

Issues and Challenges Faced by Higher Education Institutions in the E-Learning Modes: A Systematic Literature Review

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The pandemic of Covid-19 is forcing education sector to shift rapidly to online teaching and learning around the world. In online education, Higher Education Institutes (HEIs) faced number of issues and challenges during COVID-19. Therefore, the purpose of this research study was to identify the issues and challenges faced by education institutions during Covid-19. This study used Systematic Literature Review (SLR) approach; the systematic search process resulted in 22 relevant articles published in reputable journal during 2020-21 in different research data base. These articles discussed the issues and challenges faced by education sector during Covid-19 with the help NVivo software. During SLR, this study found 25 different issues and challenges that were further divided into 10 categories. The issues and challenges faced by educational institutions during pandemic include the poor technological access, lack of technological equipment, digital illiteracy, lack of change readiness, lack of organizations support, social issues, culture and attitude issues, digital capabilities issues, poor social development, and change management issues and challenges. The urge for conducting research in education sector is imperative and deliberated like a back-bone in the development of any nation. This research study extends the current literature on issues and challenges that were embedded by Covid-19 on the education institutions throughout the world and provide a valuable insight in terms of proper implementation of ERP systems in the education sector to avoid such issues and challenges in future. This research study also highlighted the importance of proper planning of higher education institutions for such kinds of issues and challenges.

Keywords: Systematic literature review, Covid-19 crises, issues and challenges, education sector, digital transformation

The nascent phenomenon of Covid-19 has disrupted world's economy to a larger extent. The spread of viruses was an alarming issue for all the sectors and industries. Governments were in a fix how to deal with the increasing death ratio of corona virus victims. World seemed to an end and so far everything at closure (Mhlanga & Moloi, 2020). Major losses were bared those days, specifically, the under developed nations were hand to mouth in all spheres of life. The consequences were also confronted by education sector and all the educational institutions were shut down due to the pandemic issues but the loss of education cannot be compromised at any cost (Iivari & Ventä-Olkkonen, 2020). Therefore, decision makers and experts sit down for new methods of educating the students when more than 72% of the world's student's populations were not attending schools/colleges/universities in order to control the spread of the Covid-19 (Maqsood et al., 2020).

With a growing amount of lockdown situation across the world, many countries have introduced localized closures affecting millions of additional learners. Every dark cloud has a silver line; where everything was about to abolish there was a genre opened by digital transformation in the form of online learning (Flores & Gago, 2020). The Higher Education

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Institutions (HEIs), therefore, started mapping about how to introduce Open and Distance Learning (ODL) and Learning Management System (LMS; Joshi, et al., 2020).

It was not an easy job to transform from conventional education patterns to digital one. The novel corona virus proved to be like an earthquake in education sector prevailing countless difficulties to cope with. A large volume of issues and challenges were faced by HEIs in the transition phase from brick to click structure requiring major changes in processes, people, structure, and technology aspects (Izumi et al., 2020). A large number of researchers noted that during the transition to the online mode, there are very serious problems and challenges faced by educational institutions. (Dhawan, 2020; Flores & Gago, 2020; Iivari & Ventä-Olkkonen, 2020; Joshi et al., 2020; Maqsood et al., 2020; Mohammed et al., 2020; Nuere & Miguel 2020). Pakistani government also announced a temporary lockdown for precautionary stance, where everyone's life stuck at home. This situation was also a significant challenge for Pakistani education sector in dealing with such crises. As many were unaware of the presence of any emergency response unit, the Pakistani masses were not prepared to experience a likely Covid-19 epidemic at their institutes (Khan et al., 2020).

Many developed countries have well-established online and distant-learning programmers, which is not the case in developing countries, like Pakistan. In emerging nations, the problems of integrating e-learning vary from those of the developed world (Nawaz & Khan, 2012). Using various forms of digital technologies, Pakistani HEIs have moved to online education to encourage students and save time and resolve the Covid-19 crises. Researchers focus on analyzing the difficulties and obstacles encountered by the education sector during Covid-19 and improving the digital techniques used by these institutions to manage the crises engendered by Covid-19 (Adedoyin & Soykan, 2020; Carrillo & Flores, 2020; Kapasia et al., 2020). Therefore, the current research notion aims to recognize these voids and to create the following research questions for a systematic literature review. In this regard the current study has explored what were the challenges and issues faced by stakeholders in education sector during Covid-19 as mentioned by different authors? And which issues and challenges were the most critical to address Covid-19 crises as explored by different authors?

Method

The current research is based on the inductive approach to review the literature considering post-positivism philosophy. Our focus for the searches was limited to the articles titles and abstracts published in the field of education regarding digital transformation during the pandemic situation of Covid-19, the approach used in such manner was actually coined by Padalkar & Gopinath (2016) in their study. First of all the search was initiated by going on to various data bases and looking for the articles having literature on digital transformation during Covid-19 crises and challenges faced by education institutions. As recommended by de Araujo et al (2017), our primary searching technique was based on different keywords, including: *Covid-19 crises*, *digital transformation challenges* and *educational institutions issues*.

