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Online education as a key to bridge Gender Digital Divide in Pakistan

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Educational systems are progressively attempting to provide equitable, comprehensive, and high-quality digital skills education and training. Females lag substantially behind males in digital abilities, paving the need for more learning and skill development, especially in developing countries. Creating equal opportunity in higher education for all individuals including both genders is a social responsibility. Gender equality is a cornerstone of a healthy, modern economy, and women may make a significant contribution to society and the economy as a whole. The current study was taken to analyze the gender digital divide among youth in Pakistan. The relevant policy documents such as Digital Pakistan Policy and reports were analyzed. The main causes identified included barriers to access, affordability, lack of technology literacy, and sociocultural norms. Moreover, the role of online education as an effort to bridge the gender digital divide was analyzed through interviews with key stakeholders in higher education in Pakistan. Women's use of ICT and digital platforms, mobile phones, and digital payments are among the recommendations, as are skills development for the digital era and enabling for better knowledge and meaningful use of digital technology. Individuals, communities, and the commercial sector will all need to work together to bridge the digital gender gap in Pakistan.

Keywords: gender digital divide, policies, online education, youth, barriers, Pakistan

Introduction

The most prominent aspect of digital distribution in the world is the difference in access and use of Information and Communication Technology (ICT) by women and men in developing countries (Shahid & Arfeen, 2021; Ahmad, Ayub, & Khambari, 2019). To address the digital divide effectively, it is important to address social and psychological obstacles and provide educational opportunities to young women and develop their skills and confidence in using technologies (Singh, 2017). For the last two decades, many researchers have been taking interest in the gender inequalities in various fields of life and most of them illustrated that women are most disadvantaged group than males in access to technology, its use and related experiences (Ahmad, Rafiq, & Ahmad, 2018).

International Telecommunication Unions (ITU) report revealed that on average only 16% of women use the internet as compared to men in developing countries. Another survey conducted by Pew Research center (2015) established the gender digital gap in various countries like Kenya (18%), Nigeria (19%), Ghana (15%), Tanzania, Vietnam, Pakistan (13%), India, Japan, and Uganda (11%). This gap was more huge (31%) in the least developing countries (Singh, 2017). In Pakistan, particularly, the situation is critical as only 28.14% of people in Pakistan have access to the internet. Hence it a fact that women in Pakistan are 49% are less likely in using the internet than men; even they are 1.6 times more likely than males who do not possess basic skills for using the internet (Shahid & Arfeen, 2021). These facts and figures depict a clear picture of disparities in access, exposure, and opportunities available in Pakistan related to technology. However, to eliminate the gender gap, technology can play an important role by providing basic infrastructure and developing digital skills among people (Mathrani, Sarvesh, & Umer, 2021).

Nowadays, digital literacy and internet access are considered as basic rights for everyone in the world, but a gender gap is observed in the use of tech with a huge number of females especially in developing countries. The gender gap in tech is being observed with an increasing number of girls in Pakistan who had no access to technology use. Most of girls in Pakistan are deprived of their basic rights including education, health related services, healthy food, and have equal access of tech related opportunities (Anwar, 2021). Men are privileged to enjoy the more opportunities to technology access, training and skills that enable them to have a better place in the technology

world and job market than the women. Few women having some home based digital experiences with a narrow exposure of technological gadgets use hinder their way to excel themselves in the job market and community (Shahid & Arfeen, 2021). However, education can play a significant role in providing women equal opportunities for ICT related skills development and eliminating a gender-based digital divide (Ahmad, Rafiq, & Ahmad, 2018).

The SDGs target 9c is "to connect each woman to the technology and internet" which shows the top priority of international commitments to eliminate the gender digital divide. The government of Pakistan as one of the signatories of Sustainable Developmental Goals (SDGs) is responsible to put its efforts into eliminating the gender gap and promoting the basic developmental needs of its women in terms of offering them equal access to education, health-related services, right to justice, digital access and participating in economic and social roles equal to the men. Shahid and Afreen (2021) highlighted that reducing the gender gap including the digital divide is not only the key responsibility of governments but all individuals and communities. At present, the digital transformation opens new opportunities for promoting gender equality and women's empowerment.

