

Challenges Associated With Developing Nations' Dependence On Digital Intelligence For Socio-Economic And Educational Purposes In The Post-Pandemic Era

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Abstract

This study analyzes the importance of digital Educational reliance in the struggle over COVID-19, through emergence, to return to the post-pandemic situation, as well as the progress of digital and Educational economy toward protracted development. Shortly, digital technology aided the pandemic response strategy, according to the study Digital media will, in the long run, act as a technical basis for the Economic Internet of Information and Consumers Internet, as well as the interdisciplinary team of the manufacturing and service sectors. New technologies may also provide prospects for increased demand and technological advancement. The purpose of this paper is to explore the importance of digital reliance to fill the gap of the economy and social lack due to the pandemic situation of COVID-19, and how the digital isatin important in the post-pandemic situation. The study also stresses the problems faced by developing countries for adopting digitization to meet the need of time.. one hundred college and university students included 70 male and 30 female participants completed a self-administered questionnaire that contains questions about E-commerce, E-learning, hurdles for adopting digital reliance, social and psychological issues in adopting digital reliance.

Keywords

Digital Educational reliance, digital economy, post-pandemic situations, E-learning, E-commerce, development, developing countries, COVID-19, social issues.

INTRODUCTION

Digital technology has helped to facilitate consumer growth, resumption, and pandemic prevention. Innovators, support, technological developments, and new business models across many sectors, such as education, healthcare, and smart housing, will become crucial factors in the post-pandemic age, impacting economic growth and bolstering a nation's recycling industry. The disruption of production processes and the acceleration of the shift from consumer to industrial usage of digital technology will be made possible by the digital economy, which will play a significant role in the long-term economic crises (Jiang 201).

COVID-19 was contained with the help of digital technology, as was social life during the epidemic. It primarily supports four components of pandemic prevention and control: healthcare treatment, a pandemic dashboard, community tracking, and personalized primary care. Alibaba, Tencent, and Huawei, for example, have aggressively acted as key distributors of these innovations. (Huo, at El., 2020).

The rapid growth of technology necessitated the necessity for educational upgrading. They needed to be able to study anywhere at time and in any location. 2016 (Wolfinger). Some international institutes have implemented learning throughout the last couple of decades. Therefore, The majority of institutions, academic institutions, and institutions do not adopt this form of instruction, and neither do their employees. learn about e-learning and what it entails (Lynch, 2004). Practical considerations influence the use of assistance to inspire students in virtual learning. a focus on engagement in intellectual, social, and behavioral activities (Hartnett and Louwrens, 2015).

Digital reliance has been highlighted as one of the core factors of economic development, making it a viable medium for developing economies to thrive (Christensen et al., 2010) and address the significant issues presented by economic hardship in developing countries (Sutter, Bruton, et al., 2020). Furthermore, past research has indicated that starting a business does not necessarily lead to economic growth (Valliere and Peterson, 2009). Small firms must Adopt digital reliance to have a significant and long-term constructive effect on future society and the economy (Wong, Ho, and Autio, 2005). (Marianna Diomidous, 2016).

Literature review

Following 17 Sustainable Development Goals (SDGs) approved by United Nations (UN) the Member States in September 2015, the globe has dedicated itself to achieving the 2030 Agenda for Good Development. COVID-19 has produced an exceptional circumstance at beginning of 2020, which is affecting this contrZuboff, Shoshana (2019). button and undercutting the broad concept to appropriateness by delaying the progress of attaining the 17 SDGs and altering the development trajectory. The integrated and holistic goal of "leave

no one behind" is jeopardized by significant determinants. While the expanded worldwide difficulties make finance for durability even more difficult, economic and financial shocks linked with COVID-19 make it even more difficult. (Kalterina Shulla,2021).

Organizations may reach their sales objectives using digital and social media marketing at affordable rates (Ajina, 2019).

Under a changing society of increasing market influence and better knowledge of social norms, corporations establishing effective social media strategy and objectives face significant obstacles (Kietzmann et al., 2011). Consumer concerns may now be instantaneously broadcast to millions of individuals (negative electronic word-of-mouth), and these could be detrimental to the firm in question (Ismagilova et al., 2017).

Critical observations seem to be more crucial than ever as the COVID-19 epidemic and humanity's answers change the future. Even before the pandemic, development against the Strategic Development Goals (SDGs) was showing signs of deterioration in social programs. Additional strains are emerging in countries that rely on tourism or commodity exports,

Challenging problems the pandemic's future path and economic implications will remain for the near future, influencing consumer and investor decisions. Certain types of companies may become nonviable as a result of social isolation and movement constraints, whereas others thrive. As a result, current regulations issues may arise, prompting authorities to act fast. (Zuboff, Shoshana,2019).

Methodology

A questionnaire was designed according to the research topic. Total thirty-four questions were included under four independent variables and six dependent variables. The questionnaire was filled by hundred participants of schools and colleges which included seventy male and thirty female students. A descriptive framework of hypothesis and variables is presented here. Secondary data was consulted from various researches that support our research.

