strengthen national digital infrastructure, grants to educational institutions for the purchase of technological equipment and the development of several online teaching-learning platforms such as DIKSHA portal, NROER, SWAYAM, SWAYAM Prabha, etc. In addition to this, the National Education Policy (NEP, 2020), encourages greater use of AI-based technologies and other disruptive technologies in education in the present and the coming future (MHRD, 2020). The NEP (2020) views bridging the digital divide, imparting digital literacy skills, and preparing our students and teachers to tackle the downsides of using technology as prerequisites to realising its vision of technology-enhanced education, governance, and economy (MHRD, 2020). These issues are key to the concept of digital citizenship. Additionally, the NEP (2020) envisages the purpose of our education system to produce "engaged, productive and contributing citizens for building an equitable, inclusive and plural society as envisaged by our Constitution" (MHRD, 2020, p. 5); a core aim of digital citizenship education. As a result, one could see greater adoption of technology both at school and at home in the coming years. Keeping this in view, the present study contributes to the academic and professional interest in digital citizenship and education at 3 levels. First, it provides insights into urban middle school students' digital behaviour, attitudes and notions about their digital capacities, rights and responsibilities. Second, it provides future researchers with a foundation to further understand, in an urban Indian context, how different factors impact one's experiences in the digital world and, thus, their participation and citizenship thereof. Third, the study provides practical educational implications for policymakers, curriculum designers and teachers seeking to integrate digital citizenship education as part of the wider education system.

Research Questions

The current study adopts the digital citizenship framework by Ribble (2014) to gauge middle school students' levels of digital citizenship as well as study the relation of students' age, grade, internet attitudes and their computer-self efficacy with their digital citizenship. The following are the research questions for this study:

1. What is the level of middle school students' digital citizenship in terms of Respect, Educate and Protect (REP)?
2. Does students' gender level influence their level of digital citizenship?
3. Does students' grade influence their level of digital citizenship?
4. Does students' internet attitude influence their level of digital citizenship?

5. Does students' perceived computer self-efficacy impact their level of digital citizenship?

Hypotheses

Following are the hypotheses to support the research questions for this study.

Hypothesis 1 ($H_0$1): *There exists no significant relationship between students' gender and their level of digital citizenship.*

Hypothesis 2 ($H_0$2): *There exists no significant relationship between students' grade (class) level and their level of digital citizenship.*

Hypothesis 3 ($H_0$3): *There exists no significant relationship between students' internet attitudes and their digital citizenship levels.*

Hypothesis 4 ($H_0$4): *There exists no significant relationship between students' computer self-efficacy and their levels of digital citizenship.*

Method

This study utilizes a quantitative research design. The design was conceptualised in two phases. Phase I dealt with students' internet attitudes and self-efficacy towards digital technologies while Phase II focused on understanding students' level of digital citizenship through a series of choices they make and the views they hold on different issues arising out of one's digital participation. Since regular exposure to technology is a prerequisite to being a digital citizen (Mossberger, Tolbert & McNeal, 2011), the study focuses on middle school students studying in private schools in Delhi. This is because the students studying in private schools in India comparatively have far greater exposure and access to digital technology both at school and at home than their counterparts in government schools (Education Quality Foundation of India, 2019). Additionally, the probability of students' exposure to and independent use of the Internet, social networking sites and other digital platforms are higher during their adolescent (teen) years than in children and adults (Lenhart, 2015; Madden, 2013; Martin, et. al., 2018; Nazir, 2014; Raj, et al., 2018). Therefore, the study used a purposive sampling technique to select the school type and grade level to better serve the research objectives. Upon selecting the schools and grade levels, individual participants (students) were selected randomly. As a result, a total of 385 middle school students (Males = 209, Females = 176) participated in the present study (See table 1).