The online education can play a key role to engage most disadvantaged women in better education, technology use, and their positive social and economic contribution to society (Le Roux & Evans, 2011). They will be more likely to improve their lifestyles and also benefit others around them in their home, society, and professions. Online education is considered as most influential gear that most communities use to bridge the digital divide among their youth (Shahzadi, 2019). Online education particularly, helps in offering digital platforms, internet access, use of tech gadgets to all and helps in dealing with gender disparities by providing women opportunities for better jobs and to contribute positively to the economic and social development. It is important for developing countries like Pakistan to extend online educational opportunities for women, especially at the higher education level to promote gender equality in digital usage, participation in labor market, and opportunities for boosting economic growth for women (OECD, 2018).

Problem statement

The gender digital divide has become worst by the time, especially during the current pandemic that brings more hurdles in the ways women use technology. In Pakistan's scenario, at one side the pandemic limited the women's participation in education and professional tasks and on the

other hand the digital divide becomes more challenging for women's freedom of choice and empowerment. There are numerous reasons for this digital disparity involving social behaviors, mindset of people, and disparity in availability of resources for women including education, heath, social and economic contributions (Anwar, 2021). Furthermore, the gender digital divide in Pakistan becomes worse due to the poor infrastructure, educational opportunities, economic, geographic and social barriers in accessing the technology (Rehman, Kamran, & Khan, 2021; Tanwir & Khemka, 2018). A number of researches have been conducted focusing the use of ICT in Pakistan (Bashir, Mehboob, & Bhatti, 2015; Ahmad, Rafiq, & Ahmad, 2018; Jamil, 2021; Hassan, Madad, Das, Akhtar, & Jehan, 2019) hence, the available literature has scarcity in addressing particularly the potential role of online education to deal with the gendered digital divide. Therefore, this study was planned to explore the challenges and barriers related to the gender digital divide among young females and analyze the potential role of online education as an effort to bridge the gender digital divide in Pakistan.

Objectives of the study

The study was aimed to deal with the following objectives:

1. To analyze how the gender digital divide is addressed in the Digital Pakistan Policy
2. To explore key barriers and challenges related to the equal access to technological facilities among women
3. To determine the potential role of online education as an effort to bridge the gender digital divide in Pakistan.

Literature Review

Loges and Jung (2001) highlighted that the digital divide refers to the economic and social inequalities that exist among people from different backgrounds, in terms of demographics, geographic, and educational background on access to information and communication devices such as television, internet, computer, and Mobile phones are included. Digital divide is also known as the difference between individuals' capabilities and skills to utilize and get benefited from technology. It is influenced by geographical, demographical and socio-economic variables i.e. age, gender, location, and educational diversity of people (Norris & Inglehart, 2013).

Norris and Inglehart (2013) stated the digital divide not only exists in developing countries but also exists in developed countries. In developed nations, digital divide exists due to the low literacy and old age consumers because they lack the skills and ability to access information using technology. On the contrary, in developing nations ICT infrastructure is less evolved and public authorities impose the restrictions on the development of e-commerce. These developing nations like Pakistan, India, and China are lagging behind due to less exertion to bridge the digital divide. Whereas, finance and resource are the major challenges for developing nations in developing ICT infrastructure (Hassan, Madad, Das, Akhtar, & Jehan, 2019; Urim & Imhonopi, 2015).

The immersion of internet connections widely and keep evolving rapidly, has made online activities require students to have more skills to effectively and efficiently used. Developing internet skills in young individuals is increasingly important for full participation in a knowledge-based society (Li & Ranieri, 2013). According to Hassan, Madad, Das, Akhtar, and Jehan (2019), some studies in the context of Pakistan depict that due to the lack of government interest and willingness to put resources into ICT related concerns Pakistan is confronting the poor ICT infrastructure, especially in rural areas. However, low and extremely sluggish internet usage penetration and poor ICT infrastructure are the roots of the digital divide among population in the adoption of e-government. Reducing the digital divide has the potential to reduce social inequalities so, it is crucial to discourse on the digital divide because it is interconnected to education, socio-economic, and political issues (Hassan et al., 2019).

It is proven by the growing educational technologies such as e-learning, Virtual Learning Environment (VLE), and Massive Open Online Course (MOOC), with blended learning methods conducted at some schools as well as the integration of mobile devices (m-learning) and online education applications (El-Sofany, Al-Turki, & El-Howimelm, 2013; Le Roux & Evans, 2011; Spector, 2013). The intensity of demand of the online world, with the lack of infrastructures and school budgets, leaves a substantial digital divide between the “haves” and “have nots” among educational institutions (Li & Ranieri, 2013).