Thematical framework

Businesses will enhance their technical infrastructure as the use of multimedia teleconference technology increases to assure the growth. This one will lead to increased investment on network infrastructure, cloud-based applications, and capacity growth. As employees become used to the idea of interacting and transacting online, businesses will start to see work-from-home (WFH) as the norm rather than the exception. Numerous companies are doing this (Akala, 2020; BBC News, 2020).

Despite agreements and national security precautions, the Covid-19 pandemic has unavoidably led to a national lockdown, which has inexorably led to a growth in the use of electronic technology. Around the world, people and organisations already need to adjust to shifting work and lifestyle habits. We examine a number of digital storm scenarios and the ensuing exploration challenges. Growing numbers of companies and academic institutions are implementing work-from-home policies as a consequence of greater digitalization (WFH). As blockchain technology becomes more prominent, design and regulatory research will be required. (Shah, 2020).

The following five hypotheses are created by addressing all the instances of digital dependency in developing nations, and this research will assess their viability.

H1: The situations in developing countries are not in favor of digital reliance

H2: Developing countries are struggling to meet up the requirements of post-pandemic situations in the area of digital reliance

H3: Digital reliance is helpful to cope with the problems faced in the area of social and economic reliance

H4: The world is rapidly changing towards digital reliance

H5: digital reliance is helpful to overcome the Pandemic situation of COVID-19.

Hypothesis table

H 1	The situations in developing countries are not in favor of digital reliance
H 2	Developing countries are struggling to meet up the requirements of post-pandemic situations in the area of digital reliance
H 3	Digital reliance is helpful to cope with the problems faced in the area of social and economic reliance
H 4	The world is rapidly changing towards digital reliance

H 5	digital reliance is helpful to overcome the Pandemic situation of COVID-19.
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Variables

To test these hypotheses following 6 variables were generated to address the study out of which 4 are independent variables while 2 are under the dependent category of variables.

Independent variables

Following four are the independent variables

V 1: E- commence

E-commerce (also known as e-business) is the buying, selling, and distributing of goods and services as well as the transfer of funds and material through a networked media, most often the cloud. There is a possibility of business-to-business (B2B), business-to-consumer (B2C), customer, and customer interactions. E-business and e-commerce are terms that are sometimes used carelessly. The administrative processes involved in online purchasing are sometimes referred to as e-tail. 2020 (Wesley Chai at El). Under the list of E-commerce considerations connected to a difficult position in developing nations, the public's choice, the need of the hour, the significance for economic growth, and improved educational possibilities are examined.

V 2: E_ learning

E-learning has become easier as technology has advanced (McBrien et al., 2009). “Plenty of the names (for example, digital training, online courses, internet learning, software learning, collaborative learning, and m-learning) have in general the capacity to study from everywhere, at any time, in any cadence, and with any methods” (Cojocariu et al., 2014). Way to fill the study gap, barrier of adopting e-learning, preference over traditional style of study, need to be well equipped, beneficial for both students and teachers are the points under the list of E-learning assessed by taking public views in this study.

V 3:Insufficient requirements

The fast increase of internet use in underdeveloped countries is good news. However, it poses the same worries about society's increasing dependency on giant digital firms that developing countries are only now starting to confront. The issue of safeguarding individuals in the digital era, the significance of social networking sites in spreading misinformation, and the risk of capacity utilization suffocating development are just a few of them. (Michael Pisa,2019). To assess the issues of digital reliance in developing

countries public opinion regarding electricity failure, lack of recourses, struggle to meet the modern world, need for change, regulation of privacy issues are the points of assessment under the list of insufficient requirements.

V 4: Need of the time

Post pandemic situations of COVID-19 highlighted how important digital reliance and networks and the services they provide are to our society and economy. It's just too vital for something so important to be exempt from an interest of the public responsibility. Simultaneously time, any interest in public supervision must work in a way that supports the fact of the technology age rather than being locked in the systems and notions of the industrial period. (Tom Wheeler,2020). Questions related to online shopping, save of time and energy, economy friendly, e-learning, need for the recent situation are the points for analysis in this study.

Dependent variables

These are the two dependent variables in our research

V 5: Face-to-face interaction anxiety and internet involvement

Online social networking has been linked by some studies to a variety of mental illnesses, including depressed feelings, anxiety, and poor self-esteem. Many issues about social networks' potential influence on psychological health remained unresolved since they are such young phenomena. On the other hand, given the widespread acceptance of these internet platforms, any future verified link between them and psychiatric disorders would be a significant general populace health issue. (Igor Pantic,2014). Public views regarding social pressure, anxiety, face-to-face attraction, underlying dimensions, gender discrimination, age-related involvement are analyzed in this study.