Databases Searched

According to the above keywords, the present study systematically searched for published papers following the order of the listed databases where the methodologies of Araujo et al (2017) and Busalim (2016) were applied. The following electronic databases were looked for in the systematic literature review: Emerald Insight, IEEE, MDPI, SAGE Papers, Taylor and Francis, Wiley Online Library, Elsevier, and Springer. The written titles and abstract of papers were studied for inclusion in the current research study. In addition, all search results were limited to journal publications written in English that were peer-reviewed.

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Research Design

Those papers were kept aside for further review that included the terms: (1) issues and problems posed by digital learning means introduced by educational institutions; (3) challenges and issues provided by Covid-19 for E-Learning system, for this we follow the methodology of Igarashi et al (2013) and Ali and Miller (2017). The papers were graded accordingly as one or two meeting the requirements of appropriate and quality content. During the abstract, the current analysis adopted a number of measures for appropriate rating parameters, and papers with non-relevant findings or those having searched keywords only in the context or topic were classified at three and consequently omitted in the article selection process based on this initial examination. Rank one and two abstracts were analyzed in depth and maintained on the basis of the inclusion of the said main words for a full analysis of the papers.

Criteria for Exclusion and Inclusion

Existing study adopted the approach of Igarashi et al (2013) to establish standards for inclusion and exclusion for choosing the articles. First, considered those papers that follow the conditions of the review: (1) they were written in the English language; (2) they were published in a peer-reviewed journal; (3) be linked to the crises facing the education sector in the light of the digital transformation uncertainties of Covid-19; (4) have specific keywords looked for. Second, the screening procedure was taken to analyze the eligibility of full-text publications obtained from the related databases according to the inclusion criteria required that: (1) peer-reviewed articles should be published papers, (2) Covid-19 crises and digital transition issues in the educational arena should be addressed in the papers. Articles were omitted where the abstract, results, or discussion parts did not define any of these inclusion requirements.

Backward and Forward Search

This research focused on case study sources both in research and practice through backward and forward search to obtain manageable sample. Here, the current study opts for the citations relevant to the nature of our study by following the references of the prior studies done by different scholars in the same milieu. Furthermore, this study found out whether the attained research work has been cited after its publication in order to realize the importance of the obtained articles and also came to know that these articles shaped the subsequent research. After met the criteria of backward and forward searching technique this study moved to finalize the sample.

Sample size

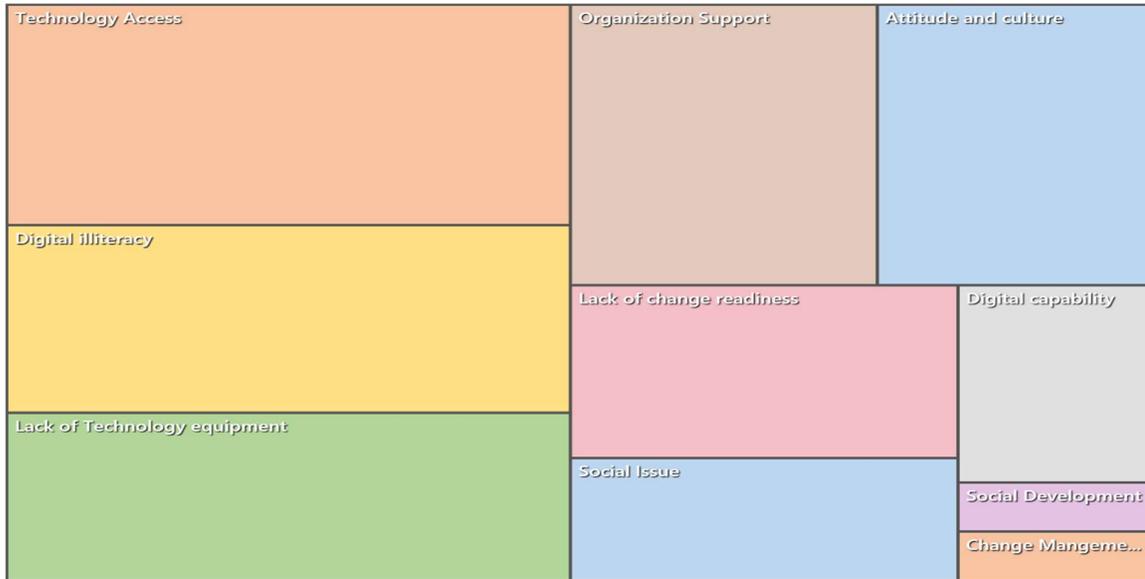
This study adapted the method introduced by Ali and Miller (2017) and followed the requirements for inclusion and exclusion for the final collection of papers from numerous databases specific to our research field, highlighting all the main words accordingly. A total of 71 publications out of which this review picked 22 articles based on title interpretation and on the methods of Igarashi et al (2013) end up with the data obtained from different databases. After reading the abstracts, 17 papers were omitted from this review. Based on the criterion of inclusion and exclusion, 9 publications were eradicated because they were not in accordance with the intent of extant study. A selection of 45 papers collected after screening according to the standards of inclusion and exclusion was left for this research review. Then, during the text review of full articles, 25 articles that were considered meaningless after reading between the lines were omitted. Finally, in order to synthesize the analysis focused on comprehensive literature review on digital transition problems faced by educational institutions during Covid-19 crises, a selection of 22 publications was gathered for the full review process. Covid-19 is a nascent phenomenon, where most of the publications found