Table-1: Sample for the study

	Number of students			Number of students				Total
School Type	Male	Female	Total	Grade 6	Grade 7	Grade 8	Total	
Private	209	176	385	121	162	102	385	385

The study utilised a survey design wherein a structured (self-reporting) questionnaire constituting three Likert scales – Internet Attitude Scale (IAS), Computer Self-Efficacy Scale (CES) and Digital Citizenship Scale (DCS) was developed. The scale used for Internet attitude was a modified version of Al-Zahrani (2015) who modified the Internet Attitude scale by Sam, Othman and Nordin (2005) that was originally adapted from the 20-item Computer Attitude Scale developed and validated by Nickell and Pinto (1986). The CES

and DCS were adapted from Al-Zahrani (2015) and were appropriately contextualized and adapted as per the Indian context and the level of participants. The Cronbach alpha coefficient for Al-Zahrani's (2015) tool was 0.92.

The Digital Citizenship Scale developed for this study was available for rating on five points (5 = Strongly Agree and 1 = Strongly Disagree) that required the participants to mark their agreement or disagreement with a statement. The Internet Attitude Scale was also available for rating on five points (5 = Absolutely Yes; 4 = Yes; 3 = Not Sure; 4 = No; 5 = Absolutely No). The Computer Self-Efficacy Scale included items on three levels of computer proficiency: Basic, Intermediate and Advanced level, as per the guidelines of the National Policy on ICT in School Education (MHRD, 2012). The respondents were expected to rate their perceived abilities on a scale of 5 points (5 = I can do it and can also teach it to a friend; 4 = I can do this by myself; 3 = I don't know if I can do this; 2 = I can do this with someone's help; 1 = I can't do it, I need a lot of help). In the case of the negative items, the procedure of reverse scoring was utilized. These scales were also translated into the Hindi language to avoid any possible language barriers. The tool was subjected to a team of experts to establish its validity (viz. its relevance, content, context, and construction). Only those items in the questionnaire, whose Lawshe's Content Validity Ratio (CVR) value was found to be above 0.99 (Miller, McIntire and Loyler, 2011) were included as part of the final tool. The remaining items were either dropped or modified appropriately as per the experts' suggestions.

The final tool comprised 46 items spread across three scales (See Table 2). The Internet Attitude Scale (IAS) consisted of a total of 6 items that included issues of students' comfort with the Internet; their views on possible uses of the Internet; responsible use of the Internet; the role of the Internet in making individual's lives easy and comfortable; and its role in improving individual's standard of living and bringing us to a newer, brighter era. The Computer Self-Efficacy Scale (CES) consisted of 14 items revolving around students' confidence in performing computer-related tasks (at basic, intermediate and advanced levels) such as understanding terms and concepts regarding computer hardware and software; using hardware devices of computers, performing tasks on a computer such as creating backups, troubleshooting computer problems, protecting one's own information, etc. The Digital Citizenship Scale (DCS) further consisted of three subscales (REPs): a) Respect yourself/respect others, b) Educate yourself/connect with others and c) Protect yourself/protect others. In total, the DCS consisted of 26 items. These items, under the three subscales, belonged to the issues of digital access, law and etiquette (Respect subscale); digital literacy, commerce and communication (Educate subscale); and Digital rights and responsibilities, health and wellness and security (Protect subscale).

The reliability of the tool was established through an internal consistency test (Cronbach's alpha coefficient) wherein the alpha value was found to be 0.80, i.e., above 0.7 (see Table 2). It also must be noted that the data from the protect yourself/others category must be taken with a pinch of salt.

Table-2: Reliability statistics for the tool

Scale	Sub Scale	α	o. of items
Internet Attitude Scale (IAS)		0.729	06
Computer Self-Efficacy Scale (CES)		0.858	14
Digital Citizenship Scale (DCS)	Respect Yourself/Respect Others	0.763	14
	Educate Yourself/Connect with Others	0.756	06
	Protect Yourself/Protect Others	0.510	06
Digital Citizenship Scale (Total)		0.766	26
Total Questionnaire		0.800	46

Delimitations of the Study

The study delimits itself to middle-grade students from private schools located in the Delhi-NCR region. The variables, such as students' socio-economic status that may affect their views and use of digital technologies, were not considered as part of the present study.

