



Bridging Digital Divide Among Demographics: Need, Barriers and Ways

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ABSTRACT

With the help of service delivery through mobile phones and other electronic devices using internet, there is a reduction in the fatigue of customers. And this is a positive note in digitalization of public electronic service delivery system. But the spread of information and communication technology and digital transformation across the world has given birth to digital divide especially in developing and developed countries. The unequal distribution of income, age disparity, gender differences and differing educational background are the bases on which the gap is widening. Digital competency is a necessity. For bridging the gap, no one can afford to be left behind. Present study is an attempt to understand the need and challenges faced in eliminating digital divide and the possible ways to handle the problem.

Introduction

Digital initiatives serve as a boon to an economy only when people are aware about what is happening around them. Creation of knowledge economy and digitally empowered society is the vision of digital transformation. An important tool recognized by international agencies and governments for national integration is Information and communication technology as it is capable of providing larger access to various services. It further creates economic opportunities for all the sections of the society. Digital divide is the result of innovations

in information and communication technology. The gap can be understood as an unequal access and use of ICT. Research in the past (Cruz-Jesus et al., 2016) have addressed the fact that digital inequalities exist within a country and the reason could be socio economic imbalances. Digital divide can be viewed from different scholars' view points and one of the views on digital divide is the gap in terms of age, occupation, gender, culture and attitude. Many researcherst Mwim, 2005) have found a significant impact of age on ICT usage and other relationships like positive relation between gender (male) and ICT usage. However, researchers have also

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raised a concern that different underlying views must be taken into account as digital divide has crossed the technological access stage. It is important to understand the relation between demographics and digital divide as these factors have the potential to predict probability of people accessing and using the internet (Estacio et al., 2019).

Many new terminologies like digital inclusion, e-inclusion have emerged and their presence is quite visible through literature. However, the basic problem of digital divide is deepening day by day as new inequality emerges while controlling existing problems. Highlighting the advancement of digital technology is at the risk of obsolescence as the rate of production of scholarly work on digital divide is slow in comparison to rate of change of technology. So discussion on nature of digital divide along with the solution to the problem is a must. Researchers (Mubarak et al., 2020) have even suggested that the concept of bridging the digital divide must be reconsidered. Moreover, digital divide serves as a significant indicator for checking development of any nation. As values equal to or near to zero would mean extensive use of technological applications and digital devices by people (Sharma, 2018). Not every individual gets equal opportunity from digital revolution. To curb this problem digital divide must be constantly monitored and advancement in the digital divide concept is required as the concept has a lot of potential which cannot be harnessed unless explored from different perspectives (Lythreathis et al., 2022). In some countries there has been a saturation in adoption of digital communication in some areas. so the focus should be on other areas or underserved areas and bridging of digital divide as socio economic disparities could further deepen if the existing gap of digital divide is ignored (Asrani, 2022). Addressing the existing digital disparity is of utmost importance as the inequality has the potential to intensify existing inequalities. A study (Spanakis et al., 2021) further suggested the study of sociodemographic and health factors must be undertaken to see the differential affect of digital divide among people. Another highlight of the study was the suggestion regarding addressing the physical and mental health needs of people with barriers and facilitators of digital disparity. It is important to study digital divide especially with respect to demographics as demographics have the potential to explain variation in ICT usage capabilities among people (Shair et al., 2022).

It can be noted that if proper enabling conditions are put in place, information and communication technology continue to hold the promise of enormous innovation and digital opportunities (Cruz-Jesus et al., 2016). It is important to address the problem of digital divide as information and communication technology has the potential to offer benefits to changing lifestyles, human relationships and economies. As the possession of digital devices are greatly impacted by existing inequalities like differences in socioeconomic background and demographics (Agrawal & Asrani, 2018).

Literature Review

Literature review and its advanced forms have been a major contributor in analysing the progress of any discipline and that can be further useful in addressing key issues. The review is based upon the methodology proposed by (Titah & Barki, 2011). (1) Google Scholar. Taylor and Francis. Emerald and Springer databases were the main source for literature review. (2) The search mainly focussed upon studies on digital divide. Search strategy used was “digital divide AND demographics” OR “digital disparity OR” digital inequality “” AND “factors”. (3) Targeted search included studies published in Journals and conference papers and books. (4) Studies were screened in the following manner. First on the basis of title, then on the basis of abstract and finally with the help of full text reading, the review was conducted.

