

## Analysis of the Digital Citizenship Practices among University Students in Pakistan

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### Abstract

This paper intended to analyze the practices of digital citizenship among university student in Pakistan. The quantitative descriptive survey research design was adopted for this study. The population of the study was 800 students of BS (Education) program in ten public sector universities in Punjab, Pakistan. Simple random sampling technique was used for the selection of sample. The sample of the study was 280 students (120 males and 160 females). The research instrument used for the data collection was a five-point Likert scale having nine aspects of digital citizenship identified by Ribble and Bailly (2007). The validity of the research instrument was ensured through experts' opinion. Cronbach's Alpha value was used for the reliability of this instrument and its value was .89. The data were analyzed by applying both descriptive and inferential statistics. The research concluded that the majority of the students were involved in the digital citizenship practices in all the ten public sector universities. It was suggested that universities may manage digital citizenship education, formulate the laws for using digital citizenship for positive and healthy activities, conduct co-curricular activities to promote the knowledge of students and integrate digital citizenship education into the curriculum at all stages of education.

**Keywords:** *Digital citizenship, universities students, public universities, aspects of digital citizenship*

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**Introduction**

The fast growth in the usage of information and communication technology changed every aspect of the life of people and information technology became an essential part of the lives of people. Because of this change, the usage of digital tools increased and information technology is the source of the search and involvement of information, communication, access and consumption. So digital tools are widely used in creating digital citizens in the digital culture (Schuler, 2002).

Digital citizens are those who have the characteristic of a genuine digital city and use the internet frequently and effectually (Mossberger et al., 2007). Digital citizens should have some features i.e., understanding human culture and social issues regarding technology and maintaining legal and ethical behaviour, safe and secure use of the technology, reflecting of positive attitude towards technology, reflecting the responsibility of lifelong learning and demonstration of leadership for digital citizenship (Ribble, 2008). Digital citizenship involves the ability of using technology with competency to understand the digital content, interpret, communicate and developing critical thinking about the digital world (Ribble et al., 2004; Ribble & Bailey, 2004a; Ribble & Bailey, 2004b; Ribble & Bailey, 2004c; Ribble & Bailey, 2005). Ribble and Bailey (2007) mentioned nine areas of behaviour that digital citizenship must have i.e., digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital laws, digital rights and responsibilities, digital health and wellness, digital security and digital commerce.

The major characteristic of digital citizenship is the improvement of the quality of education, its cost-effectiveness and the accomplishment of education for all people. The instructional technologies affected the teaching-learning standards as the up-to-date knowledge and research is just one click away (Moore, 2013). Digital resources are the internet and other related technologies. It provides opportunities to provide a platform for learners and teachers to construct an effective classroom environment (Michael, 2011). Through the use of educational technologies, it is possible to transfer knowledge and skills to a large number of students with no problem (Smith et al., 2005).

The fast increase in the usage of information and communication technology changed every aspect of the life of people; it has become an essential part of the lives of people. Because of this change, the usage of digital tools increased and information technology is the source of the search and involvement of information, communication, access and

consumption. So digital tools are widely used in creating digital citizens in the digital culture.

In the era of rapid changes in the digital world, each individual copes with various innovative changes occurred in the context of digital explorations and developing digital culture across the globe. Digital citizenship education assists learners to contribute in educational activities at any time and any place. It makes the process easy and enables the learners to be independent as they manage their studies with any timetable while the routine of their jobs is not affected. The students may get benefit by involving themselves in digital citizenship practices while exploring any study material from the digital world. They may use different channels i.e., social media, print and electronic media platforms, share it with their classmates for understanding and apply in their studies. It is the need of every individual and digital citizenship education is suitable in the digital era for students to develop their rapid knowledge with the help of rapid changes in digital citizenship. Therefore, it was very important to investigate the digital citizenship practices among university students in Pakistan as well as examine their views on whether they perceive the need regarding digital citizenship. The present study was an effort to analyze the digital citizenship practices among university student in Pakistan.