Results

Students' Internet Attitude and Computer Self-Efficacy

The total mean of students' responses was calculated to gain a general sense of students' Internet attitudes and perceived computer self-efficacy, respectively (see Table 3).

Table-3: Descriptive statistics for students' Internet attitude and computer self-efficacy (n = 385)

Scale	No. of item	Mean	S.D.
Total Internet Attitude	6	4.18	0.561
Total Computer Self-Efficacy	14	4.11	0.55

It is clear from Table 3, that overall, the students had a good level of attitude towards the Internet (*M* = 4.18, *SD* = 0.561) and good level of computer self-efficacy (M = 4.11, SD = 0.55). Thus, it can be said that the students had an overall positive attitude towards the internet and were confident in using computer technology.

Students' Digital Citizenship

The mean of students' responses on the digital citizenship scale was calculated to gain insights into students' level of digital citizenship. This was done in terms of REP (Respect, Educate and Protect: the three sub-scales) as well as the total digital citizenship scale (see Table 4).

Table-4: Descriptive statistics for students' digital citizenship (n = 385)

Scale		No. of items on the scale	Mean	Standard Deviation
DCS	Respect	14	3.88	0.47
	Educate	6	3.57	1.15
	Protect	6	3.62	0.71
	DCS Total	26	3.75	0.47

Table 4 represents the overall descriptive statistics for each of the subscales and the overall digital citizenship scale. For a 14-item Respect subscale, the mean is 3.88 with a standard deviation of 0.47. For a 6-item Educate subscale, the mean comes out to be 3.57 with a standard deviation of 1.15. For a 6-item Protect subscale, the mean comes out to be 3.625 with a deviation of 0.71. It can be observed that the digital citizenship practices with the highest mean score value, as Table 4 represents, are concerned with their practices of respecting oneself and others in a digital environment. This is followed by practices of protecting oneself and others (M = 3.62) and educating oneself (M = 3.57). Overall, the students showed good levels of digital citizenship (M = 3.75).

Students' Gender and their Digital Citizenship: A two-tailed t-test was performed to test whether any significant differences exist between students' gender and their level of digital citizenship. No significant differences were found between students' gender and their level of citizenship (t = 1.55 with p = 0.121 > 0.05; not significant) (See Table 5). Hence, we accept the 1st null hypothesis, i.e., there exists no significant relationship between students' gender and their level of digital citizenship.

Table-5: t-Test results for students' digital citizenship with respect to gender variable

Gender	n		S.D.	t	Sig. (p)
Male	209	96.72	12.62	1.55	0.121
Female	176	98.72	11.96		

*: Significant at 0.05 level (2-tailed)

Students' Grade (class) level and their Digital Citizenship: To address the second hypothesis, a one-way ANOVA test was conducted to investigate the link between students' class/grade level and their digital citizenship. Table 6 summarises the results from the one-way ANOVA test.

Table-6: One-way ANOVA results for students' digital citizenship with respect to the class variable

Grade (Class)	n	M	S.D.	F	Sig. (p)
Grade 6	121	94.60	13.50	5.731	0.004**
Grade 7	162	98.57	11.99		
Grade 8	102	99.86	10.67		
Total	385	97.60	12.36		

**: Significant at level 0.01 (2-tailed)

Since p = 0.004 < 0.01 level of significance, hence, we say that our F-value is significant, and therefore, we reject the 2nd null hypothesis. The grade level of students does influence their level of digital citizenship. Furthermore, assuming equal variances among groups, Tukey's HSD post hoc test revealed that there is a statistically significant mean difference in the digital citizenship level of grade 6 and grade 7 [p = 0.019] at a 0.05 level of significance (See Table 7). In other words, grade 7 students have a significantly better level of digital citizenship than grade 6 students. The post hoc test also revealed a statistically significant mean difference in the digital citizenship level of grade 6 and 8 students [p = 0.006] at a 0.05 level of significance. Therefore, we can conclude that grade 8 students had better digital citizenship levels as compared to grade 6 students.

