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Analysis of the Digital Education Practices among University Students in Khyber Pakhtunkhwa

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Abstract

Digital education is an emerging field. This study was designed to find out the digital education practices among university students in Khyber Pakhtunkhwa. A descriptive research design was adopted. A sample of 214 including 86 male and 128 female students of Bachelor of Science (Education) from five public sector universities in Khyber Pakhtunkhwa, Pakistan were selected through a simple random sampling technique. A questionnaire was used as an instrument having nine aspects of digital education. Descriptive and inferential statistical calculations were applied for the analysis. The findings reflected that the most of university students were engaged in digital education practices and male and female students are of the view that digital education is one of the important needs for them while male students are involved more as compared to females. It was recommended that students may be educated more about digital laws, etiquettes, digital rights, digital safety and security and digital health to able them to use digital education only for positive and healthy activities.
Keywords: Digital Education Practices, University Students, Digital Health, Safety and Security, Descriptive and Inferential statistics

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Introduction

Digital education is an important feature in people lives. The studies showed that digital device customers over 3.010 billion (Dastjerdi, 2017). Digital education is a phenomenon that supported by information technology (Hussain, 2012 & Ramzan, 2019). Digital education is a learning activity that support the teaching-learning effective and permanent (Ghorbani, 2012). Digital education is also the deliberate acquirement of knowledge, values and skills (Hussain, 2007). Digital education is the process of self-motivated learning and it welcomes committed learners to participate in constructive and collaborative learning activities (Jonassen, 2016). Digital education include youtube kids app is significant for children behaviour modification positively (Alqahtani et al., 2023 & Sarwar et al., 2023). The youtube audio-visual traits have great impacts on the children comprehension and memory potentials (Boerman & Reijmersdal, 2020 & Sarwar et al., 2023). Digital education allow learners to work in a flexible and dynamic learning environment and address individual learning needs through media techniques. The instructional technologies are adopted to improve the teaching-learning process and through technologies (Hussain, 2005).

The main feature of digital education is the enhancement of the worth of education. Information technologies have an effect on the teaching-learning quality and as latest knowledge and research are far away with a click (Moore, 2013). The communication opportunities create an effective classroom environment (Michael, 2011). Educational technologies transform digital skills to people with no problem (Smith et al., 2005). Digital education comprises i.e., internet, videos, television, social media, online classes, learning management systems, recorded lectures and CDROM, etc. The involvement of technologies provides opportunities that improve knowledge and smooth the way for better sharing (Johnson et al., 2002).

Digital education provides opportunities for learners to participate at anytime and anywhere for example at home or office time. In service, people manage their learning timings according to their schedule when the time is convenient for them. So digital education encounters the requirements of the individuals (Mishra, 2011). Continuous and rapid learning is a necessity of individuals in the global community and flexibility demands increasing over time (Chen, 2003). Digital education is an effective way of delivering education to the masses as it is a lost cost (Neill et al., 2004). Digital education provides opportunities for people to participate in learning activities according to their schedule. Digital education doesn't force learners to travel from one place to another daily.

In this way, much of the time and cost saved as well as the routine of their jobs may not be disturbed (Chen, 2003). Digital education is an operational model from the institutional point of view as it is low cost and institutions reduce their cost (Ercan, 2010). Any digital or virtual university can provide digital education on a large basis with limited human resources (Gladeieux, 2000). Digital education can be managed in any location, at any time, with no need to travel from one place to another and the learners can spend the saved time for learning and learning (Adedara & Onwuegbuzie, 2014; Ash, 2009; Abulrub & Attridge, 2011).

The digital education model is based on the notion of learners. (Ercan, 2010; Ruiz et al., 2006; Barbara & Vakili, 2015 & Neill et al., 2004). Digital learner set their educational schedule to attend tutorial meetings and make assignments and other activities i.e., discussions, quizzes, and exams according to their convenient time (Quintana & Fernandez, 2015). Digital education supports learners to overcome their physical disabilities and attend the teaching-learning process as equal to normal learners. It also eliminates gender discrepancies (Deloitte, 2004). Digital education also provides opportunities for learners to be treated equally and prevents them from unequal treatment by peers and teachers. Conferencing is the other option for digital learners to join the teaching-learning process and enjoy an equal approach (Ali, 2003). Digital education develops the potential for innovation and creation in an innovative environment. Digital learners improve their skills and it fulfils the objective of quality education and raising the standard to produce skilled manpower (Roussas, 2006). Digital education develop social skills and cognitive process (Stadon & Brown, 2005). The public and private sectors encourage digital graduates and give them incentives to work with them due to their proficiency in communication and digital technologies

Digital education provides opportunities for learners to participate actively in computer technology, web learning and digital classrooms (Keogh, 2001). Digital education helps learners to attend the teaching-learning process with collaboration with their teachers, tutors, fellows and mentors by using technologies. Digital learning is highly interactive (Kearsley, 2014). The universities allow students to get an education in their interest fields with its professional faculty (Malik et al., 2005).