### **Literature Review**

Digital education is important in the present technological era and its main purpose is the provision of education to the youth to handle the challenges occurring over time. Many features develop students as digital citizens in the 21st century. The significant features are academic performance, student setting and student behaviour, and student life outside the school environment. Ribble et al. (2004) established a framework based on the nine dimensions' framework which was beneficial to teachers in facilitating students to apply digital technologies properly. The dimensions' structure assists as an informative guide to research as it is helpful in the identification of research problems within digital citizenship (Isman & Gungoren, 2014). The concern structure of the nine aspects is as follows:

1. Etiquette: electronic criteria of conduct or process.
2. Commerce: electronic purchasing and selling of goods.
3. Responsibility: electronic obligation for actions and endeavours.
4. Safety: physical safety in a digital tools world.
5. Security (self-protection): electronic precautions to guarantee safety.

6. Rights: those freedoms drawn-out to everyone in the digital world.
7. Communication: interchange of information.
8. Education: the process of teaching and learning about technology and the use of technology.
9. Access: full electronic contribution to society.

Ribble and Bailey (2007) identified the nine aspects that make behaviour about digital citizenship. The division of the three areas is as follows:

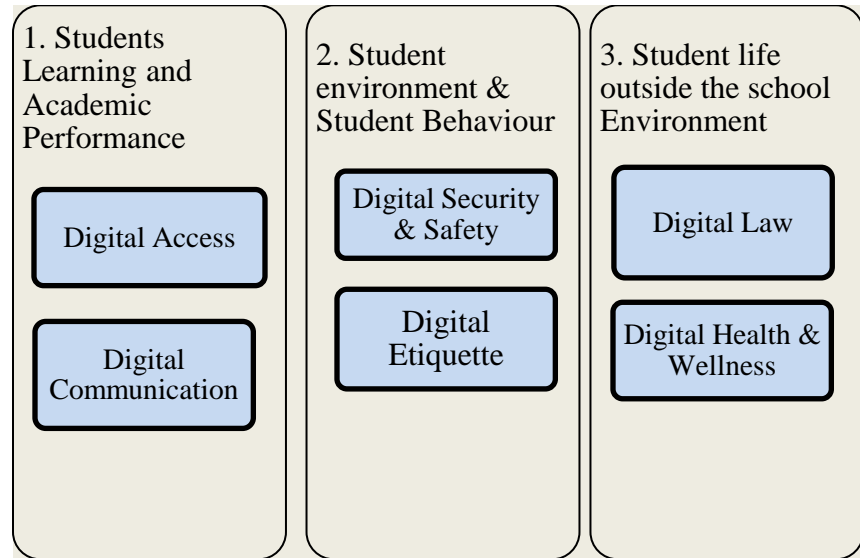


Figure 01. Digital Citizenship (Ribble & Baily, 2007)

### **Digital Access**

Digital education and digital technology are important parts of community; it facilitates and conducts the tasks of individuals in daily life. The statistics showed that digital device users were increasing around the globe. The users of the “Internet” reached over 3.010 billion on social communications sites as they have the 29% of the world population. Every individual spent 2-7 hours daily and 4.4 hours on smart portable devices in offices or on laptops (Dahsahn, 2017). Digital education is a multi-dynamic paradigm supported by internet applications and instructional technologies i.e., virtual conferences, learning management systems,

video conferences, social media, YouTube, Facebook, Twitter etc. (Hussain, 2012).

### ***Digital Communication***

Today is the era of digital communications and the connectivity of the people of the world is swiftly possible in any part of the globe. Digital tools can provide flexibility and autonomy for individuals and the demand is increasing the usage of these tools day by day (Hoonakker, 2014). Most of the time may be spent in asynchronous communication which reflects in task breakup (Wajcman & Rose, 2011). Digital communication is considered as the lens of information that increases the well-being and suitability of the technology of the workers and work targets (Schaufeli & Bakker, 2004). Digital communication works as a job resource and supports the transformation of effective information and communication. Digital communication is a job demand and requires extra effort, increases pressure and facilitates interaction between workers (Day et al., 2010; Demerouti et al., 2014). The source of digital communication in the present era is the internet world wide web, telephone, mobile communication, satellite communication, social networks such as Facebook, Twitter, Instagram and LinkedIn, Viber, messenger and Ozone and the users of these all types of communication rapidly increasing throughout the globe.

