



**RESEARCH PAPER**

**Unveiling the Digital Capital: A Quantitative Study among University Students in Islamabad**

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**ABSTRACT**

This paper examines the digital capital of university students in Islamabad, a capital territory of Pakistan, focusing on their access, skills, and attitude to the Internet, information and communication technologies (ICT), and other digital devices. The study investigates how students develop this form of capital and its impact on their academic performance and the generation of other forms of capital, such as social and economic. The research adopts a quantitative approach, utilizing a cross-sectional survey method with a sample of 397 students from four universities in Islamabad. Data was collected using a close-ended questionnaire distributed both online and offline. Statistical analyses, including descriptive analysis, and inferential analysis were conducted to analyze the data. The findings indicate that most students come from high-income families and have high access to the Internet, ICT, and digital gadgets. They also possess the necessary digital skills and use digital technology for positive activities. The study concludes that the majority of students are well-equipped with digital capital, enabling them to contribute to societal change and development. This research highlights the digital divide and stratification among students in a digitalized era and its implications for their academic and overall growth.

**KEYWORDS** Digital capital, Digital divide, Digital technology, Digital Skills, ICT

**Introduction**

Today's world, perceived is more digitalized and people live in an information-age society in which access and use of the internet and information communication technologies (ICT) are inevitable for the advancement and development of any society. In contrast; those societies which are not advanced in digital technologies lag in advancement and development in this digitalized world (Rhema & Miliszewska, 2014).

Furthermore, this lack of access, use, and skills of the internet and ICT creates stratification and inequalities among people and groups, which is referred to as the digital divide (Emmison & Frow, 1998). Digital divide, which is referred to as the gap between those, who have and do have not access to ICT and the internet (Vandigik, 2006; Yuan, Park, and Cheng, 2019). This digital divide in society is based on the accumulation of digital capital, a new form of capital which is first time used by Hamlink (2000), referred to knowledge, skills, capabilities, and information of computers, the internet, and other digital devices including information seeking motivation and implementation (Ignatow & Robinson, 2017).

Based on the work of Pierre Bourdieu, a French philosopher (1930-2002), much research conducted to study the manifestation of capital (cultural capital), and its various forms (objectified, embodied, and institutionalized). In the recent world, researchers have considered new forms of capital by borrowing the idea of capital from Bourdieu. In this regard, personal capital (Ragenda, 2018; Becker 1996), human capital (sunde and Vischer 2015), religious capital ( Finke, 2000; Iannaccone, 1990), organizational capital (Tomer 1987, Klein 1988), network capital (Sik 1994), personal capital (Dei Ottati 1994; Becker 1996), and digital capital (Ignatow & Robinson; link, 2000).

The level of digital capital that persons possess affects access to the internet and ICT which is referred to as the first-level digital divide and the use, skills and motivation, and attitude towards these technologies, which is known as the second-level digital divide. In addition, transforming this capital to generate other forms of capital, like economic capital and social and cultural capital is the third level digital divide (Yuan, Park, and Cheng, 2016; Bourdieu, 1983). The lack of digital capital among youth which creates a digital divide in society is a global, multifaceted, and dynamic problem (Yuan, Park, and Cheng, 2019; Vandigik, 2006). Therefore, meticulous attention should be paid to digital equity in each sector, especially in education (Yuan, Park, & Cheng, 2019; Laferrière & Resta, 2008).

In this scenario, being part of this information-age society, Pakistan is ranked the 5<sup>th</sup> heavily populated country in the world with around 242 million people. This population mostly comprises young ages 18 to 34 years. In the same way, the differences in physical access to ICT and the internet, including knowledge acquisition, operational and informational skills, and attitude towards its use have led to inequality, which further widens the gap among youth regarding the acquisition of digital capital (Emmison and Frow, 1998). On the contrary, those who have easy physical access to ICT and the internet and have essential knowledge and skills, use it for solving different problems. Therefore, the accumulation of digital capital among people and especially among students is important, even inevitable to play a dynamic role in this digitalized world. In addition to this, this capital can use to generate other forms of capital like social and economic capital (Houtee & Baraak, 2010).