Digital education helps learner to serve in educational events. It helps in making the learner an autonomous. Therefore, pursuing this strategy, jobs and routines are not suffered. Therefore, digital education is the most suitable strategy for the digital age. The study focused on the digital education practices among university students in Khyber Pakhtunkhwa and the key related aspects of digital education practices investigated were the following.

Digital Access

Digital technology is a necessary in people daily lives. Digitalization is increasing over the globe and the Internet users are about 3.010 billion on social media and they are 29% of the world population. About 2-7 hours are spent by individuals on digital devices and share information, and discuss innovative issues whether of learning or daily life at any schedule that suits their requirements (Hussain, 2012).

Digital Communication

Through digital communication, people easily connect in each part of the world by using digital tools (Hoonakker, 2014). People use asynchronous connectivity in their daily routines (Wajcman & Rose, 2011). Digital connectivity supports the transmission of effective communication and enhances the energy among workers (Day et al., 2010). Throughout the globe, digital communication is possible very swiftly by using innovative social media sources and the internet (Demerouti et al., 2014).

Digital Literacy

Digital literacy is essential for innovatively understanding the facts to enhance critical thinking. Digital devices are the sources for people to enhance their digital skills (Gee, 2003). People learn new skills by using digital knowledge through social media (Ibrahim et al., 2013). Digital literacy focuses on the digital competencies required for digital learners in the 21st century (Voogt & Roblin, 2012). Digital learners may manage digital skills i.e., recognizing, accessing, managing, assimilating, examining and synthesizing digital devices (Eshet-Alkalai, 2004). Digital literacy has three stages i.e., digital competency which deals with the positive practice. The second stage is the digital use which focuses on the application of digital skills while the third stage is the digital revolution which focuses on the digital use in an innovative situation effectively (Martin, 2008). Teachers may also enhance students' digital competencies through classroom practices as well as boost students' motivation and confidence (Ibrahim et al., 2013; Smeda et al., 2012).

Digital Security and Safety

Digital safety and security are linked with digital privacy and cyberbullying (Clark, 2013; Duerager & Livingstone, 2012). Cyberbullying may damage other people's emotions by using software programs to insult them

(Livingstone & Görzig, 2014). Many people are involved in hurting other people by using internet opportunities (Ringrose et al., 2013). The identified limitations need to be fixed to avoid undesirable behaviours for digital safety (Annansingh, & Veli, 2016). At an early age, children need the care to be involved in positive activities and avoid negativity i.e., insulting others, harassment, and spreading rumours (Lim, 2016). The negative activities distract students from educational activities and damage their emotional, physical and social development (Mason, 2008; Patchin & Hinduja, 2006).

Digital Etiquette

Many etiquettes are essential for using different technologies (Marx, 2014). Different etiquettes i.e., mobile messages are different from emails as in mails the immediate response is not required (Preece, 2004). There is a need to care about social norms, accepted values and people's beliefs (Postmes et al., 2000). Ribble et al. (2004) claimed that digital etiquettes are accepted norms for digital citizens and they observe the norms in the context of the digitalized world. Awareness of digital etiquette is necessary for both students and teachers for polite communication and caring social limitations. In Pakistan, strict rules are followed by citizens but sensitizing future generations about digital technologies is essential and it is possible by provisions of digital knowledge through teaching-learning practices (Hollandsworth et al., 2011; Lenhart & Madden, 2007).

Digital Rights and Responsibilities

Digital rights and responsibilities are consider fundamental for consumers as they need to be aware of digital responsibilities, laws and rules and work in freedom (Curran, 2012). Today, the negative use of digital devices and sources is at its peak and the 21st century demands different learning skills i.e., critical thinking skills, teamwork and communication skills. It is need of the time to educate students about digital responsibilities and rights as they get benefits from digital technology. Therefore, media literacy and digital literacy are the main targets to be focused on to get benefits as consumers of the 21st century (Ribble, 2004).

Digital Law

Digital law is the science of digital rules and students and teachers may be aware of the digital rules as to how to download content, and share material, posts and comments. Consumers need to be aware of sharing information

through the internet as to which content or information is appropriate and which is not suitable. Digital education is the platform for both students and teachers to get knowledge about digital laws, and digital regulations and convert them as responsible and effective customers (Ribble, 2007).