### ***Digital Literacy***

Digital literacy is the skill to comprehend and use information in different ways for the purpose to promote critical thinking more than communication technology skills. The screen is the main source of communication and people need the skills of reading and understanding the significance of digital content and symbols (Gee, 2003). People have a new type of knowledge which is linked to digital social practices and it is a general way to use messages by applying modes of communication i.e., Facebook, Twitter and YouTube (Ibrahim et al., 2013). Digital literacy plays an important role in promoting education from the primary level to the higher education level (Koltay, 2011). The idea of digital literacy was linked with the website of the framework for 21st century learning (Partnership for 21st Century Learning, 2015). This framework focused on the competencies needs in the 21st-century on the educational needs (Voogt & Roblin, 2012). Digital literacy is considered as the framework of skills, knowledge and ethics (Calvani et al., 2008). The digital literate person has the skill to recognize, access, manage, assimilate, estimate, analyze and synthesize digital resources (Eshet-Alkalai, 2004).

Digital literacy has three levels such as digital competence (Level-1) and it is the contribution of the positive use of digital media in life

situations. The second level (level-2) is digital use and it is considered as the application of digital competency within a specific professional setting. The third level (level-3) is digital transformation and it is the process of contributing digital use with an innovative approach to the knowledge domain (Martin, 2008). Moreover, digital competencies can be developed through storytelling activities and students can improve by mastering digital skills (Frazel, 2010; Ibrahim et al., 2013; Smeda et al., 2012).

#### ***Digital Security and Safety***

Digital safety and security are some of the important issues which are linked to online privacy, disclosing violent content and cyberbullying. Cyberbullying is an activity that creates damaging other person by using verbal and pictorial messages, audio, video and software programs (Livingstone & Görzig, 2014; Livingstone, & Smith, 2014; Ringrose et al., 2013). Young people operate the internet where they may hurt someone in their connected environment. The anonymity permits the person to develop a new character. Persons who feel insecure in the face to face communications may feel confident in digital communications but without clear limitations, undesirable behavior creates problems for digital security (Annansingh, & Veli, 2016; Livingstone 2013; Livingstone et al., 2012; Livingstone, & Smith, 2014). Teenagers need belongingness, communication, acceptance and friendship to be received through the internet and social media (Bonanno & Hymel, 2013; Clark, 2013; Duerager & Livingstone, 2012; Lim, 2016; Livingstone, 2013; Livingstone & Bober, 2005; Nosko et al., 2010; Ofcom, 2010, 2016; Taylor & Kitter, 2010; Zilka, 2014, 2016). There is a need to care for teenagers to be not engaged in negative activities such as insulting anyone on social media, uploading bullying content and harassing pictures, bullying videos, snubbing friends and spreading rumours (Mason, 2008; Patchin & Hinduja 2006).

The research studies explored that online victimization resulted in negative effects on intellect, and physical, social and emotional development (Mason, 2008; Patchin & Hinduja, 2006). The students' distraction from educational activities resulted in the form of low concentration, motivation, reluctance to go to school, absenteeism from classes and low academic achievement (Beale & Hall 2007). The socio-emotional changes are such as negative behaviour, reduction in self-esteem, isolation and aggressive behaviours (Kowalski & Limber, 2007; Patchin & Hinduja, 2006).

#### ***Digital Etiquette***

Different etiquettes are necessary for different technologies (Marx, 1994). The messages from mobile are not similar to the messages via email. The response is not immediate via email (Preece, Nonnecke & Andrews, 2004). The widely accepted attitudes and values from the community are known as norms of the society and the social norms are the people's values and beliefs about the people's behaviours that are acceptable in the social outlook (Postmes et al., 2000). According to Ribble et al. (2004), digital etiquette is the acceptable norm for digital citizens; they accept and observe these norms and rules in the context of the digitalization world and most of them are not written. Responsible citizens communicate politely when they are disagreeing with someone online and do not engage in online fights (Hollandsworth et al., 2011; Lenhart & Madden, 2007).