Table-7: Tukey's HSD Post hoc test results for students' digital citizenship with respect to the class variable

Dependent Variable		Class	(J) Class	ean Difference (I-J)	g. (p)
Digital Citizenship	Tukey HSD	6	7	-3.97*	0.019
			8	-5.26*	0.006
		7	6	3.97*	0.019
			8	-1.29	0.698
		8	6	5.26*	0.006
			7	1.29	0.698

*: Significant at 0.05 level (2-tailed)

Relationship between Internet Attitude, Perceived Computer Self-Efficacy and Digital Citizenship

To address the third and fourth hypotheses, Pearson's product-moment correlation analysis was used to investigate the relationships between students' internet attitude, computer self-efficacy and digital citizenship, respectively. The test revealed several positive correlations (see Table 8).

Table-8: Pearson's correlations for students' internet attitudes, computer self-efficacy and digital citizenship

		Respect Yourself/ Respect Others	Educate Yourself/ Connect with Others	Protect Yourself/ Protect Others	Overall Digital Citizenship
Internet Attitude	PC (r)	0.165**	0.272**	-0.22	0.233**
(n= 385)	Sig.	0.001	0.000	0.667	0.000
Computer Self-Efficacy	PC (r)	0.229**	0.271**	0.160**	0.330**
(n= 385)	Sig.	0.000	0.000	0.002	0.000

**: Correlation is significant at 0.01 level (2-tailed); PC: Pearson product-moment correlations

From Table 8, it can be concluded that students' higher levels of internet attitude are associated with their higher levels of respect for themselves and others [r = 0.165, n = 385, p = 0.001] and practices of educating oneself and others [r = 0.272, n = 385, p = 0.000], respectively. However, no correlation was found between students' internet attitudes and their practices of protecting themselves/others in online setups. Finally, students' overall digital citizenship was found to be positively correlated with their internet attitude [r = 0.233, n = 385, p = 0.000].

Similarly, it can be concluded that students' higher computer self-efficacy is strongly (positively) correlated with higher levels of respect [r = 0.229, n = 385, p = 0.000], with practices of educating oneself/others online [r = 0.271, n = 385, p = 0.000] as well as protecting oneself/others online [r = 0.160, n = 385, p = 0.002]. Finally, higher levels of computer self-efficacy were strongly linked to higher levels of overall digital citizenship [r = 0.330, n = 385, p = 0.000].

Discussion and Educational Implications

Most participants were regularly exposed to technology both at home as well as at school. At school, however, students only accessed the digital facilities provided by the school itself, i.e., in their respective classrooms and computer labs and were not allowed to carry their own digital devices to the school. Mossberger, Tolbert, and Anderson (2017) argued that having access to mobile devices and broadband is statistically significant in influencing an individual's digital citizenship and their online economic (Latino communities), political and civic activities (Afro-American). Though the students with greater digital exposure had greater digital literacy and computer self-efficacy they were not necessarily critical of the digital technologies and their online practices. This could be because students are using digital devices in a more self-centred manner without giving much thought to the deeper issues and social impact they cause. Hence, there is an urgent need to incorporate critical discussions and analyses of digital technologies and their usage patterns in students' curricula and classrooms.

The results also revealed that middle school students had an overall good level of perceived internet attitude (see Table 3). This means that students are comfortable using the internet and are also confident and motivated to integrate it into their daily lives. These students perceive the Internet as a potentially useful tool and that if used appropriately and responsibly, the Internet can help provide easy, rich, and enjoyable sources of information. The students also believed that the Internet can help them in eliminating a lot of boring work from their lives. Furthermore, the learners perceive the Internet as being responsible for many good things that they enjoy (such as their ability to access a lot of information at their fingertips, videos, and games). Hence, they seemed positive that the Internet is bringing them to a new and brighter era.