Findings and Discussion

Current study extracted issues and challenges faced by educational institutions during Covid-19 from the past research articles downloaded from different databases. Graphic representation in term of word tree map is display in Figure 2 to highlight the issues and challenges faced by universities during COVID-19.

Figure 2

Issues and challenges faced by universities during COVID-19



In the above mentioned figure issues and challenges are denoted with various themes such as technology access, lack of technology equipment, digital illiteracy, lack of change readiness, lack of organization support, issues with attitude and culture, social issues, lack of digital capabilities by education institutions, poor social development and change management issues. Similarly, summary of these issues and challenges highlighted by different authors during 2020-2021 years is given in the below table 2.

Table 2*Summary of the issues and challenges highlighted by different authors during 2020-2021*

Authors	I/C1	I/C2	I/C3	I/C4	I/C5	I/C6	I/C7	I/C8	I/C9	I/C10
Shivangi Dhawan, (2020)		✓	✓		✓					
Iivari & Ventä-Olkkonen (2020)	✓	✓	✓		✓	✓				
Joshi et al., (2020)	✓	✓	✓	✓	✓	✓				
Mohammed et al., (2020)	✓	✓	✓		✓					
Bao, (2020)	✓	✓		✓						
Mhlanga and Moloji (2020)	✓				✓					
Maqsood et al., (2020)	✓	✓	✓	✓	✓	✓	✓			
Nasar 2020	✓		✓				✓			
Sepulveda-Escobar & Morrison, (2020)	✓		✓	✓					✓	
Nuere & de Miguel (2020)				✓	✓	✓		✓		
Almaiah et al., (2020)			✓			✓		✓		✓
Moorhouse, (2020)		✓								
Flores & Gago, (2020)	✓			✓	✓					
Carrillo & Flores, (2020)		✓			✓					
Izum et al., (2020)			✓					✓		
Adedoyin & Soykan, (2020)	✓	✓			✓		✓			
Kapasia et al., (2020)	✓			✓	✓		✓			
Aristovnik et al.,(2020)		✓								
Khalil et al, (2020)	✓					✓	✓	✓		
Puljak, (2020)	✓					✓				
Chakraborty & Kar, (2021)		✓	✓	✓						
Ntshwarang et al., (2021)	✓	✓				✓				

In the sample of 22 articles, 10 major's issues and challenges were found. Technology access (broadband/Internet access), lack of technology equipment and digital illiteracy were the most emerging issues faced by education sector during Covid-19. Findings also reveal that lack of change readiness (preparation), organizational support, attitude and culture towards e-learning, social issues and digital capability were also the key issues. Whereas, poor social development and change management issue were the less critical factors during the pandemic situation.

Table 3*Frequency of the listed issues and challenges*

Coding	Issues/Challenges	<i>f</i>
I/C 1	Technology Access	14
I/C 2	Lack of Technology Equipment	12
I/C 3	Digital Illiteracy	10
I/C 4	Lack of Change Readiness	08
I/C 5	Lack of Organizational Support	11
I/C 6	Attitude and Culture	08
I/C 7	Social Issues	05
I/C 8	Digital Capability	04
I/C 9	Poor Social Development	01
I/C 10	Change Management Issues	01

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Details of issues and challenge extracted from previous studies are given on the x-axis and frequency (high to low) of the issues and challenges are given on y-axis as shown in fig2. Educational institutions should consider these issues and challenges on priority bases that is fundamental need of digital education process such as technology access, lack of proper technological equipment and digital illiteracy. It may be noted that more effort is required for high ranked challenges and issues against low frequent challenges and issues. However, the upcoming section of this research work display the broader picture and analysis including discussion regarding the top 10 critical issues/challenges faced by education sector during COVID-19.