#### ***Digital Rights and Responsibilities***

Digital rights and responsibilities are the fundamental rights of the consumers and it is necessary to give them freedom in their digital environment. Consumers may be aware of their digital rights, laws and responsibilities; they should be aware of what is wrong and right (Curran, 2012; Oxley, 2010). The technology of digitalization and the internet became affordable; the cyber-crimes, bullying and negative use of online facilities is the main challenge for the world. In the 21st century, learning assimilated in technology which focuses on the creation of innovative learning skills, critical thinking, communication and teamwork and skills are important for digital citizenship. So, the framework suggested by Ribble (2004) focuses on media literacy, information literacy, communication and technology literacy.

#### ***Digital Law***

Ribble (2007) stated that digital laws are the advanced science of digital regulations of the technology to keep up the digital rules ensuring acceptability. The teachers and students want to be knowledgeable about digital rules and laws. The teachers and students want to know about the downloading of material, posts and comments on the content and sharing of materials on the internet. Sharing on the internet is one of the important structures of internet technology and the customers do not know what is appropriate in using the technology. There is a need to keep aware the customers about the regularities, laws and gaining access to data on the internet. This would make digital citizenship more regularized, effective and efficient for digital customers.

#### ***Digital Health and Wellness***

In the world, there is an estimation that out of seven billion people, six billion people get access to mobile phones. The statistics make it clear that many people spend many hours in the 24 hours searching at screens typing

and talking on mobile phones. There is a need for the safety of the eyes and body issues to be addressed. The customers of the technology should be aware of body care and well-being (Ohler, 2011). While using digital tools, it is essential to care about digital health and wellness. With the digital use of computers, mobiles and laptops, it is necessary to adjust the body and sitting chair properly parallel to the eyes with a suitable distance to work smoothly (Hollandsworth et al., 2011).

### ***Digital Commerce***

Today digital commerce is common as people are buying things online from toys to vehicles. The students should be informed about the dangerous link between online business and purchasing. Safe payment information ensures the consumers' trust and reliability in online purchasing (Mossberger et al., 2012). The sense of care can promote awareness about online buying and selling. Students should be educated about online commerce to defend their digital rights to selling and purchasing. So in this way, digital citizens can protect their digital rights and can promote safe digital commerce throughout the globe (Nuccetelli, 2011).

### **Research Objectives**

The research objectives of the study were as follows:

1. To find out the digital citizenship practices i.e., digital access; digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce among university students in Pakistan.
2. To identify the need for digital citizenship i.e., digital access; digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce among university students in Pakistan.
3. To estimate the views of the university students about digital citizenship i.e., digital access; digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce practices in Pakistan.

### **Research Questions**

The research questions of the study were as given below:

1. Whether digital citizenship practices i.e., digital access; digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce, were reflected among university students in Pakistan?



2. What is the extent of the need for digital citizenship i.e., digital access; digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce, among university students in Pakistan?
3. What are the views of university students about digital citizenship practices i.e., digital access; digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce in Pakistan?

### **Methodology**

The paper focused to investigate the digital citizenship practices among universities students in Pakistan. The research design was descriptive and quantitative; survey research method was adopted for the collection of the data through visits to the universities. The 800 students of BS (Education) studying in ten public sector universities in Punjab, Pakistan was the population of the study. Simple random sampling technique was used for the selection of sample. The sample of the study was 280 students including 120 males and 160 females.