Digital Health and Wellness

The world population is estimated over eight billion people living on earth and over six billion people get access to mobile phones reflecting the reality that majority of the people spend many hours using, searching and talking. Digital users need to be aware of safety measures i.e., eye protection, health care and physical activities (Ohler, 2011). The adjustment of the body with digital devices is necessary for digital health and smooth work. It is observed that the most students are unaware of digital health and they use digital devices without proper care which is an alarming situation for both parents and teachers (Hollandsworth et al., 2011).

Digital Commerce

Through digital commerce activities, people buy things from different online sources including every type of thing. For students, it is necessary to be aware of harmful online links. The safe and secure delivery and payment ensure trust among consumers and online businesses (Mossberger et al., 2012). Therefore, students' digital education provides them with the platform to develop a sense of care, enhance their awareness and buy and purchase safely and securely. In the context of Pakistan, there are some fake online business websites through which consumers get losses. For the protection of the digital rights of consumers, it is essential to educate students to protect their digital rights (Nuccetelli, 2011).

Significance of the Study

The rapid access to digital technology altered every domain of life and it has developed a necessary portion of the lives of every individual. Due to the wide usage of the digital devices, changes also occurred in the lives of the people. It creates a digital culture in almost all societies of the world. Teachers may play the role of digital guides to guide the students during class activities. The teachers may show in front of the students how to use digital devices and how the students may get benefits from digital education for their learning activities. Teachers may equip themselves

with digital skills and can solve the digital issues in the classroom if students (Ribble & Baily, 2007). In the digital world, rapid changes have a heavy impact on every feature of the life of people and it is now a basic need of everyday life. Each individual may face innovative changes occurring in the digital world. Hence, digital education is a need of every individual as it helps learners to adjust themselves to rapid changes. Through digital education, the students may involve themselves to manage their learning activities independently with any timetable and place. The students may link themselves to digital education practices to explore any study content. They may share study material with their peers to discuss it through social media platforms. It is the need of every student to develop their digital skills with the help of digital education practices. Consequently, analzing students opinions about digital education practices and their needs were addressed in the present study.

Research Objectives

1. To find out the digital education practices among university students in Khyber Pakhtunkhwa.
2. To identify the need for digital education practices among university students in Khyber Pakhtunkhwa.
3. To compare gender-wise views about digital education practices among university students in Khyber Pakhtunkhwa.

Research Questions

The below research questions were investigated:

1. Whether digital education practices were reflected among university students in Khyber Pakhtunkhwa?
2. What is the extent of the need for digital education practices among university students in Khyber Pakhtunkhwa?
3. Are the university students doing gender-wise digital education practices in Khyber Pakhtunkhwa?

Research Methodology

The digital education practices, its need and gender- wise views among university students in Khyber Pakhtunkhwa were analyzed. Descriptive research design with survey approach was used. All the students of Bachlor of Science (Education) in five public sector universities in Khyber Pakhtunkhwa i.e., University of Peshawar, Islamia College University, Peshawar, Gomal University, Dera Ismail Khan, Kohat University of Science & Technology, and The University of Haripur. The sample

consisted of 214 students including 86 males and 128 females were selected through simple random sampling. A closed questionnaire was developed for data collection having nine aspects of digital education i.e., digital access, digital communication; digital literacy; digital safety and security; digital rights; digital etiquettes; digital laws; digital health and digital commerce. Tool validation established on experts' opinions. The reliability coefficient Cronbach Alpha (α) value was found .86. Researcher administered personal visits to collect data. Data analysis was established by using descriptive and inferential i.e., frequency, percentage, mean score and t-test. The data were tabulated, presented and explained.