V 6: Social issues for internet involvement

Due to the Internet's limitless options, people regularly abuse it and use it maliciously against other people, organisations, and governmental institutions. A number of societal issues, including cyberbullying, digital pornography, social network grooming, cybersuicide, computer addiction and social isolation, and online racism, have evolved as a result of the rapid growth and development of the digital world. Furthermore, because these technological experts depend on the internet to carry out their illegal activities, there is always the chance that they would conduct any kind of fraud. 2016 (Marianna Diomidous at El). This survey focuses on the public's perceptions of harassment, socialising, digital privacy, honesty and accuracy, marital problems, and internet use.

Meta-Analysis

The concept of the digital economy has changed since it was originally defined in the mid-1990s, representing the fast-evolving structure of digital usage by businesses individuals and businesses (Barefoot et al., 2018)

This study depends on a study¹¹ in which a Community Based Monitoring System (CBMS) was being used to track economic inequality as well as other social indicators in Muthithi, Murang'a County, Kenya (Kimani et al., 2017[7]).¹² State and central government entities, and also society organizations, can use CBMS for planning and zoning, program execution, and effect evaluation. Because it entails conducting a census of all homes in a certain region, the approach enables it simple to locate the specific households in need of assistance rather than depending on community officials to do so, the unfortunate. Moreover, with Kenya's recent devolution of power to the provincial level, Decentralised data is particularly important in this case for guiding planning processes and implementing plans to achieve the SDGs. In Kenya, the CBMS has a lot of promise for meeting data demands at the county level, guiding planning procedures at the local level, and ensuring that no Kenyan is left behind. Murang'a County's administration has established a goal to improve the county via education and the use of technology. Initiatives for participatory, egalitarian, and sustainable development for the benefit of everyone. Their secret Gender normalizing, safety, internet, and networking technology, and youngsters are among the highest priorities. poverty alleviation, catastrophe risk mitigation, protection of the environment, and administration decrease. Murang'a County has a poverty rate of 25.3 percent (Murang'a County, 2018). (KNBS, 2018). This study supports a recent study that to raise our economy and social condition technology, digital reliance, better circumstances to adopt digital world is very important.

According to IMF data, the proportion of industrialized nations in global output (GDP) predicated on PPP was 57 percent in 2000, 50 percent in 2007, 40 percent in 2018, and 38 percent in 2022. (according to the IMF forecast figures). The United States is squandering its global economic leadership. In 2000, it accounted for 31% of global GDP, but just 24% in 2018.