Organization for Economic Co-operation and Development (OECD) report pays attention to digital gender divide (DGD) which is another form of digital divide (DD). Digital gender divide is a gender-based digital distinction that restricts women's ability to take advantage of emerging digital opportunities (OECD, 2018). The term “DGD” defines the unequal access to information

technology and has been used across academic literature, to investigate not just the cause of, but also to explore ways to overcome this glaring disparity.

Moreover, Rehman, Kamran, and Khan (2021) highlighted a report of Alliances for Affordable Internet (2020) that offers a broad definition and standards for "meaning connectivity", which they say is the standard for the average person's use of the Internet. This report expresses the four key principles of “meaningful connectivity” which ought to be met: i) regular internet use: daily use; ii) an appropriate device: access to a smartphone; iii) enough data: an unlimited broadband connection at home or a place of work or study; and iv) fast connection: 4G mobile connectivity. These standards make it conceivable to successfully plan the differences that exist in the digital divide. This division is nowhere more obvious than the convergence of gender and race.

Antonio and Tuffley (2014) reported that many people see the Internet as a great equation, and in a way, this has been valid, especially for people living on the margins. However, women and marginalized groups have taken advantage of a space where they can speak and put themselves out there and utilize online data to succeed in their lives, which could not, in any case, be conceivable "offline” in view of the male-centric limitations they face.

However, the freedom of digital space is being criticized by many whereas, researchers and activists claim the internet is an empowering agent because basically, they believe that hegemonic social norms of gender and the class that exist in our man-centric and entrepreneur world are reified in the digital space. This shows itself as limitations on admittance to online spaces, whether it be low connectivity issues, restricted and additionally useless gadgets, or family restrictions on women Internet users or their surveillance (Rehman et al., 2021).

As indicated by Vicente and Lopez (2011), education is one of the most important and effective parts which measures the capabilities of an individual to experience and access the technology. Likewise, the development of ICT infrastructure encourages people to educate themselves and promote education at schools, colleges, and universities in order to get benefits from the available resources (Zhong, 2011). Anderson (2001) reported that educated people keep updated their knowledge and information through the use of internet and computer as compared to the people who are less educated or have no access to technology. Zinyama and Nhema (2016) describe that the internet use and computers experiences of an individual are known as technical and operational

skills used to evaluate, discover, and acquire the knowledge necessary to use the Internet and computers which is beneficial to them in achieving their goals (Hassan et al., 2019).

Literature shows that the girls from underprivileged families are supposed to take on homegrown tasks and parents preferred to provide education for their sons. Besides, parents are afraid to send their kids to school because that increases the burden of education spending. Consequently, learning inequality has increased and children, especially girls, are more likely to drop out of the education system altogether. Only through equal education, which manages to retain girls, can we expect a women's labour force that plays an equal role in ending gender divide (Shahid & Arfeen, 2021).

Shahid and Arfeen (2021) stated that there is a dire need to break the stereotypes through multifaceted education and a culture needs to be created where girls are encouraged to pursue technical education like boys. Also, there is a need to revise the curriculum at the primary and secondary level where equivalence is imparted not just through practical courses on basic ICT skills but also through education on women's economic values and their commitments towards society development as opposed to predefined social inclinations.

Furthermore, we need to develop digital classrooms that are well equipped with the right digital equipment which allows interactive learning and offers students to expand their technical skills, creative expression, and instills a culture of critical thinking (Shahid & Arfeen, 2021). Shahzadi (2019) articulates that the involvement of the private sector may be a key to providing online degree programs and other online educational resources to overcome the digital divide.

According to Cutter (2017), women face lack of access, affordability, education as well as hereditary prejudices and socio-cultural norms' that can escalate in times of crisis. Although there are no adequate measures to assess the severity of current gender inequality, women are often overlooked, especially in adverse situations i.e. tsunami and pandemic.

Literature shows that many studies have been conducted throughout the globe on the gender inequality in the use of the internet by students (Biradar, Rajashekhar, & Kumar, 2006; Oshan, 2007; Anunobi & Mbagwu, 2009; Al-Mahmud, 2011; Narasimhamurthy, 2014). Similarly, Madell and Muncer (2004) and Gunn (2003) discovered gender inequality in the use of internet. They concluded that women are the marginalized group because of inferior levels of access, less technology literacy and dominant male behavior. UNICEF (2009) report stated that the use of

internet by women compared with men in Asia and developing countries is low because of gender disparities and cultural bias (Anwar, 2021).