The students correspondingly showed good levels of computer self-efficacy (see Table 3), i.e., they were confident in using the ICT tools for performing tasks such as understanding computer hardware, working on, and shutting down a computer, etc. Students were confident in installing and uninstalling any program on their digital devices and using those programs for creating files, reports, presentations, print outs and other outputs. In addition, students were confident about keeping their personal and important information safe in password-protected files and folders. However, the students were

not very confident about understanding terms related to computer software and learning advanced skills within a specific program. Moreover, they also perceived themselves to be unable to troubleshoot computer problems on their own. This could be because their ICT curriculum deals more with the day-to-day functional use of digital technology to accomplish a variety of tasks but does not teach them how those technologies are developed and ways to troubleshoot problems that arise while working with these technologies. Due to a fear of permanently damaging the digital device, students are often discouraged to experiment with or attempt to troubleshoot a problem on their own (like opening the nuts and bolts of a CPU or disconnecting wires, etc.) and are advised to seek technical support from a lab assistant or an adult even for the smallest problems encountered by them.

In this study, the students also showed good levels of digital citizenship, especially in terms of their practices pertaining to respecting oneself as well as others in the online digital world. In the previous literature, Al-Zahrani (2015) and Roh (2004) confirmed that in the online world, it is becoming easier than ever to infringe on others. Therefore, respect has become vital in digital societies. The present study also indicates that respect is the foremost important issue for students when participating in the online digital world. Clearly, students preferred to participate only in those environments where they felt respected by their fellow participants. It appeared that the students valued respecting one's and other's identities, cultures rights and responsibilities in the digital communities and that they rejected the acts of cyberbullying, trolling, identity theft, online phishing, and mockery. Parallelly, it can be said that a feeling of lack of respect for oneself in an online community may lead these students to withdraw from or completely stop participating in those communities. However, valuing the idea of respecting others may not necessarily translate into practice. Thus, there is a need to further explore students' actual online practices and behaviours along with making relevant changes in the curriculum that can offer opportunities to practice respecting and protecting oneself and others in a safe online environment. According to Kassam (2013), it is this ability and skill to respectfully participate and argue in digital communities that can be taught in twenty-first-century classrooms.

On further comparison of the Respect, Educate and Protect themes of the digital citizenship scale, it was found that the students felt confident in their education of and respecting behaviours online. However, protecting oneself and others online was an idea that students subscribed to but felt significantly underconfident in taking actions to protect themselves or others when faced with adverse situations online. They also seemed unaware of the various online grievance redressal mechanisms and steps to take when faced with dangerous or risky online situations. Thus, there is a need to also offer opportunities within the mainstream curriculum to discuss and practice ways to protect oneself and others online.

The study revealed that the gender of the students is not related to their digital citizenship practices. Such a finding also suggests that even though girls may (or may not) have greater access to technology than boys (Indiatimes, 2017), still they can be equally sensitive and aware of the issues of digital citizenship. However, this finding might be especially true only in the case of boys and girls from relatively well-to-do families residing in urban, well-developed areas. Further probes in this regard are required.

Furthermore, it was found that the higher the student's class level, the higher their digital citizenship levels. Grade 6 students did not show as much good digital citizenship levels as grade 7 and 8 students did. Students from grades 7 and 8 appeared to be more aware of several skills and issues around ICT than the grade 6 students. However, an interesting point to this interpretation is that there were no significant differences in the digital citizenship practices of grade 7 and grade 8 students. Rather it was only the grade 6 students whose performance differed significantly from the rest of the two grades. Such a finding can be explained with the background information that the students of grades 7 and 8 were active members of social networking sites while grade 6 students were not as active on social media. The finding can also be explained by the rising level of complexity and variety of topics catered to in the ICT curriculum of these grades. However, more studies on curriculum analysis and classroom and home practices may be required to study such a pattern in greater detail.