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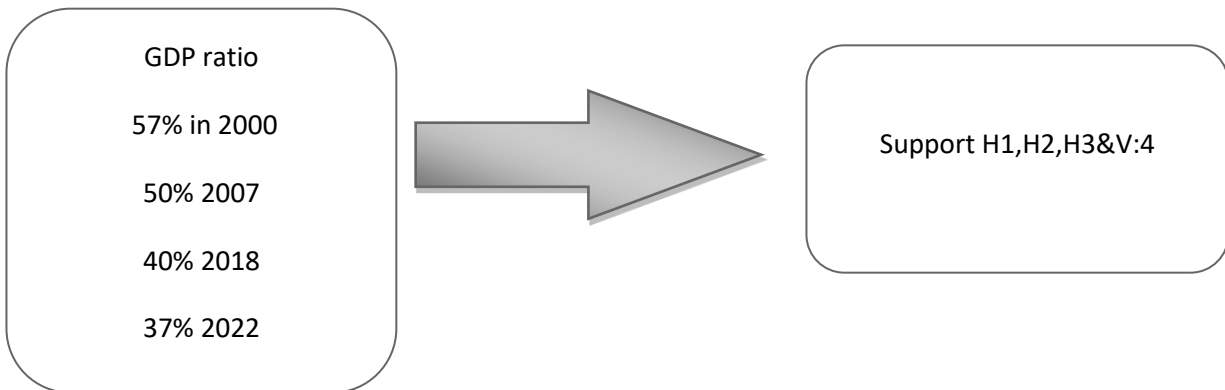
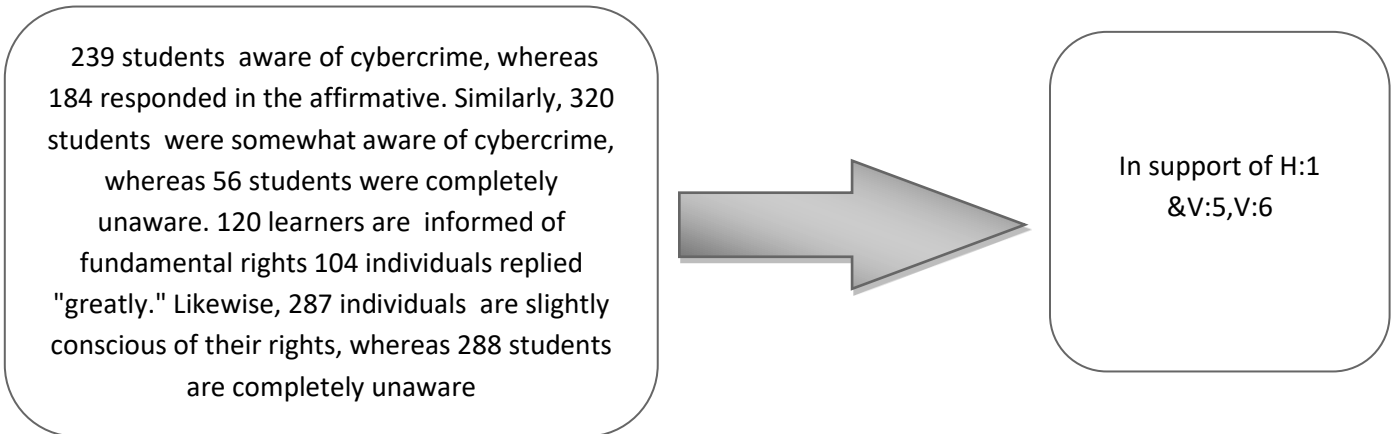
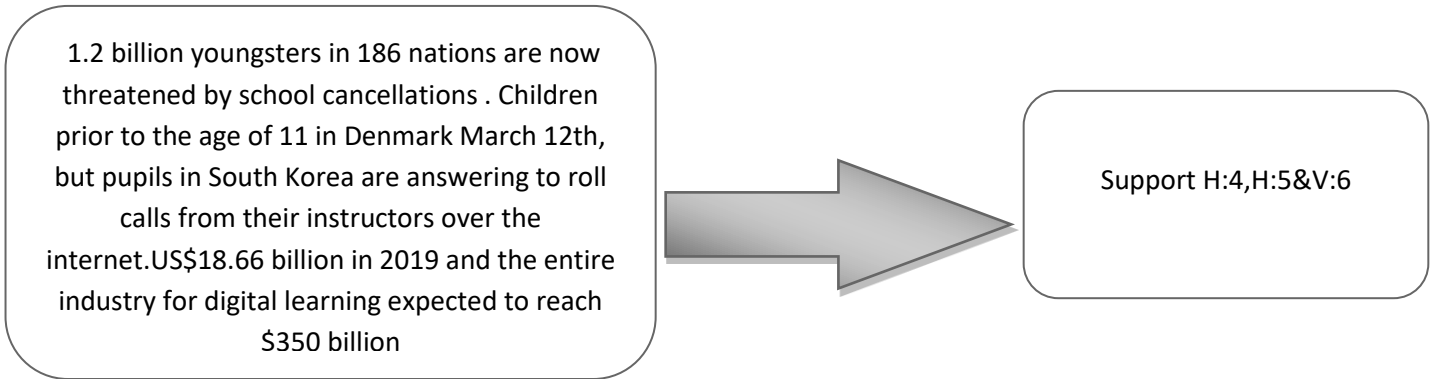
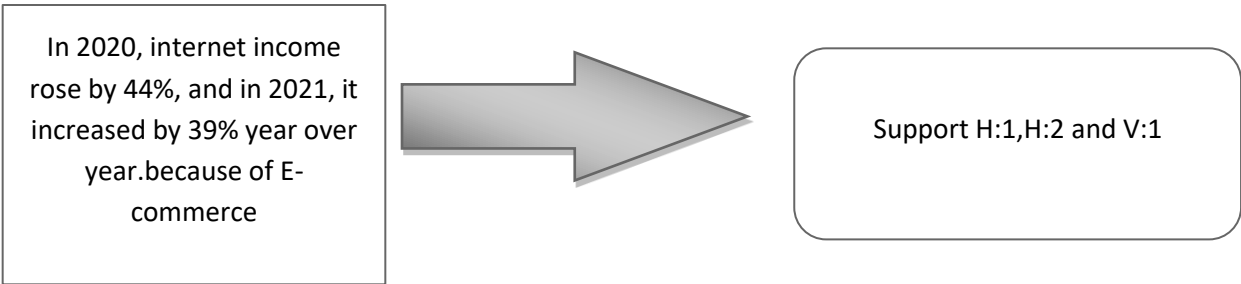
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The rise of e-commerce is not a new phenomenon. Amazon, Walmart, Alibaba, and other major companies have been quickly growing in recent years. The COVID-19 epidemic, on the other hand, has hastened the expansion of the internet retailing comfort trend. In 2020, internet income rose by 44%, and in 2021, it increased by 39% year over year. In the post-quarantine era, there's a strong likelihood that this tendency will continue. Even when brick-and-mortar stores reopen, the benefits of internet purchasing will remain. All

of this speaks to now as an excellent time to start or expand your e-commerce activities. This study was conducted in 2020 by Jennifer McAdams is in support of our 1st variable which affects positivity to our hypothesis that e-commerce is the demand of present situation of post-pandemic and affects positively to our economy.