Methodology

The study was qualitative in nature following the descriptive study design. A descriptive design is a flexible, exploratory approach to qualitative research. This research design provides a broader perspective about the phenomena under study and assists to explain what, who, and where about the experience or focusing the perspective of participants (Doyle, McCabe, Keogh, Brady, & McCann, 2020; Kim, Sefcik, & Bradway, 2017). As philosophical perspective the descriptive qualitative research design is best associated the constructivism and critical theory approaches that employ naturalistic and interpretive methods of inquiry (Lincoln, Lynham, & Guba, 2017). To obtain data one to one in-depth interviews were conducted with administrators and teachers who were selected by employing the purposive sampling technique from the public universities of Islamabad Capital Territory (ICT) about the potential role of online education to deal with the digital divide in Pakistan. Moreover, the Digital Pakistan Policy was analyzed in terms of its key objectives related to the gender digital divide. The obtained data were analyzed by employing the thematic analysis technique that involves extensive reading through the obtained narrative data and exploring common patterns to drive meaningful information about the objectives of the study.

Findings

The findings are made in line with the research objectives such as the first objective was to analyze how the gender digital divide is addressed in the Digital Pakistan Policy (2018). The content evaluation of the Digital Pakistan Policy illustrates diverse textual content displaying the efforts of The Government of Pakistan (GOP) which strives to enhance its citizens' wellness via way of making sure availability of accessible, inexpensive, dependable, general and excessive exceptional ICT services. GOP strongly believes in mass adoption of rising virtual technology and revolutionary packages to permit cross-region socio-economic improvement and transformation of governance models, social interaction, and fulfillment of sustainable improvement goals (P. 5). Bridge the virtual divide along with the urban and rural divide, gender disparity, unserved and underserved regions, inequality for the man or woman with disabilities, via means of connecting the unconnected with broadband. Establish 'Tele-centers' throughout Pakistan to inspire using virtual services, sell innovation and assist bridge the virtual divide (p. 6). In the phase of "ICT for Girls" the coverage careworn to i) sell using ICT amongst girls and ladies for her empowerment and to bridge the virtual divide; ii) initiate 'ICT for Girls' applications for schooling in computing talents in order

that ladies could have an possibility to earn. Establish laptop labs in unserved and underserved mandated regions to teach girls and ladies computing talents (computing, coding, and communication) via collaboration with personal region; iii) offer incentives to reinforce virtual offerings and packages for Girls' empowerment (direct-to-cell strategy) reducing limitations to era adoption; iv) improve global cooperation withinside the vicinity of get right of entry to ICT and energetic participation of girls and ladies withinside the virtual society; and v) offer criminal safety to girls and ladies to inspire on-line participation (p.11). The coverage additionally emphasised that because the adolescents and girls constitute more or less 60% and 49% respectively of the population; it's far vital to making sure girls and ladies to have identical get right of entry to ICTs in an effort to assist to lessen inequalities and assist gender equality. Initiate unique ICT for Girls' applications for providing exceptional schooling in computing, along with software program coding, to lessen inequalities consistent with applicable SDGs (p. 5). Digital Pakistan Policy 2021 will usefully resource Pakistan's virtual transformation to enhance its citizens' wellness via way of means of making sure availability of modern, inexpensive and dependable virtual services.

The 2nd objective was to discover key limitations and demanding situations associated with the technological centers amongst girls. The data collected through interviews were analyzed and the respondents expressed that majority of girls aren't getting access to the net as similar as males are getting and they are not permitted even to use gadgets and internet mostly.

They also discussed some key obstacles having equal access of digital use which are illustrated in form of main themes such as:

Limited Free Time

Women perpetually undergo a disproportionate burden of home responsibilities. Because of the mixture of housekeeping and their function as caregivers, ladies have little or no loose time to work with new technology. They are similarly restrained via social norms that place males on top of everything. A enormous gender virtual divide is rising partially because of the constraints ladies face in getting access to schooling because of loss of time to work at school, own circle of relatives and family chores, and socio-cultural norms that consider education and technology usage a low priority. As an end result, conservative gender roles are similarly entrenched as they fail to interact with opportunity perspectives, and ladies are more and more marginalized as greater on line social connections are advocated and maintained (Tanwir and Khemka, 2018).