Ultimately, using the following procedure, the papers were content analysed: Initially themes were inferred by reading the articles and then with the help of full text reading, themes were confirmed and literature review was conducted accordingly.

The themes identified are:

1. Need
2. Barriers
3. Ways

Need

Some researchers (Frohlich, 2011) were of the view that differences in lifestyle and technology use among heterogeneous population cannot be ignored. A common approach to enhance peoples' life cannot be

adopted Findings from study by researchers(Mubarak et al., 2020) suggested that the issue digital divide must be focused upon as the same cannot be completely eradicated but could be controlled to a larger extent. A study in Canada by researchers(Koch, 2022) discussed that the issue of digital divide gathered media attention especially during covid-19 pandemic as the challenges posed by the issue were quite apparent during that period and could be judged on aspects like urban rural inequality and lack of access to onhne education. Some Popova et al., 2020) researchers were of the view that the increasing degradation of quality of human resource was both cause as well as consequence of digital divide. Researchers even highlighted the difference in the level of development of rural areas and cities and further pointed out that the difference was due to digital inequality. A study on digital divide by(Alkureishi et al., 2021) in medical sciences claimed that digital divide had far reaching impact and that too spread across various sectors like education, healthcare, employment and personal economic stability Researchers further suggested to address the problem responsibly. Findings from literature summarized by researchers (Lythreatis et al., 2022) showed that sociodemographic and socioeconomic were few among the many factors that could affect digital divide and the link between education and digital divide found to be significant in many studies. Some researchers (Estacio et al., 2019) conducted a health literacy survey and found that socio- demographic characteristics like age, gender and education were the strong predictors of digital access and the use of internet. Findings of a study conducted in India by researchers (Asrani, 2022) had confirmed that employability of an individual was greatly influenced by variation in digital skills and further variation in skills were the result of differences in ICT access. And all this had the potential to move people towards digital exclusion. Another study in India conducted by researchers (Dasgupta Tapashi, 2018) confirmed gender to be significant factor impacting access and use of internet and further mentioned differences in socioeconomic background as the reason of differences between males and females. The study further highlighted education and geographic location as determinants of internet use. The differences between rural and urban areas were not only account of internet usage but connectivity was another highlight of those

areas. A study conducted in health sector by researchers (Spanakis et al., 2021) suggested that compounding of inequalities would be the significant outcome of digital exclusion

Barriers

Findings from a study by researchers (Frohlich, 2011) have revealed a stronger positive correlation between less socially engaged people and digital exclusion. A study on digital inclusion and challenges by researchers (Jamil, 2021) showed that urban rural digital inequality and cultural differences were the main factors of existence of digital divide. Some researchers(Li & Ranieri, 2013) conducted study in schools of China and concluded that people don't consider ICT as learning tool, as the use of internet for leisure activities was more as compared to study purposes among most of the participants. Some researchers(Mubarak et al., 2020) were of the view that income and education were the main indicators of ICT adoption but poverty remains a challenge for achieving success. Researchers(Koch, 2022) conducted a study in Canada and concluded that there are three levels of digital divide where level one talked about access inequality, level two talked about skills inequality and level three talked about inequality in beneficial outcomes. A major problem identified by researchers was that studies failed establish interlinkages among different levels of digital divide as socio economic status and educational level found to be strongly correlated which further showed a strong linkage between first level and second level digital divide. A study conducted in Canada by researchers (Koch, 2022) revealed that the key challenges faced by Canadian government while reducing digital disparity was a larger focus on first level digital divide. As the study further mentioned that strategy of increasing connectivity would be perceived as stemming of digital divide from lack of infrastructure in rural areas however, digital divide was also a problem in urban area. Some of the barriers mentioned by researchers(Estacio et al., 2019) in their study were complex digital system, health or medical constraints and financial constraints. Some researchers(Spanakis et al., 2021) were of the view that the digital divide got amplified when certain issues were ignored in design and implementation phase and

the issues were- access, acceptance and use. The study further highlighted the synergie effect of certain factors behind digital divide and how those factors caused hinderance in achieving digital equality. For example, practice and improvement were greatly impacted by lack of access to internet and motivation to engage was significantly impacted by complexity of internet. A study by (Potnis, 2016) conducted on barriers owning to electronic gadgets concluded micro level barriers and macro level barriers and those were socio cultural, economic, demographic. psychological and geographic barriers.