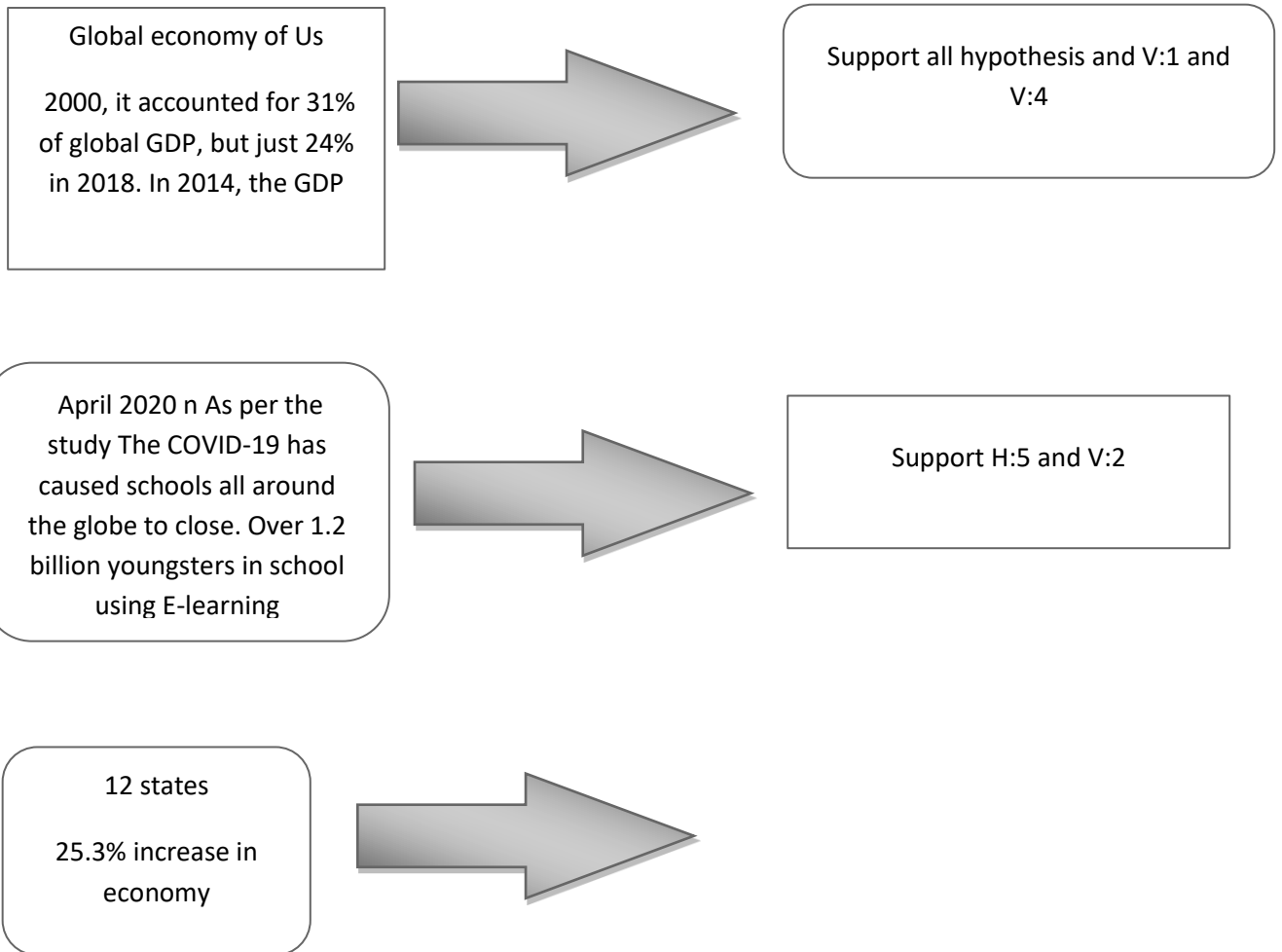


Figure representation of secondary data:

Table 4.4

Education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate	20	20	20	20
	Graduate	59	59	59	59
	Post graduate	21	21	21	100.0
	Total	100	100.0	100.0	

The above table shows that undergraduate participates are 20, graduate participates are 59, and post-graduate participates are 21.

Table 4.4 Measurement Model Results:

Variables	Cronbach's Alpha Reliability
EC	0.881
EL	0.869
IR	0.869
NOTT	0.876
FTFIAAII	0.880
SIFII	0.867

All the values in the Table 2 proved to be meeting the required criteria (standard value of Cronbach's Alpha is over 0.7) The results indicated that all variables Cornbac's Alpa value is more than 0.7 respectively (Fornell and Larcker, 1981; Arpaci et al., 2015). The results suggested that each item significantly correlated with its theoretical construct.