Technology ban

Most members suggested that ladies are not comfortable due to the fact they no longer have the possibility to apply net technology to increase their computer and virtual skills. Access to technology learning stays a

more barrier for ladies than for guys, and two-thirds of the world's illiterates are ladies (Antonio and Tuffley, 2014).

Financial constraints

Because of financial constraints females cannot afford the internet packages. Diverse social norms and customs restrict them from owning digital devices and even borrowing from others.

Role of Online Education in Eliminating Digital Divide

To address the third objective the contributors have been inquired about the role of on line schooling in minimizing the gendered digital divide. The individuals shared that the educational institutes are working to include digital education for girls and it has helped a lot in minimizing the digital divide. Public, non-public and educational partnerships that sell ICT talents for girls Lifelong getting to know possibilities need to be furnished for girls out of doors of the formal schooling domain. This way growing on line packages that educate girls important ICT talents mainly similar to marketplace needs, and at backed rates. Participants additionally emphasised that virtual literacy and public attention interventions are required to include females in technology usage. The masses need to change their attitudes towards girls regarding ICT usage.

Conclusions

In the light of findings of the study, it is concluded that the Digital Pakistan Policy (2018) contains enrich policies and relevant data about the importance of ICT related education particularly for females to eliminate the digital divide in Pakistan. The results highlighted key barriers and challenges related to technological adoption among women are access opportunities, affordability, lack of technology literacy and sociocultural norms. Although, these barriers restrain most of women to get benefited from the available opportunities related technology transformations and cause a worst increase in digital divide. To deal with these issues, it is very important to educate women and develop tech related skills that help them to participate successfully in the fast growing digital revolution around the world. It was also suggested that online education could be a key solution to increase women participation in tech world and especially at higher education level and in result it could help to eliminate digital divide in Pakistan. The opportunities of high quality online education for women can bring evident improvement in the prevailing situation of digital divide. It was also reflected that to bring awareness among the community members to change their old mindsets against the women's contribution in digital world and use of technological tools.

Recommendations

On the basis of conclusions it is recommended that national policies need to put more efforts in eliminating gender based digital divide by offering equal access to digital devices, ensure affordability of tech gadgets, and promote safety measures to use internet particularly for women. Additionally, it is also recommended that a free online education, apt infrastructure and cost effective technology should be provided to women to deal with gendered digital divide in Pakistan. Moreover, it is advocated to raise awareness against the stereotype gender discrimination among various social groups so that women can enjoy freedom in use of technology and excelling themselves in the world of digital transformation. As this study was limited to only role of online education to deal with digital divide, however, future researches may be conducted covering the scope social and cultural factors that can promote women engagement in tech world as this understanding could provide a base line in devising some practical strategies to improve the situation of digital divide in Pakistan.

References

Ahmad, N. A., Ayub, A. F., & Khambari, M. N. (2019). Gender Digital Divide: Digital Skills among Malaysian Secondary School. *International Journal of Academic Research in Progressive Education and Development, 8*(4), 668–687.

Ahmad, S., Rafiq, M., & Ahmad, S. (2018). *Gender disparities in the use of internet among graduate students of a developing society: A case of Pakistani universities.* Global Knowledge, Memory and Communication. doi:10.1108/GKMC-11-2017-0092

Al-Mahmud, M. A. (2011). Student's attitude towards internet: a study on private university of Bangladesh. *European Journal of Business Management, 3*(6), 9-19. Retrieved from http://eee.iiste.org

Antonio, A., & Tuffley, D. (2014). The Gender Digital Divide in Developing Countries . *Future Internet , 6*(4), 673-687. Retrieved from https://doi.org/10.3390/fi6040673

Anunobi, C. V., & Mbagwu, F. C. (2009). Prevalence of gender discrepancy in Internet use in Nigeria: implication for women empowerment. *Journal of African Research Review, 3*(1), 259-274.

Anwar, N. (2021, Jan 10). *Confronting the gendered digital divide*. Retrieved from The News: https://www.thenews.com.pk/tns/detail/771181-confronting-the-gendered-digital-divide

Bashir, R., Mehboob, I., & Bhatti, W. K. (2015). Effects of online shopping trends on consumer-buying behaviour: An empirical study of Pakistan. *Journal of Management and Research, 2*(2), 1-24.