Therefore, most of the research studies conducted by scholars in Pakistan have focused on economic activities, political participation, civic engagements, academic performance, use of the internet for social capital, effects of digital media on education performance, and use of ICT in the classroom (Mahmood, 2018; Islam, 2018; R Riyadh, 2010; Safdar and Khan, 2018; Mujahid, 2002; Soomro and Ahmed, 2015). However, there has been no research conducted on the manifestation of digital capital among university students in the Pakistani context. Hence, this study aims to explore and understand the sociological aspects of digital capital among university students in Pakistan.

## **Literature Review**

French philosopher and critical theorist Pierre Bourdieu (1930-2002) introduced the concept of capital, acknowledging that it extends beyond economic resources to include social and cultural forms (Ragneda, 2018). Bourdieu defined capital as a combination of internalized abilities, externalized assets, and socially valuable resources and power (Ignatow & Robinson, 2017).

Building upon Bourdieu's cultural capital model, the notion of digital capital emerged, first introduced by Hamelink (2000). Digital capital encompasses knowledge and skills related to computer information and other digital devices, adaptive capabilities, information-seeking motivation, and implementation capacity (Ignatow and Robinson, 2017). In the context of digital capital, Warschauer (2003) conducted a research study on physical access to technology and social inclusion. He discovered that mere physical access to information and communication technology (ICT) and the internet alone did not effectively bridge the digital divide. Rather, Warschauer argued that the appropriate utilization of technology and capacity are equally crucial for achieving social inclusion.

In addition, Selvin (2012) conducted a study on the development of technological capital, which emphasizes the interaction between home, family, school, and social organizations. His findings revealed that individuals' technical skills and knowledge provide formal and informal learning opportunities, as well as socialization in the use of technology and technological culture. For instance, individuals with technical contacts and support networks, whether face-to-face (such as family, friends, and tutors) or remote (such as

online support facilities), possess technical social capital. This study offers valuable insights into technology skills, knowledge, and socialization, which contribute to learning opportunities for students in both formal and informal settings.

Furthermore, Shahrehabaki et al. (2014) conducted a study on students' attitudes toward ICT and its impact on e-learning adoption in Iran. Their findings revealed that student attitudes played a significant role in determining the level of acceptance and adoption of e-learning. Students who had frequent exposure and interaction with web technology, computers, and mobile devices for educational purposes developed positive attitudes toward ICT. Conversely, students who had limited exposure to ICT and computer use exhibited low enthusiasm and confidence in educational technology. Importantly, these students did not perceive the benefits of e-learning.

Furthermore, Soomro and Ahmed (2015) conducted a research study on the digital divide among Pakistani teaching staff in terms of access to information and communication technologies (ICT). Their study highlighted the complex and multifaceted nature of the digital divide. The results indicated that teachers at Public Sector Universities had limited long-term motivation and physical access to ICT, while their skills in using ICT were moderate. Overall, the study found that the use of ICT and digital technologies in teaching was very low.

Additionally, Ashiq et al. (2013) conducted a study on the impact of mobile communication on the social capital of young people. The study focused on college students and found that mobile phones were widely used as a modern communication medium. The majority of respondents used mobile phones to communicate with friends and family members. Both male and female students acknowledged that mobile phones influenced their peer relationships and had an impact on social norms, customs, traditions, respect, and face-to-face interactions. This study provides valuable insights into students' use of digital devices and their effects on social relationships.

Moreover, Ahmad et al. (2015) revealed in their research study that Facebook was the most popular social networking site (SNS) among university students in Pakistan. The study found a strong connection between the intensity of SNS use, time spent on SNS, and the motivation for using SNS with the creation of bonding and linking social capital. Self-esteem and satisfaction with academic life were identified as important predictors of social communication capacity.