Ways

A group of researchers (Frohlich, 2011) suggested that to narrow the digital divide gap, one method that can be used is to make poor rich and this can be achieved through increasing access to existing technology, introducing training programs and better designing of plans. Findings from a study in Pakistan conducted by (Jamil, 2021) suggested that a focused research, appropriate allocation of funds and proper policy evaluation are some of the ways of enhancing digital inclusion. Findings from a study by researchers (Mubarak et al., 2020) suggested that free access or provision of ICT enhanced education at insignificant cost to larger set of population could be the solution for including millions of masses which otherwise would have left behind due to poverty. Some researchers (Koch, 2022) were of the view that attention must be paid to second and third level digital divide and the study further concluded that education must not be used as a product as the availability depends upon the internet connection as well as the speed of internet. To bridge digital divide, education as a tool must be incorporated in every strategy. Some researchers (Popova et al., 2020) were of the view that adaptive training programs would help in the process of digital transformation. They further pointed out the importance of measurement of degree of adaptation as a response to introduction of digital aspects in economy and concluded that improvement in the quality of life could be considered as an indicator of measuring effectiveness of any digital program. Findings from a study by researchers (Bornman, 2016) in Africa suggested that making infrastructure available would

be an insufficient step to transform the economy rather development of broad sectors of economy would work. A study in India by (Sharma, 2018) emphasized on the importance of information centers and libraries as these places serve all people without differentiating on bases like age, gender, education, caste and social status. The centers could help in fulfilling the objectives with respect to initiatives taken by government by organizing orientation programs in both rural as well as urban areas. A study in health sector by (Alkureishi et al., 2021) proposed solution to bridge digital divide which included assessing technology needs of a community, facilitating technological access, resource awareness and literacy training. Another study conducted on health information seeking behavior of respondents by researchers (Estacio et al., 2019) suggested that digital skills must be developed among individuals to make efficient use of technology so that hard to reach communities could be targeted. Some researchers (Asrani, 2022) even suggested that in order to reach non favorable demographics of digital divide, intervention of infrastructure equipped common service centers possessed with trained staff could help people not having ICT use capabilities. Findings from a study conducted in India by researchers (Agrawal & Asrani, 2018) suggested that socio conomic econ differences as significant contributor of digital disparity but the differences must be seen considering characteristics of early and late adopters.

Conclusion and Research Implications

The paper shows various perspectives on digital divide and the views regarded significant by researchers have been mentioned in the paper. Understanding of different authors have given a avicon digital disparity, need to address the divide, barriers faced by people and solutions to overcome problems. An extensive literature review on digital divide and demographics in selected journals, conference proceedings and book chapters published between 2013 and 2022 helped in identification of need of addressing the topic as people have different lifestyles and so is their technological use. The cause and effect of digital divide is the consistent decrease in the quality of human resource. Digital

divide has an impact on all the sectors of economy and it cannot be eliminated totally from the society but can only be reduced. But there are some barriers faced while encountering every problem and the significant ones are socially less engaging behaviour of the people, not considering ICT as learning tool. ignoring interlinkages among different levels of digital divide, not addressing issues like access, acceptance & usage of technology in design and implementation phase of strategy and lastly the synergic effect of certain factors behind digital divide. Every problem has a solution and the paper attempts to summarise some ways of bridging digital divide and those are sound policy, increased access to ICT, education, training programs. considering libraries as centres of fostering digital literacy and not ignoring the characteristics of early and late adopters in accepting any innovation. In the developing world, if inequalities are not addressed, digital divide cannot be bridged. The study provides significant implications for research. First the study extends the literature on digital divide and especially among demographics by incorporating need, barriers in reducing disparity and possible ways of overcoming the problem.

The study also provides implications for practitioners like government agencies as they need to adopt some measures which can decrease the inequality rate and the same can be handled by focussing on barriers and alternative ways of handling the issue of digital divide.

Limitations and Future Directions

The results of the study are based on secondary data analysis but for the generalisability of results quantitative approach can be followed. Secondly the number of articles reviewed were less, future researchers can study more articles. Lastly the database used for information search was Scopus only, so future researchers can also consider other databases like web of science.

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