Through the correlational analysis, it was found that students' higher levels of internet attitude are related to their higher levels of digital citizenship, especially with regards to their respecting and educating behaviours online. This implies that the students with higher levels of internet attitude are likely to be the ones who respect each other in the online world as well as take part in activities for educating themselves and others online. Such a person is likely to be an intelligent online consumer and creator who can efficiently and effectively use online digital services for different purposes. These results correspond with the results of Al-Zahrani (2015) and Shelley et al. (2004) who found a direct correlation between students' technological attitude and their digital citizenship. However, it was found that student's attitude towards the internet is not related to their practices of protecting themselves and others from the prevailing online risks and dangers. Rather this relation was found to be negative, though not statistically significant. This implies that if a person has a highly positive and non-critical attitude toward the internet, they may tend to ignore the potential risks and dangers (physical, social, and psychological) of the online digital space. Hence, might end up falling prey to and being victims of the numerous evils of the online digital world. Thus, there is a need to develop critical attitudes towards the Internet and newer technologies through carefully planned educational interventions.

Furthermore, the study results revealed that the students' computer self-efficacy is positively related to their digital citizenship behaviour, viz., their respecting behaviour towards others in the online world and their efforts to educate and protect themselves and others. It implies that a person with higher levels of computer self-efficacy is likely to be highly motivated and confident to respect others in the online environment, participate in learning and sharing activities that involve themselves and protect oneself and other fellow members in a digital community. While these results contrast with the findings of Al-Zahrani (2015), they correspond with the findings of Wangpipatwong, Chutimaskul and Papasratorn (2008) who found that computer self-efficacy positively influences participants' intention to participate in Internet-based virtual societies.

Finally, given the relationship between internet attitude, computer self-efficacy and digital citizenship behaviour, teachers and school administrators can work towards developing programs that can help improve students' critical attitude towards the internet and ICT as well as educate them and make

them confident about their abilities for utilising and synthesising ICT-based technologies to fulfil their needs, and hence, fully participating in the online digital communities, thereby, also contributing towards making the younger generation better digital citizens.

Conclusion

The study revealed that the private school students indicated good levels of digital citizenship. These digital citizenship practices are concerned more with their practices of respecting oneself and others in a digital environment. Students prefer to participate only in those environments where they feel respected by their fellow participants and can display their respect for others. However, they do not feel confident in protecting themselves or others when faced with an adverse situation online. Additionally, it was found that students from grades 7 and 8 were more aware of several skills and issues around digital technologies and used social networking sites more proactively than the grade 6 students. This indicates that the higher the students' class level (in other words, their exposure), the higher their positive digital citizenship practices. Furthermore, it can be concluded that students' gender does not influence the digital citizenship practices undertaken by them. One of the objectives of the study was to investigate the relationship between students' internet attitude and computer self-efficacy with their digital citizenship levels, respectively. It was found that students' internet attitude is positively related to their digital citizenship practices. Similarly, students' high computer self-efficacy leads to their higher levels of digital citizenship. These two factors play an important role in also enhancing students' digital citizenship attitudes and behaviours. Since students must be responsible digital citizens at school and at home, it is, therefore, imperative to nurture their critical attitude toward the internet, raise their computer self-efficacy, and digital literacy and promote consciousness and self-reflection of one's digital behaviours. Addressing issues of the digital world as and when they arise would not serve a much greater purpose. Rather there is a need for integrating practical digital citizenship education into the mainstream curricula as soon as they start engaging with technology. The curricula and pedagogy of the different subjects should in themselves be technology-laden to increase students' overall technology attitudes, expertise, and self-efficacy about their expertise. Thereby, also facilitating the use of technology as an effective learning tool for self-directed lifelong learning. To foster positive digital citizenship practices in their day-to-day digital life, students, at all levels must be continuously educated about the different facets of digital engagement while addressing their context-specific different needs. Finally, more researches are required in the area to study students' actual online behaviours and experiment with ways to educate and nurture conscious, proactive, ethical, and critical digital citizens.

Ethical Considerations

This research was carried out after the ethical clearance of its methods by the research committee at the university where the researchers work. Permission to conduct research with the children was sought from the students themselves, their parents, teachers, and school heads. At all points during the study, it was ensured that participants and their guardians were fully aware of the objectives the nature of the present study and their role in the research process. It was ensured that throughout the research process, the participants were treated with the

utmost care, respect and sensitivity, and their comfort was ensured. Participants' identities and choices were kept strictly confidential.

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