In addition, Mahmood et al. (2018) conducted a study on the role of Facebook in predicting the development of social capital among university students in Pakistan. The study demonstrated that Facebook usage motivations played a significant role in the formation of social capital. The findings supported the idea that the use of Facebook by young people can be seen as a form of social capital, depending on their motivations for using the platform.

Overall, the literature presented highlights the importance of studying the generation and development of digital capital among university students. Such research plays a crucial role in the education system and broader society, as it contributes to the development of various forms of capital and ultimately promotes social mobility. This study aims to fill the existing gap by quantitatively examining the level of digital capital generation among university students.

## **Theoretical Framework**

The theoretical framework of this study is based on Pierre Bourdieu's model of cultural capital. Bourdieu proposed this theory in 1960 to explain social class differences beyond economic capital. He argued that cultural capital, which includes objectified,

embodied, and institutional forms, can promote social mobility (Meng and Hsieh, 2013). Cultural capital is separate from economic capital and requires a long-term investment in education and time (Johnson, 1993). Researchers such as Emmison and Frow, Bstos, Morgan, Meng and Hsieh, Renzulli, Ignatow and Robinson, Julien, and Ragenda have also utilized Bourdieu's cultural capital theory to study different forms of capital and their accumulation and stratification in society. In this study, the researcher applies Bourdieu's cultural capital model to examine the manifestation of cultural digital capital among university students.

### Conceptual Model

As explored and discussed above in the literature and keeping the research objective in view the following conceptual model in figure 1 of the present study is developed.

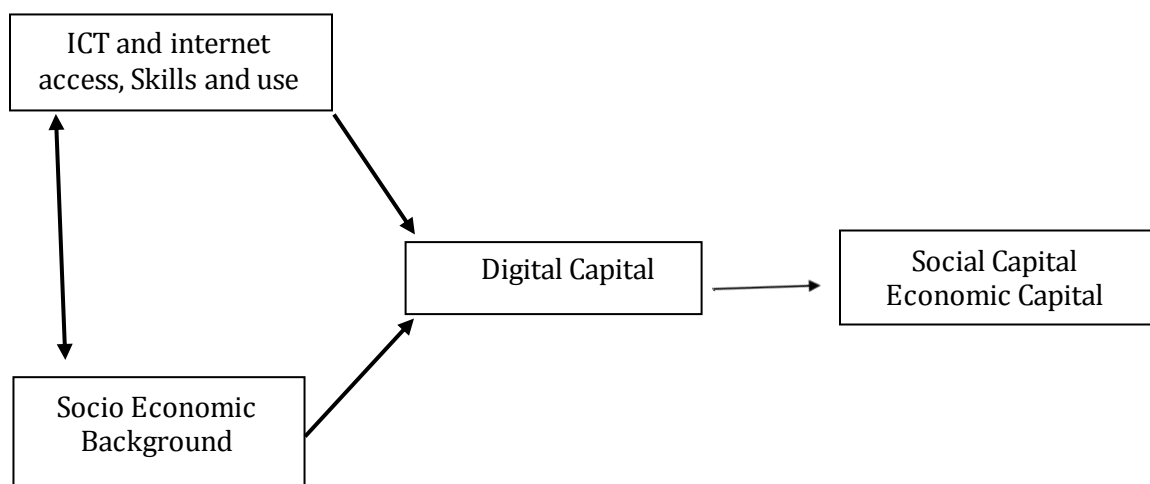


Figure 1 Conceptual model of the study

### Material and Methods

To gain insight into the digital capital of university students in terms of their access to ICT and the internet, digital skills, and attitudes toward their use, this study employed a quantitative research method. The goal was to empirically answer the key research question, systematically measure, and experiment with various factors.

A cross-sectional survey was conducted to gather data from the target population within a specific time interval. The sampling method chosen for this study was multi-stage sampling. In the first stage, the decision was made to include universities/HEIs in the Pakistan Capital Territory Islamabad. Four universities were selected out of the seventeen available in Islamabad: International Islamic University, FAST National University of Computer and Emerging Sciences, National University of Modern Languages (NUML) Islamabad, and Quaid e Azam University.