Data Analysis and Interpretation

Table 1
Students Digital Education Practices among University Students

Indicators	SA F (%)	A F (%)	UN F (%)	DA F (%)	SDA F (%)	*N* F (%)	*Mean*	*SD*
1. Digital access	105 (49.1)	81 (37.8)	18 (8.4)	6 (2.8)	4 (1.9)	214 (100)	4.39	1.13
2. Digital communication	54 (25.2)	109 (51.0)	29 (13.6)	14 (6.5)	8 (3.7)	214 (100)	4.47	1.02
3. Digital literacy	72 (33.7)	104 (48.6)	27 (12.6)	8 (3.7)	3 (1.4)	214 (100)	4.21	1.32
4. Digital safety &security	60 (28.0)	105 (49.1)	30 (14.0)	15 (7.0)	4 (1.9)	214 (100)	4.12	1.39
5. Digital rights	63 (29.4)	89 (41.6)	38 (17.8)	18 (8.4)	6 (2.8)	214 (100)	4.02	2.23
6. Digital etiquettes	56 (26.2)	96 (44.9)	31 (14.5)	17 (7.9)	14 (6.5)	214 (100)	4.09	2.12
7. Digital laws	71 (33.2)	92 (43.0)	21 (9.8)	19 (8.9)	11 (5.1)	214 (100)	4.01	2.35
8. Digital health	64 (29.9)	89 (41.6)	42 (19.6)	12 (5.6)	7 (3.3)	214 (100)	4.05	2.32
9. Digital commerce	52 (24.3)	117 (54.7)	27 (12.6)	12 (5.6)	6 (2.8)	214 (100)	4.11	2.11

Table 1 depicted that the respondents 87% agreed with the statements regarding digital access, 4.7% disagreed and 8.4% were undecided with supporting (M = 4.39, SD = 1.13). 76.2% agreed, 10.2% disagreed and 13.6% were undecided about the statements of digital communications with supporting (M = 4.47, SD = 1.02). 82.3% agreed, 5.1% disagreed and 12.6% were undecided regarding digital literacy with supporting (M = 4.21, SD = 1.32). 77.1% agreed, 8.9% disagreed and 14% were undecided about the statements of digital safety and security with supporting (M = 4.12, SD

= 1.39). 71% agreed, 11.2% disagreed and 17.8% undecided on the statements regarding digital rights with supporting (*M* = 4.02, *SD* = 2.23). 71.1% agreed, 14.4% disagreed and 14.5% were undecided about digital etiquettes with supporting (*M* = 4.09, SD= 2.12). 76.2% agreed, 14% disagreed and 9.8% were undecided regarding the statements on digital laws with supporting (*M* = 4.01, *SD* = 2.35). 71.5% agreed, 8.9% disagreed and 19.6% were undecided about digital health with supporting (*M* = 4.05, *SD* = 2.32). 79% agreed, 8.4% disagreed and 12.6% were undecided regarding the statements on digital commerce with supporting (*M* = 4.11, *SD* = 2.11).

Table 2
Need for Digital Education Practices among University Students

Indicators	SA F (%)	A F (%)	UN F (%)	DA F (%)	SDA F (%)	*N* *F* (%)	*Mean*	*SD*
1. Digital access	123 (57.47)	89 (41.6)	2 (0.93)	0 (0.0)	0 (0.0)	214 (100)	4.46	.21
2. Digital communication	83 (38.8)	131 (61.2)	0 (0.0)	0 (0.0)	0 (0.0)	214 (100)	4.27	1.45
3. Digital literacy	87 (40.66)	127 (59.34)	0 (0.0)	0 (0.0)	0 (0.0)	214 (100)	4.31	1.49
4. Digital safety & security	86 (40.19)	128 (59.81)	0 (0.0)	0 (0.0)	0 (0.0)	214 (100)	4.22	1.58
5. Digital rights	73 (34.1)	141 (65.9)	0 (0.0)	0 (0.0)	0 (0.0)	214 (100)	4.54	1.92
6. Digital etiquettes	83 (38.8)	131 (60.28)	0 (0.0)	0 (0.0)	0 (0.0)	214 (100)	4.35	1.25
7. Digital laws	83 (38.8)	126 (58.9)	0 (0.0)	2 (0.9)	3 (1.40)	214 (100)	4.32	1.52
8. Digital health	75 (35.04)	138 (64.5)	0 (0.0)	1 (0.46)	0 (0.0)	214 (100)	4.53	2.01
9. Digital commerce	80 (37.4)	127 (59.34)	2 (0.93)	2 (0.93)	3 (1.40)	214 (100)	4.11	2.03

Table 2 indicated the views of university students regarding the need for digital education. It depicted that 99.07% of respondents agreed, 0% disagreed and 0.93% were uncertain about the statement on the need for digital access with supporting (*M* = 4.46, *SD* = 1.21). 100% of respondents agreed on the need for digital communication, 0% disagreed and 0% were uncertain with supporting (*M* = 4.27, *SD* = 1.45). 100% agreed on the need for digital literacy, 0% disagreed and 0% were uncertain with supporting (*M* = 4.31, *SD* = 1.49). On the statement about digital safety and security, 100% of the respondents agreed, 0% disagreed and 0% were uncertain with supporting (*M* = 4.22, *SD* = 1.58). 100% of the respondents agreed,