Section 1.01 4.5: Descriptive Analysis

	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Std. Error
EC	100	3.9891	.85410	.154
EL	100	2.4878	1.14449	.154
IR	100	3.5405	.77006	.154
NOTT	100	3.8761	.83339	.154
FTFIAAII	100	3.9901	.77342	.154
SIFII	100	3.0123	.98102	.154

Valid N (listwise) 100

Table 4.6 Rotated Component Matrix:

	EC	EL	IR	NOTT	FTFIAAII	SIFII
EC1	0.761					
EC2	0.758					
EC3	0.741					
EC4	0.733					
EC5	0.724					
EC6	0.722					
EL1						
EL2		0.731				
EL3		0.837				
EL4		0.841				
EL5		0.743				
IR1			0.881			
IR2			0.853			
IR3			0.777			
IR4			0.877			
IR5			0.917			
IR6			0.761			
NOTT1				0.735		
NOTT2				0.881		
NOTT3				0.861		
NOTT4				0.793		
NOTT5				0.959		
FTFIAAII1					0.765	
FTFIAAII2					0.735	
FTFIAAII3					0.881	
FTFIAAII						
4					0.861	
FTFIAAII						
5					0.743	
SIFII1						0.867
SIFII2						0.868

SIFII3	0.787
SIFII4	0.799
SIFII5	0.749
SIFII6	0.851
SIFII7	0.881

Above Table 4.6 Rotated Component Matrix in Factor Analysis shows the items that should be in one variable (component).

Table 4.7 Confirmatory Factor Analysis (CFA) Assessments

CMIN

Model	NPARCMIN	DF	P	CMIN/DF
Default Model	50	379.523	203	1.870
Saturated Model	253	.000	0	
Independent model	22	2459.336	231	10.646

The above Table shows the result of the Chi-square fitness model range is (1-4) in above CMIN value is 1.870 its shows that the model is fit and acceptable according to (Wheaton et al.1977).

Table 4.8

Baseline Comparisons

Model	NFI (Delta1)	RFI (rho1)	IF1 (Delta2)	TLI (rho2)	CFI
Default Model	0.846	0.824	0.922	.910	.921
Saturated Model	1.000	1.000		1.000	
Independent model	0.000	.000	.000	.000	.000

The above table shows the result of the model summary of the data which has a comparative fit index CFI is 92% CFI (0.921), the ratio of CFI describes the proportion between uniformity of this objective model to the inconsistency of the freedom model. The CFI value approach 1 is a satisfactory fit and in this model, we see that the value is nearest to 1 which is acceptable. This statement is supported by McDonald and Marsh (1990).

Table 4.9

RMSEA				
Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.059	.050	.068	.053
Independence model	.197	.190	.204	.000

The above table shows the result of the Root mean square error of approximation which is known as (RMSEA), the value range between less than (0.05 to 0.07) and in this model value of RMSEA is 0.059 (5%) mean which is acceptable and the goodness of fit test was slightly blown acceptable. This statement supported by (Browne and Cudeck, 1993)

Table 4.10 HYPOTESIS SUMMERY:

	Estimate	S.E	C.R	P	Label
FTFIAAII<--- EM	.230	.060	3.824	.000	ACCEPTED
FTFIAAII<--- EL	.696	.036	19.192	.000	ACCEPTED
FTFIAAII<--- IQ	.227	.087	2.621	.000	ACCEPTED
FTFIAAII<--- NOTT	.149	.094	1.593	.000	ACCEPTED

SSIFII<--- EM	.130	.090	1.431	.000	ACCEPTED
SSIFII<--- EL	.111	.060	3.212	.000	ACCEPTED
SSIFII<-- IQ	.231	.039	2.113	.000	ACCEPTED
SSIFI<-- NOTT	.431	.044	4.222	.000	ACCEPTED

The above table shows that all hypothesis are accepted because all hypothesis has sig value is under 0.05 that means this data are valid and reliable for this study

Discussion

Theoretical implications

This paper explores the importance of relying on technology in pandemic time demands and provides a novel theoretical viewpoint to explain how the "post-pandemic scenario" is becoming more common due to the evolving nature of digital working habits. We witnessed how the COVID-19 pandemic had a significant impact on how work is organised, the use of contemporary technology in the workplace, and the nature of labour during the pandemic. to control rising countries' economic and social development as well as the difficulties they encounter while adopting digital dependency to fight the pandemic. Organizations had to move quickly in response to the unusual demands of COVID-19 to modify work practises. There was little time to inform or consider adopting and normalising new work practises and the role technology plays. This article explains how to identify the actions that support or obstruct the adoption of new technical advancements and innovation initiatives, as well as the key individuals that facilitate their adoption, embedding, and integration.

There are various options for future study into the role of digital dependency in developing countries as a driver of development. For instance, by necessitating the "big bang" deployment of technology and technology-driven activities under strict time limitations, it may facilitate case study research on the effects of pandemics.

Practical implications

COVID-19 forced organizations to adapt quickly to new work patterns, with little time to assess the long-term consequences. Evaluating an organization's preparedness to alter its practices by transforming digital work practices in a short period has become a top concern for organizations transforming their technological capabilities and working conditions (Carroll, 2020). The research findings may be utilized to better prepare for changes in terms of organizational preparedness to embrace new digital practices (i.e. ensuring that all-important factors are accounted for when implementing changes) or as an assessment procedure to analyze altered workplace settings (i.e. reflective standpoint). As the general

public recognizes the importance of digital reliance, organizations in developing countries can assess their readiness for change and the value decision-makers designated area on it, based on owing to increasing work expectations, commodity availability, resolving social issues, and environmental characteristics.