To determine the sample size, the Toro Yamale formula was used, considering the known population size of 50,000 students enrolled in these four universities. The sample size was calculated as 397. Proportional allocation was then used to assign an appropriate sample size to each selected university.

A close-ended structured questionnaire was used as the data collection tool. The survey questionnaires were distributed among the targeted population through a multi-

stage sampling procedure, utilizing methods such as first-hand distribution, mail, and online distribution through Google Forms.

The collected data were analyzed using both descriptive and inferential analysis. Descriptive analysis helped to present the information in a meaningful manner, while inferential analysis involved making inferences about the larger population based on the sample data. Various statistical measures such as reliability, correlation, frequency, and percentage were calculated and systematically tabulated.

This research methodology allowed for a systematic and comprehensive examination of the digital capital of university students, providing valuable insights into their access to ICT, digital skills, and attitudes toward their use

**Table 1**  
**Distribution of respondents regarding university students**

University Name	Frequency (f)	Percentage (%)
International Islamic University Islamabad	161	43.9
FAST National University of Computer and Emerging Sciences	68	18.5
National University of Modern Languages	78	21.3
Quaid E Azam University, Islamabad.	60	16.3

Table 1 gives an idea about the respondent's response from four different universities of Islamabad as per the formula for selection of sample size from these four universities according to their total enrolled students. A total of 161 respondents were from IIUI, 68 from FAST, 78 from NUMAL, and 60 from QUI Islamabad.

**Table 2**  
**Distribution of respondents regarding digital equipment**

		Frequency (f)	Percentage (%)
Digital gadgets have	Yes	367	100
	No	0	0
Desktop Computer	Yes	30	8.2
	NO	337	91.8
Personal Laptop	Yes	353	96.2
	NO	14	3.8
Smart Phone	Yes	326	88.8
	NO	41	11.2

Table 2 postulates the respondent's access to digital gadgets i.e. computer, Laptop, and Smartphone. The data in the table show that all of the respondents have access to digital gadgets. The majority of respondents 96.2% have their personal computer, the data further explain that majority of respondents 88.8% have a Smartphone while fewer respondents have a desktop computer. The overall data shows that the majority of respondents have digitally equipped with modern digital gadgets

**Table 3**  
**Distribution of respondents regarding access to the Internet**

Internet Access		Frequency(f)	Percentage (%)
Access to internet	Yes	367	100.0
	No	0	0

Thorough Desktop Computer	Yes	8	2.2
	No	359	97.8
Through Personal Laptop	Yes	337	91.8
	No	30	8.2
Through Smart Phone	Yes	350	95.4
	No	17	4.6
Through Friend Laptop	Yes	16	4.4
	NO	351	95.6
Through Library Computer	Yes	186	50.7
	No	181	49.3

Table 3 shows respondents' access to the internet and the type of digital gadgets through which access the internet. Data views that all the respondents have access to the internet and they use different digital devices for that access. The majority of respondent/respondent 95.4% were access to Internet through personal laptops and smartphones. Less number of students uses friend's computer internet access.

**Table 4**

**Distribution of respondents regarding the medium of internet connectivity**

Internet Connection		Frequency (f)	Percentage (%)
Public WIFI	YES	274	74.7
	NO	93	25.3
Home WIFI	YES	66	18.0
	NO	301	82.0
3G,4G	YES	356	97.0
	NO	11	3.0

Table 4 data shows respondents' distribution regarding the medium of use of the Internet. The majority 97.0% of respondents use 3G, 4G data for the internet. In addition to this 74.7% of respondents were using public WIFI for an internet connection while less number of respondents 18.0% use home WIFI for an internet connection.