Bélanger, F., & Carter, L. (2010). The digital divide and internet voting acceptance. *Fourth International Conference on Digital Society* (pp. 307-310). IEEE.

Biradar, B. S., Rajashekhar, G. R., & Kumar, S. (2006). A study of internet usage by students and faculties in Kuvempu University. *Library Herald, 44*(4), 283-294.

Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. *Journal of research in nursing : JRN, 25*(5), 443–455. Retrieved from https://doi.org/10.1177/1744987119880234

El-Sofany, H. F., Al-Turki, T., & El-Howimelm, H. A. (2013). Improving Educational Outcomes by Providing Educational Services through Mobile Technology. *International Journal of Interactive Mobile Technologies, 7*(1), 25-30.

Gunn, C. (2003). Dominant or different? Gender issues in computer supported learning. *Journal of Asynchronous Learning Networks, 7*(1), 14-30.

Hassan, S., Madad, A., Das, N., Akhtar, S., & Jehan, N. (2019). Important dimensions of digital divide: a case study of NADRA portal Pakistan. *Business and Economic Research, 9*(1), 148-163.

Jamil, S. (2021). From digital divide to digital inclusion: Challenges for wide-ranging digitalization in Pakistan. *Telecommunications Policy, 45*(8), 102206.

Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: A systematic review. *Research in nursing & health, 40*(1), 23-42.

Le Roux, C. J., & Evans, N. (2011). Can cloud computing bridge the digital divide in South African secondary education? *Information development, 27*(2), 109-116.

Li, Y., & Ranieri, M. (2013). Educational and social correlates of the digital divide for rural and urban children: A study on primary school students in a provincial city of China. *Computers & Education, 60*(1), 197-209.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2017). Paradigmatic Controversies, Contradictions and Emerging Confluences. In NK Denzin, & YS Guba , *The Sage Handbook of Qualitative Research (5th edition).* Thousand Oaks, CA: Sage.

Loges, W. E., & Jung, J. Y. (2001). Exploring the digital divide: Internet connectedness and age. *Communication research, 28*(4), 536-562.

Madell, D., & Muncer, S. (2004). Gender differences in the use of the internet by English secondary school children. *Social Psychology of Education, 7*(2), 229-251.

Mathrani, A., Sarvesh, T., & Umer, R. (2021). Digital divide framework: online learning in developing countries during the COVID-19 lockdown. *Globalisation, Societies and Education*, 1-16. doi:10.1080/14767724.2021.1981253

Narasimhamurthy, N. (2014). Cultural impact and gender on Indian young adults in using social networking sites. *International Journal of Interdisciplinary and Multidisciplinary Studies, 1*(7), 113-125.

Norris, P., & Inglehart, R. (2013). Digital Divide. In *Handbook on the digital creative economy.* Edward Elgar Publishing.

OECD. (2018). *Bridging the digital gender divide: Include, upskill, innovate.* Australia: Organisation for Economic Co-operation and Development (OECD).

Oshan, M. S. (2007). *Saudi women student and the internet: gender and culture issues.* England: Ph. D dissertation submitted at Loughborough University.

Rehman, Z., Kamran, H., & Khan, Z. B. (2021). *Feminist Case Studies on the Gender Digital Divide Amidst COVID-19.* Pakistan: Media Matters for Democracy.

Shahid, S., & Arfeen, B. (2021). *Bridging the Gender and Digital Divide in Post COVID-19 Pakistan: Empowering Women Through ICT.* Lahore, Pakistan: Centre for Public Policy and Governance.

Shahzadi, J. (2019). The Role of Online Education for the Advancement of Women. USA. Retrieved from https://graduatewomen.org/wp-content/uploads/2014/01/shazadi.pdf

Singh, S. (2017). Bridging the gender digital divide in developing countries. *Journal of Children and Media, 11*(2), 245-247.

Spector, J. M. (2013). Trends and Research Issues in Educational Technology. *Malaysian Online Journal of Educational Technology, 1*(3), 1-9.

Tanwir, M., & Khemka, N. (2018). Breaking the silicon ceiling: Gender equality and information technology in Pakistan. *Gender, Technology and Development*, *22*(2), 109-129.

Urim, U. M., & Imhonopi, D. (2015). Operationalising financing windows for entrepreneurship development in Nigeria: An appraisal. *Research Journal of Finance and Accounting, 6*(15), 58-68.