A self-developed five-point Likert scale was used as a research tool. The tool was consisting of of nine aspects recognized by Ribble and Baily in 2007 about digital citizenship i.e., digital access; digital communication; digital literacy; digital security and safety; digital etiquettes; digital rights and responsibilities; digital law; digital health and wellness and digital commerce. The validation of the research instrument was ensured through experts' opinions and refinement of the tool was established in the light of the recommendation received from experts. Cronbach's Alpha was used to measure the reliability of the tool and its value was .89. The collected data were analyzed by applying both descriptive and inferential statistics i.e., frequency, percentage, mean score and t-test value, presented the data in tabular form and interpreted accordingly.

### **Findings**

Most of the students were practicing digital citizenship in all the ten public sector universities, feeling more needs than practices regarding digital citizenship aspects and female students care more regarding digital safety and security and digital etiquette as compared to male students. So, it is recommended that universities may allocate funds for the provisions of quality digital citizenship in universities such as the provisions of digital gadgets, free sim for mobile services, incentives for free online services and improvement in the service of the learning management system. There is a need to educate the students about digital laws, etiquettes, digital

rights, digital safety and security and digital health to able them to use digital citizenship only for positive and healthy activities for this purpose the universities may arrange workshops, seminars, symposiums, conferences and lectures to educate the students about digital citizenship.

Table 01  
*Views of Universities Students Regarding Digital Citizenship Practices in Pakistan*

Indicators	N	SA	A	UN	DA	SDA	Mean
	F(%)	F(%)	F(%)	F(%)	F(%)	F(%)	Score
Digital Access	280	199	63	9	5	4	4.53
	100%	71.07%	22.5%	3.21%	1.8%	1.42%	
Digital Communication	280	173	87	10	6	4	4.35
	100%	61.8%	31.07%	3.57%	2.14%	1.42%	
Digital Literacy	280	145	117	7	8	3	4.37
	100%	51.8%	41.78%	2.5%	2.85%	1.07%	
Digital Safety & Security	280	88	167	10	11	4	4.29
	100%	31.42%	59.64%	3.6%	3.92%	1.42%	
Digital Rights	280	82	171	8	13	6	4.21
	100%	29.3%	61.07%	2.85%	4.64%	2.14%	
Digital Etiquettes	280	86	177	4	5	8	4.25
	100%	30.71%	63.21%	1.42%	1.8%	2.86%	
Digital Laws	280	77	165	8	9	21	4.38
	100%	27.5%	58.9%	2.9%	3.2%	7.5%	
Digital Health	280	84	159	5	12	20	4.39
	100%	30%	56.8%	1.78%	4.28%	7.14%	
Digital Commerce	280	82	174	8	7	9	4.38
	100%	29.3%	62.1%	2.9%	2.5%	3.2%	

Table 1 reflected that the respondents 93.57% agreed, 3.22% disagreed and 3.21% were undecided about the statement on digital access and the mean gained score was ( $M = 4.53$ ) which favours the statement. 92.87% agreed 3.57% disagreed and 3.56 were undecided regarding digital communication and the mean gained score was ( $M = 4.35$ ) which favours the statement. 93.58% of respondents agreed, 3.92% disagreed and 2.5% were undecided about the statement digital literacy. The mean score for digital literacy was ( $M=4.37$ ) and it favours the statement. 91.06% agreed, 5.34% disagreed and 3.6% of respondents were undecided regarding the statement on digital safety and security while the mean score was ( $M = 4.29$ ) and it favours the statement. On digital rights, 90.37% of the respondents agreed, 6.78% disagreed and 2.85% were undecided while the mean score was ( $M = 4.21$ ) and it favours the statement. Regarding digital etiquette 93.92% agreed, 4.66% disagreed and 1.42% were undecided and

the mean gained score was ( $M = 4.25$ ) and which favours the statement. 86.4% of respondents agreed regarding the statement on digital law, 10.7% disagreed and 2.9% were undecided while the mean score was ( $M = 4.38$ ) which favours the statement. 86.8% agreed, 11.42% disagreed and 1.78% were undecided regarding the statement on digital health and wellness and its mean gained score was ( $M = 4.39$ ) and which favours the statement. 91.4% of the respondents agreed about the statement on digital commerce, 5.7% disagreed and 2.9% were undecided while the mean gained score was ( $M = 4.8$ ) which favours the statement.