**Table 5**

**Distribution of respondents regarding the account on Social Networking Sites**

Facebook	No	1	.3
WhatsApp	Yes	354	96.5
	No	13	3.5
Instagram	Yes	182	50.4
	No	185	49.6
Twitter	Yes	162	44.2
	No	205	55.8

The distribution of data in table 5 indicates respondent's use of social networking sites. Data explain that 99.7% of respondents have an account in Facebook while only one of the respondents does not have an account in Facebook. The data further indicates that more than two-thirds of respondents 96.6% use WhatsApp. In this way, half of the respondents 50.4% used Instagram. In the respondents data further explains 55.8% that respondents were not using Twitter.

**Table 6**

**Distribution of respondents regarding daily time spent on the internet**

Daily time spent	Frequency (f)	Percentage (%)
Up to 60 minutes	14	3.8
60 to 120 minutes	72	19.6
120 to 180 minutes	171	46.6

More than 180 minutes	110	30.0
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Table 6 gives detail of daily time spent on the internet and ICT which indicates that the majority 46.65% respondents spent time 120 to 180 minutes while fewer respondents 3.8% sed up to 60 minutes.

**Table 7**  
**Distribution of respondents regarding operational and motivational usage skills and access to the Internet and ICT**

Statement	SD	D	N	A	SA
	f (%)	f (%)	f (%)	f (%)	f (%)
I am very confident in searching, browsing, and filtering information, data, and digital contents	5 (1.4)	38 (10.4)	20 (5.4)	195 (53.1)	109 (29.7)
I use the internet mostly for academic purposes	9 (2.5)	7 (1.9)	7 (1.9)	241 (65.7)	103 (28.1)
I use the internet and ICT for searching for educational opportunities	3 (0.8)	3 (0.8)	20 (5.4)	210 (57.2)	131 (35.7)
I use the internet and ICT for seeking help and counseling	9 (2.5)	11 (3.0)	38 (10.4)	231 (62.9)	78 (21.3)
I use the internet and ICT for entertainment	9 (2.5)	38 (10.4)	62 (16.9)	205 (55.9)	53 (14.4)

Table 7 illustrates the respondent's attitude, preferences, and operational and motivational usage access to the internet and ICT. Data in the table shows that respondent's majority of respondents 65.7% used for academic purposes, 57.2% of respondents were using for searching educational opportunities. In addition to these 53.2% of respondents were very confident and motivating during searching and browsing.

**Table 8**  
**Distribution of respondents making social bonding**

Statements	SD	D	N	A	SA
	f(%)	f(%)	f(%)	f(%)	f(%)
I use the internet and ICT for making social contacts and making new friends	4 (1.1)	53 (14.4)	86 (23.4)	168 (45.8)	56 (15.3)
I use the internet and ICT to share information online	5 (1.4)	14 (3.8)	41 (11.2)	221 (60.2)	86 (23.4)

The distribution of data in Table 8 explains the respondent's online bonding and developing social capital which indicates that the majority of respondents 45.8% use the internet and ICT for making social bonding and 60.2% of respondents use it for sharing information online.

**Table 9**  
**Distribution of respondents regarding online services**

Statements	SD	D	N	A	SA
	f (%)	f (%)	f (%)	f (%)	f (%)
I actively participate in online services, e-banking and online shopping, and business	41 (11.2)	145 (39.5)	42 (11.4)	100 (27.2)	39 (10.6)
I use the internet and ICT for digital arts and digital photography	52 (14.2)	142 (38.7)	50 (13.6)	89 (24.3)	34 (9.3)

Data in Table 9 shows the respondents study online and offline on the availability of digital tools and internet access. Majority of respondents 57.2% study books, articles, and magazines online. The data further explains that 64.3% of respondents update their knowledge when they access digital tools and the internet and in addition to this majority of respondents 61.6% doing different works through the internet

**Table 10**  
**Distribution of respondents regarding the study online**

Statements	SD	D	N	A	SA
	f(%)	f(%)	f(%)	f(%)	f(%)
I like to read books, articles, and magazines online	9 (2.5)	10 (2.4)	24 (6.5)	210 (57.2)	114 (31.1)
I frequently update my knowledge of the availability of digital tools.	5 (1.4)	12 (3.3)	28 (7.6)	236 (64.3)	86 (23.4)
I use the internet for doing my different works	7 (1.9)	10 (2.7)	29 (7.9)	226 (61.6)	95 (25.9)