Limitations

Even with all of the performances we have contributed to in this study, we have identified three limitations that will be addressed in future studies. One of the limitations of this study was that, as the pandemic situation is new and raised in the recent era so, researches are being done on COVID-19 and new information is revealed based on new studies that's why the available information about the problem was not sufficient to realize the situation.

Secondly, As the lockdown in some regions is still implemented so, we can not completely describe the plan to handle the post-pandemic situation.

Lastly, The research did not include the element of private funding solely for econometric reasons; incorporating a large number of variables based on a very narrow data range only reduces the importance of the parameters, which is a restriction of this paper. is why we chose just the most essential factors with a significant influence. During the COVID-19 epidemic, this was observed. It's worth noting that the influence the impact of the COVID-19 issue on private investment is a question for investigation which may be explored in a study. in an upcoming article.

Conclusions

This research emphasizes the barriers to adoption and the elements that affect acceptability, and the use of digital technologies as a tool for helping to cope with Post pandemic situations especially for the economic development of developing countries. as result, it will aid in the development of a growth strategy for effective service of digital reliance in almost all areas of life to view technology as a positive step towards evolution and change for the progress of developing countries. The arrival of the pandemic situation of COVID-19 realized the importance of the internet since the World Health Organization revealed COVID-19 as an epidemic, there has been a rapid shift to the technology and digital world. Moreover, the unpredictability of resuming normal life and halting the pandemic results in maximal reliance on digital technologies.

As per the findings of the research all the five hypotheses are true as they showed a sing value under 0.5. which proved the validity of the research. It's proved that the situations in developing countries are not sufficient to adopt digital reliance properly the main problem is electricity issues, social issues like harassment, gender discrimination, privacy policy, insufficient awareness, lack of facilities are the main hurdles in adopting digital reliance in our daily life. We admit the importance of the digital world in today's life. It is very cuticle to adopt the new ways of life and the positive thing is that people do realize the importance of digital reliance and efforts are made for its betterment because it's important for the

betterment of economy and progress of a country depends upon the progress of digitization new technologies, use of social media, use of the internet should be encouraged in all areas of life. This is the dire need time especially in this Post pandemic situation of COVID-19.

Closer statement

The post-pandemic situation of COVID-19 realized us the importance of digital reliance that how it has become the need of time. It's the need of time to adopt digital technology in all are of life for example in the Educational field, industry, social life, marketing, finance, etc. And the developing countries are facing many issues to adopt digital technology in everyday life such as electrical power failure, privacy issues, Cybercrime, public awareness, lack of resources. And there is a dire need to work on these issues to handle the post-pandemic situation. It is necessary to overcome the economic growth of developing countries.

Footnotes

Author contribution

Conceptualization design of the work, writing _original manuscript, results from interpretation, revision, XL; supervision, comments, review, guidance, project administration, YZ, software writings _ original manuscript, empirical analysis, MA; writing original_ manuscript, writing_reviweing, and editing, ZA; reviewing and editing validation, HR; Revising the manuscript, editing, correcting mistakes, TSA, all authors have read and agreed to the published version of the manuscript.

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Data availability statement

Data is readily available on request

Conflicts of interest

The authors declare no conflict of interest

References

- Mahyoob, M. (2021). Challenges of e-learning during the covid-19 pandemic experienced by efl learners. <https://doi.org/10.31235/osf.io/258cd>
- Terry, D. (2018). Flipping a lecture classroom to improve student engagement. <https://doi.org/10.1130/abs/2018am-324098>
- Pullman, M., & Wu, Z. (2012). Food supply chain management: Economic, social and environmental perspectives. Routledge.
- Andronova, I. V., Digilina, O. B., & Andronov, K. A. (2020). The economic impact of covid-19 on the global community. Proceedings of the Research Technologies of Pandemic Coronavirus Impact (RTCOV 2020). <https://doi.org/10.2991/assehr.k.201105.019>
- Dhawan, S. (2020). Online learning: A panacea in the time of covid-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Diomidous, M., Chardalias, K., Magita, A., Koutonias, P., Panagiotopoulou, P., & Mantas, J. (2016). Social and psychological effects of the internet use. *Acta Informatica Medica*, 24(1), 66. <https://doi.org/10.5455/aim.2016.24.66-69>
- Covid-19, the Sdgs, and the recovery. (2021). Sustainable Development Report 2020, viii-viii. <https://doi.org/10.1017/9781108992411.002>
- Detlor, B. (2010). Information management. *International Journal of Information Management*, 30(2), 103–108. <https://doi.org/10.1016/j.ijinfomgt.2009.12.001>
- Unger, Roberto Mangabeira (2019). *The Knowledge Economy*. London: Verso Books.
- World Economic Forum (2020). Jobs of Tomorrow: Mapping opportunity in the new economy. Available from <https://www.weforum.org/reports/jobs-of-tomorrow-mapping-opportunity-in-the-neweconomy>.
- Zuboff, Shoshana (2019). *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. London: Profile Books Limited.
- Eubanks, Virginia. 2018. *Automating Inequality: How High-tech Tools Profile, Police and Punish the Poor*. New York: Picador, St. Martin's Press.
- Frey, Carl Benedikt (2019). *The Technology Trap: Capital, Labour and Power in the Age of Automation*. Princeton, New Jersey: Princeton University Press.
- Frey, Carl Benedikt and Michael A. Osborne (2017). The future of employment: how susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, vol. 114 (December), pp. 254–280.
- Aghasian E., Garg S., Gao L., Yu S., Montgomery J. Scoring users' privacy disclosure across multiple online social networks. *IEEE Access*. 2017;5:13118–13130. Presented at the IEEE Access.
- Akala A. CNBC; 2020. More big employers are talking about permanent work-from-home positions. <https://www.cnbc.com/2020/05/01/major-companies->