0% disagreed and 0% were uncertain about the need for digital rights with supporting (*M* = 4.54, *SD* = 1.92). 100% of the respondents agreed on the need for digital etiquettes, 0% disagreed and 0% were uncertain with supporting (*M* = 4.35, *SD* = 1.25). 97.7% agreed, 2.3% disagreed and 0% were uncertain regarding the need for digital laws with supporting (*M* = 4.32, *SD* = 1.52). 99.54% of the respondents agreed, 0.46% disagreed and 0% of the respondents were uncertain about the need for digital health with supporting (*M* = 4.53, *SD* = 2.01). 96.74% agreed, 2.33% disagreed and 0.93% were uncertain about the statement on the need for digital commerce with supporting (*M* = 4.11, *SD* = 2.03).

Table 3
Gender-Wise Comparison on Digital Education Practices among University Students

Indicators	Gender	N	X	SD	Df	t-value	p-value
1. Digital access	Male	86	4.38	1.113	212	3.123	.000
	Female	128	4.23	1.235			
2. Digital Communication	Male	86	4.43	1.011	212	3.020	.000
	Female	128	4.12	1.129			
3. Digital Literacy	Male	86	4.126	1.102	212	3.225	.001
	Female	128	3.931	1.115			
4. Digital Safety & Security	Male	86	4.552	1.124	212	3.98	.002
	Female	128	4.791	1.011			
5. Digital Rights	Male	86	4.208	1.012	212	3.89	.003
	Female	128	4.025	1.125			
6. Digital Etiquettes	Male	86	4.725	1.225	212	2.508	.001
	Female	128	4.904	1.139			
7. Digital Laws	Male	86	2.206	0.125	212	2.225	.002
	Female	128	1.708	1.234			
8. Digital Health	Male	86	1.125	1.113	212	2.758	.001
	Female	128	1.221	1.152			
9. Digital Commerce	Male	86	2.124	1.122	212	2.562	.003
	Female	128	1.024	1.186			

Table 3 reflected that the mean score of male and female students regarding digital access were (*M* = 4.38, *M* = 4.23) and the (t-value = 3.123, p-value = .000 at *P* < .05, digital communication (*M* = 4.43, *M* = 4.12) while the (t-value = 3.020, p-value = .000 at P < .05, digital literacy (*M* = 4.126, *M* = 3.931) while the t-value = 3.225, p-value = .001 at P < .05, digital safety and security (*M* = 4.552, *M* = 4.791) and the (t-value = 3.98, p-value = .002 at *P* < .05, digital rights (*M* = 4.208, *M* = 4.025) and the (t-value = 3.89, p-value = .003 at *P* < .05, digital etiquettes (*M* = 4.725, *M* = 4.904) the (t-value = 2.508, p-value = .001 at *P* < .05, digital laws (*M* = 2.206, *M* = 1.708) while the (t-value = 2.225,

p-value = .002 at $P < .05$, digital health ($M = 1.125$, $M = 1.225$) and the (t-value = 2.758, p-value = .001 at $P < .05$, digital commerce ($M = 2.124$, $M = 1.024$) and the (t-value = 2.562, p-value = .003 at $P < .05$.

Discussion

Digital education is a great development which put impacts on every aspect of life. The findings coincide with Berns et al. (2013) that digital education is needed for students from every level of education. University students are involved in digital education practices in the universities. Similarly, Dam (2014) found that in Pakistan, the students also use digital gadgets and availability of the Internet in universities changed the education system scenario. Universities are facilitating learners to attend their learning activities by managing digital education. Iqbal and Ahmad (2020) claimed that after the COVID-19, digital education programs were launched. Rehman (2018) claimed that students are involved in digital education practices in Pakistan and Allama Iqbal Open University is one main example regarding provision of digital education by conducting online examinations and online conferences, seminars, workshops, training and online teaching classes are in practice in all the universities throughout Pakistan. Similar findings are of Masood (2010) that the Virtual University Lahore also manages such activities. Memon (2017) found both female students are using digital devices and are involved in the practices of digital education.

Conclusions

It was concluded that most of the students were engaged in digital education practices Concluded that male students were engaged in digital education practices more than female students in universities. It was also concluded that university students are of the view that digital education is an important need and the majority of the students both male and female agreed about the need in all nine aspects of digital education.

Recommendations

It is recommended that universities students may be educated about all aspects of digital education. Therefore, universities may manage digital workshops, seminars, disscusion, training and conferences. Recommended that the universities management may frame the rules while using digital devices during class timings, and academic sessions as well as regulate digital education keeping in view the culture and social norms of the society. It is also recommended that universities may manage expenses for quality digital education.

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