Data in Table 10 shows the respondents study online and offline on the availability of digital tools and internet access. Majority of respondents 57.2% study books, articles, and magazines online. The data further explains that 64.3% of respondents update their knowledge when they access digital tools and the internet and in addition to this majority of respondents 61.6% doing different works through the internet

**Table 11**  
**Distribution of respondents regarding informational skills of ICT and internet**

Statements	SD	D	N	A	SA
	f(%)	f(%)	f(%)	f(%)	f(%)
I have access to digital libraries	17 (4.6)	67 (18.3)	33 (9.0)	200 (54.5)	50 (13.7)
I know when and which information I should and should not share online	5 (1.4)	16 (4.4)	14 (3.8)	226 (61.6)	106 (28.9)
I can download different articles, research papers, books, and other materials from different websites	7 (1.9)	4 (1.1)	18 (4.9)	218 (59.4)	120 (32.7)
I respect copyright and license rules and I know how to apply them to digital information and content	17 (4.6)	25 (6.8)	19 (5.2)	214 (58.3)	92 (25.1)
I use Google Drive for storing different materials	6 (1.6)	17 (4.6)	28 (7.6)	214 (58.3)	102 (27.8)

Data in Table 11 shows respondent's information and literacy skills of ICT and the internet which indicates that the majority of respondents 54.4% have access to digital libraries. In the same way majority of respondents, 59.4% can search websites and they have the skills to download books, articles and share them online. More than two-thirds of the total respondents 58.3% have literacy and information skills that know copyright rules.

**Table 12**  
**Distribution of respondents regarding digital contents creation and problem-solving**

Statements	SD	D	N	A	SA
	f(%)	f(%)	f(%)	f(%)	f(%)
I can produce complex digital content in different formats( images, audio files, text, and table	31 (8.4)	105 (28.6)	34 (9.3)	154 (42.0)	43 (11.7)
I can use varied media to express myself creatively (video, audio, texts, programming)	34 (9.3)	105 (28.6)	63 (17.2)	127 (34.6)	38 (10.4)
I can use digital technologies ( devices, application software) to solve technical and non-technical problems	22 (6.0)	61 (16.6)	51 (13.9)	185 (50.4)	48 (13.1)

The distribution of respondents in Table 12 explains the respondent's operational and strategic skills to create digital content and solve problems both technical and non-technical. Data clearly shows that two-third of total respondents 42.0% and 11.7% have operational and strategic skills to use for making digital content in the same way majority of respondents 34.6% and 10.4% have skills to create digital media and files to show themselves creatively. In addition to this data further explains that more than two-thirds of respondents 50.4% use digital technologies to solve technical and non-technical problems



## **Findings**

The study included 367 respondents from four different universities in Islamabad. The majority of respondents (66.2%) were between the ages of 18-24. All respondents were above 18 years old. Most respondents (50,000-99,999 PKR) fell within the monthly income range of 50,000 to 99,999 PKR. In terms of academic disciplines, 66.2% were from BS/BA/BSc (Hons), 28.2% were from MS/MPhil, and 5.4% were from Ph.D. programs. The study also examined students' CGPA, with 77.4% achieving scores between 3.0 and 3.49.

Regarding digital access, all respondents had access to digital gadgets. The majority (96.2%) owned personal computers, 88.8% had smartphones and a few had desktop computers. Additionally, 97.0% of respondents used 3G and 4G data for internet access, while 74.7% used public WIFI and 18.0% used home WIFI.

The study explored students' motivational access to digital technologies. It found that the majority of respondents had accounts on Facebook (99.7%) and used WhatsApp (96.6%). Half of the respondents used Instagram (50.4%), while 55.8% did not use Twitter. Additionally, 46.65% of respondents spent 120 to 180 minutes on the Internet, and 3.8% used it for up to 60 minutes.