talking-about-permanent-work-from-home-positions.html May 1, Retrieved June 6, 2020, from

- Byadminicybell, & *, N. (2021, July 12). What's e-trade? Definition and which means. Cicybell. <https://www.cicybell.com/whats-e-trade-definition-and-which-means/>.
- Pisa, M. (2021, August 24). Developing countries seek greater control as tech GIANTS woo the "next billion users". Center For Global Development. <https://www.cgdev.org/blog/developing-countries-seek-greater-control-tech-giants-woo-next-billion-users>.
- Vaishya, R. (2020). What has the COVID-19 Pandemic taught us? Apollo Medicine. https://doi.org/10.4103/am.am_75_20
- Pantic, I. (2014). Online social networking and mental health. *Cyberpsychology, Behavior, and Social Networking*, 17(10), 652–657. <https://doi.org/10.1089/cyber.2014.0070>
- Jøsang A, et al. “Security Usability Principles for Vulnerability Analysis and Risk Assessment.” Proceedings of the Annual Computer Security Applications Conference. 2007 (ACSAC'07). Retrieved 2007.
- Nöjd, S., Trischler, J. W., Otterbring, T., Andersson, P. K., & Wästlund, E. (2020). Bridging the valuescape with digital technology: A mixed methods study on customers’ value creation process in the physical retail space. *Journal of Retailing and Consumer Services*, 56, 102161. <https://doi.org/10.1016/j.jretconser.2020.102161>
- Carroll, N., & Conboy, K. (2020). Normalising the “new normal”: Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management*, 55, 102186. <https://doi.org/10.1016/j.ijinfomgt.2020.102186>
- ACAPS (Assessment Capacities Project) and WHO (World Health Organization). 2020. COVID-19 Government Measures Dataset.
- <https://www.acaps.org/covid19-government-measures-dataset>. Accessed 1 April 2020.
- Acemoglu, D., V. Chernozhukov, I. Werning and M. Whinston. 2020. "A Multi-Risk SIR Model with Optimally Targeted Lockdown",
- Working Paper 27102. National Bureau of Economic Research, Cambridge, MA.
- Acevedo, A. 2020. “Student Households Can Sign up for Free Wi-Fi via Spectrum while DOE Works to Deliver 25,000 iPads Next
- Week.” QNS, 17 March. <https://qns.com/story/2020/03/17/student-households-can-sign-up-for-free-wifi-via-spectrum-whiledoe-works-to-deliver-25000-ipads-next-week/>.

- Alon, T., M. Doepke, J. Olmstead-Rumsey and M. Tertilt. 2020. “The Impact of COVID-19 on Gender Equality” CRC TR 224 Discussion Paper Series 163. University of Bonn and University of Mannheim, Germany.
- https://ideas.repec.org/p/bon/boncrc/crctr224_2020_163.html.
- Ananat, E., and A. Gassman-Pines. 2020. “Snapshot of the COVID Crisis Impact on Working Families.” Econofact, 30 March.
- <https://econofact.org/snapshot-of-the-covid-crisis-impact-on-working-families>.
- Arhin-Tenkorang, D., and P. Conceição. 2003. “Beyond Communicable Disease Control: Health in the Age of Globalization.” In I. Kaul, P. Conceição, K. Le Goulven, and R.U. Mendoza, eds., Providing Global Public Goods: Managing Globalization. Oxford, UK: Oxford University Press.
- Artiga, S., R. Garfield and K. Orgera. 2020. “Communities of Color at Higher Risk for Health and Economic Challenges due to COVID-19.” Issues Brief. Kaiser Family Foundation, Menlo Park, CA. <https://www.kff.org/disparities-policy/issue-brief/communitiesof-color-at-higher-risk-for-health-and-economic-challenges-due-to-covid-19/>.
- Assa, J. 2020. “Laissez-Faire, Laissez Mourir.” Developing Economics: A Critical Perspective