Table 02

*Comparison Regarding the Digital Citizenship Practices and Needs among Universities Students in Pakistan*

Indicators	N	Mean Score	SD
Practices of Digital Citizenship	280	4.21	1.321
Needs of Digital Citizenship	280	4.78	1.030

Table 2 indicated the mean score comparison of the digital citizenship practices and needs i.e., digital access, digital communication, digital literacy, digital safety and security, digital rights, digital etiquettes, digital laws, digital health and digital commerce among universities student. It reflected the mean value for the practices of digital citizenship ( $M = 4.21$ ) and the mean value regarding the need for digital citizenship at ( $M = 4.78$ ) among university students in Pakistan. Therefore, it was found that most respondents agreed on the need for all nine aspects of digital citizenship among universities student in Pakistan.

Table 03

*Gender-Wise Comparison on Digital Citizenship Practices among Universities Students in Pakistan*

Indicators	Gender	N	X	SD	t-test value	df	Sig value
Digital Access	Male	120	4.48	1.213	4.123	278	.001
	Female	160	4.13	1.335			
Digital Communication	Male	120	4.53	1.001	4.020	278	.000
	Female	160	4.02	1.119			
Digital Literacy	Male	120	4.25	1.112	4.225	278	.002
	Female	160	2.93	1.235			
Digital Safety & Security	Male	120	4.56	1.324	3.98	278	.004
	Female	160	4.89	1.001			
Digital Rights	Male	120	4.22	1.009	3.89	278	.000
	Female	160	4.12	1.115			
Digital Etiquettes	Male	120	4.78	1.325	2.528	278	.000
	Female	160	4.92	1.129			

Digital Laws	Male	120	2.23	0.115	1.225	278	.003
	Female	160	1.76	1.534			
Digital Health	Male	120	1.42	1.213	1.758	278	.002
	Female	160	1.02	1.352			
Digital Commerce	Male	120	2.32	1.002	1.562	278	.004
	Female	160	1.12	1.886			

Table 3 depicted a gender-wise comparison of male and female students on the practices of digital citizenship. It reflects that the mean score of male and female students ( $M = 4.48$ ,  $M = 4.13$ ) as well as ( $t$ -value = 4.123,  $p$ -value = .001 at  $P > .05$ ) level of significant difference between the mean score of male and female students. It indicated that male students have more digital access than female students. The mean score on digital communication between male and female students ( $M = 4.53$ ,  $M = 4.02$ ) and the ( $t$ -value = 4.020,  $p$ -value = .000 at  $P > .05$ ) level of significant difference shows that male students have more digital communication than female students. On digital literacy, the mean score of male students ( $M = 4.256$ ,  $M = 3.931$ ) and the ( $t$ -value = 4.225,  $p$ -value = .002 at  $P > .05$ ) level of significant difference reflects that male students have more knowledge on digital literacy as compare to female students. The mean score of male and female students regarding digital rights is ( $M = 4.218$ ,  $M = 4.125$ ) and the ( $t$ -value = 3.98,  $p$ -value = .004 at  $P > .05$ ) level of significant difference which shows that female students know and care about digital safety and security.

The mean score regarding digital rights is ( $M = 4.218$ ,  $M = 4.125$ ) and the ( $t$ -value = 3.89,  $p$ -value = .000 at  $P > .05$ ) level of significant difference reflecting that male student more knows about digital rights as compared to female students. On the digital etiquettes, the mean score ( $M = 4.785$ ,  $M = 4.924$ ) and the ( $t$ -value = 2.528,  $p$ -value = .000 at  $P > .05$ ) level of significant difference depicts that female students care more about digital etiquette. The mean score on digital laws ( $M = 2.226$ ,  $M = 1.758$ ) and the ( $t$ -value = 1.225,  $p$ -value = .003 at  $P > .05$ ) difference level, and indicates that male students know more than female students about digital laws. The mean score on digital health ( $M = 1.425$ ,  $M = 1.021$ ) and the ( $t$ -value = 1.758,  $p$ -value = .002 at  $P > .05$ ) level of difference shows that male students care more about digital health than female students. On digital commerce, the mean score ( $M = 2.324$ ,  $M = 1.124$ ) while the ( $t$ -value = 1.562,  $p$ -value = .004 at  $P > .05$ ) level of the significant score reflects that male students know more than female students about digital commerce.