In terms of Internet usage, 65.7% of respondents used it for academic purposes, and 57.2% used it to search for educational opportunities. Furthermore, 45.8% used the Internet for social bonding, 60.2% for sharing information online, and 57.2% studied books, articles, and magazines online. Additionally, 64.3% updated their knowledge through digital tools and the Internet. However, only 38.7% used the Internet for digital arts, photography, and exhibitions, indicating a low interest in these areas.

The study also examined students' digital skills. The majority (59.4%) had skills in searching websites and accessing digital libraries, as well as downloading and sharing books and articles. Additionally, 58.3% had literacy and information skills, including knowledge of copyright rules. Two-thirds of respondents (42.0% and 11.7%) possessed operational and strategic skills to create digital content, media, and files, and solve technical and non-technical problems.

The study assessed the reliability of items related to digital capital, attitude, and preferences, with Cronbach's Alpha  $\alpha$  values of .609, .669, and .829 respectively, indicating good internal consistency. Pearson's correlations revealed a positive relationship between digital competencies and internet access, attitude towards the internet and ICT, making social bonding, and online internet services.

Furthermore, the study found a highly positive relationship between respondents' family income and cultural digital capital. Similarly, there was a positive relationship between respondents' last semester's CGPA and cultural digital capital, suggesting that students from high-income families had higher levels of digital capital, which positively influenced their academic performance and overall success in education.

## **Conclusion**

In this study, we examined the level of digital capital among university students in Islamabad and explored how they developed this capital in today's information-age society. The findings revealed that the majority of students have high physical access to digital gadgets, the Internet, and ICT, along with the necessary operational, strategic, and informational skills. Additionally, students displayed positive motivation and attitude towards these digital technologies. Interestingly, the study also found a strong relationship between high family income and the generation of digital capital. Overall, the results indicate that students in Islamabad, Pakistan, benefit from a strong socio-economic

background, which facilitates the production of digital capital. This capital not only provides easy access to technology but also enhances their overall academic performance and knowledge acquisition in our digitalized society.

### **Recommendation**

Based on the findings of the research article "Unveiling Digital Capital: A Quantitative Study among University Students in Islamabad," I would suggest the following recommendations:

- I. **Digital Literacy Programs:** Educational institutions and policymakers should prioritize the integration of digital literacy programs into the curriculum. These programs should focus on enhancing students' operational, strategic, and informational skills, ensuring they are well-equipped to navigate the digital landscape effectively
- II. **Equal Access Initiatives:** Efforts should be made to bridge the digital divide by providing equitable access to digital gadgets, the Internet, and ICT tools, especially for students from lower socio-economic backgrounds. Scholarships or subsidized programs could help ensure that all students can benefit from digital resources.
- III. **Motivation and Attitude Cultivation:** Educational institutions can play a role in nurturing positive attitudes and motivations towards digital technologies. Encouraging project-based learning, interactive platforms, and engaging content can foster enthusiasm and confidence in students' digital capabilities.
- IV. **Family Engagement:** Recognizing the link between family income and digital capital, there is an opportunity for schools and communities to involve families in digital education. Workshops, seminars, and resources for parents can help them support their children's digital learning journey
- V. **Research on Learning Outcomes:** Further research could explore the impact of digital capital on academic performance and knowledge acquisition. Understanding how digital skills translate into improved learning outcomes can inform educational strategies and policies.
- VI. **Policy Implications:** Policymakers should consider the role of digital capital in shaping educational policies. Policies that promote digital inclusion, provide necessary infrastructure, and support skill development can contribute to a more equitable and empowered student population.
- VII. **Cultural and Contextual Considerations:** As the study focuses on Islamabad, future research could explore how digital capital varies across different regions, cultures, and socio-economic contexts within Pakistan and beyond.

These recommendations aim to leverage the insights gained from the study to enhance digital education, bridge gaps in digital access, and empower students to thrive in an increasingly digitalized society.

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