## Discussion

Digital citizenship is one of the significant development of the 21st century which brings changes in the daily life routines of people all over the globe. Through the digitalization of education and communication, the world is like a global village and anyone can communicate from one part of the world to another. The findings of (Memon, 2007) supported the findings of the study. The findings of the study also coincide with the findings of Berns et al. (2013) as digitalization also brings changes in the schedule and activities of students from the school level to the university level. Students now can attend their online lectures, zoom meetings, google meetings, audio lectures, video lectures, online conferencing, and online seminars, submit their assignments, contact their tutors and teachers through calls, get guidance through social media and apps, use radio and television as a strong source for their learning activities and can enjoy so many other activities through digital approaches.

Dam (2004) findings link with the findings that in Pakistan, students also use digital gadgets for their learning activities. The availability of the internet may change the overall scenario of the education system. Social media and the internet facilitate learners to attend their learning activities at any time and any place with a flexible timetable. Social media is a blessing phenomenon as students communicate and change their views about learning targets, progress and achievements and may benefit from each other experiences. Moreover, the radio and television also provide services to facilitate the learners. The government started the tele-school radio and television transmission for the students' guidance and support in the situation of the covid-19 pandemic. The Allama Iqbal Open University, Islamabad, Pakistan is also providing radio and television transmission for the learning activities of the students throughout Pakistan. The Virtual University Lahore also conducts virtual classes and online learning activities for its students. After the covid-19 pandemic, most of the universities in Pakistan launch the system of google meetings, zoom meetings and learning management systems (LMS) for the cause of student learning and the large number of students using digital apps, the internet, radio, television, social media and learning management system. So, face-to-face paradigm shifted digital citizenship and education.

### **Conclusion**

The paper focused on the analysis of digital citizenship practices among universities students. According to the findings of the research, a large number of students were engaged in the practices of using digital citizenship and digital gadgets. Based on the findings, the researchers concluded that the majority of the students in all ten public sector

universities were engaged in practices of digital citizenship i.e., digital access, digital communication, digital literacy, digital safety and security, awareness about digital rights, awareness about digital etiquettes, awareness about digital laws, awareness about digital health and wellness and digital commerce. All the male and female students felt the need for digital citizenship in all nine aspects more than digital practices. It reflected that the majority of the students were involved in the practices of digital citizenship but feel the need for digital citizenship. The research study also concluded that male students in universities were practicing more regarding digital access, digital communication, digital literacy, awareness about digital rights, awareness about digital laws, awareness about digital health and wellness and digital commerce while female students had more knowledge and skills about digital safety and security and digital etiquettes. There was no existence of digital citizenship and education-related content in the national curriculum and Higher Education Commission (HEC) curriculum for the universities at all stages of education.

The recommendations were given based on conclusion. The universities may allocate funds for the provisions of quality digital education and citizenship in universities i.e., the provisions of digital gadgets, free sim for mobile services, incentives for free online services and improvement in the service of learning management systems. There is a need to educate students about digital laws, digital etiquette, digital rights, digital safety and security and digital health to able them to use digital citizenship only for positive and healthy activities. For this purpose, the universities may arrange workshops, seminars, symposiums, conferences and lectures to educate students about digital citizenship. The universities and administration should formulate the laws and norms for the use of digital citizenship during the class hours, and academic sessions and adjust the digital citizenship and education according to the social scenario, culture and ethical attitudes in the perspective of Pakistan. It is recommended to integrate important ingredients of digital citizenship at all stages of education and especially in the curriculum of the universities to improve the existing knowledge and skills of the students.

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