Technology Access

Current research has shown that access to infrastructure remains one of the most important obstacles (found in 14 out of 22 studies) to online learning during this pandemic. Because online learning is entirely dependent on the internet and technical devices, teachers and students with limited internet connectivity are liable to get poor access to online accessories learning, therefore, deprived technological infrastructure and the availability of equipment were major challenges for education institutions' staff, faculty and students (Adeyoyin & Soykan, 2020). The lack of technical access was the major challenge for the education sector in most research studies, especially from emerging economies such as India and Finland, and is the major barrier in the digital transformation phase too. Online lectures focused on a wide variety of information technology devices have posed significant issues (Wang et al., 2020). In order to obtain successful teaching results that may influence the standard of tertiary education, teachers who are accustomed to conduct live classes may need to indulge in novel approaches. Students may not have the network resources in remote and rural areas, thereby contributing to a lack of educational opportunities. Additionally, in disseminating the content, teachers who have classes on a taped broadcast network can face copyright issues.

Lack of Technology Equipment

Under the current pandemic scenario, the shortage of technological equipment became one of the most important obstacles (found by 12 out of 22 studies) to online learning. The transition of learning from the classical approach to the modern age encountered difficulties due to the lack of sophisticated IT equipment. Most studies have shown that adequate technical equipment during Covid-19 was one of the key issues faced by the education sector (Dhawan, 2020; Iivari & Ventä-Olkkonen, 2020). Lack of technical knowhow was another major issue because people were reluctant to abrupt change and therefore, show conventional approach towards transition (Joshi et al., 2020). The emerging phenomenon of Covid-19 compel HEIs to mold their patterns and acquire technological proficiency (Maqsood et al., 2020; Mohmmmed et al., 2020). The existing staff was not well to date and scared by the challenge of technical shifts in existing education system (Flores & Gago, 2020). Authors evidenced about the lack of knowledge regarding technology based learning system (Carrillo & Flores, 2020; Nuere & de Miguel 2020).

Digital Illiteracy

The present research reveals that access to digital illiteracy is one of the most important issues (found by 8 out of 22 studies) to online learning during the current pandemic situation. It was also found that there was a shortage of knowledge and skills to use the resources (students & teachers). Among teachers, there was also a lack of online teaching experience. Teachers faced a scarcity of professional skills for online learning too. Almaiah et al (2020) conducted semi structured interviews with student and found The higher

education institutions lack the technical skills that are essential for use of software and hardware and the outcome might failure. The disruptions induced by the critical situation of Covid-19 pushed HEIs to improve their level of education about digital literacy. Specifically, in case of Pakistani educational institutions, it was harder to prevail equal standards of education because most of the rural areas have electricity shortage and internet networking issues where it was impossible to continue smooth learning system via Google classroom (Adedoyin & Soykan, 2020). Confronting with the basic level of problems, it was really tough for HEIs to boost up digital literacy rate overnight (Kapasias et al., 2020), therefore, the digital means of learning seems horrible to those who have deficiencies in online education system.

Lack of Change Readiness

The absence of readiness for transition in staff and organizations was one of the main issues observed in recent research (found by 8 out of 22 studies). Organizations are not adequately positioned to handle the mechanism of change management in the modern evolution of the classical learning process. Organizations are not ready enough to adapt transformation, and there is a significant disparity in workers' clarity and direction through digital change (Dhawan, 2020; Iivari & Ventä-Olkkonen, 2020). Employees need to be motivated to handle the transition, and the apprentices, instructors and administrators who are active in the preparation to change lack enthusiasm (Joshi et al., 2020). Hence, there is a lack of a proper structure of transition that accompanies the dearth of preparation for change. Researchers found that universities are not willing to turn to e-learning mode education because they are not prepared for this sort of scenario and lack appropriate future planning as well (Mohammed et al., 2020). The lack of risk management turn to disadvantage when the dilemma of pandemic started prevailing everywhere including education settings. Mindset of people is the element that leads to failure or success, but HEIs found poor readiness for tackling Covid-19 (Nuere & de Miguel, 2020).

Lack of Organization Support

In such emergencies as Covid-19, assistance from organizations still play a key role. Organizations include preparation to handle the transition and e-learning phase that is being neglected in the educational sector's digital transformation scenario as mentioned 11 articles in the selected articles. The lack of technological resources, sufficient learning materials and the lack of budget for the procurement of emerging technology reported in recent studies suggests that during Covid-19 organizations are not equipped to support the digital transition process (Joshi et al., 2020). The lack of operational resources often represents the lack of technological services (Bao, 2020; Sepulveda-Escobar & Morrison, 2020). Poor economies have the issues of budgeting, the scarce resources pulled education system to face the drastic picture in shape of lack of organizational support. The basic requirements were not met handsomely in the early pandemic days that could left behind the HEIs in the pace digital transformation (Nuere & de Miguel 2020).

Attitude and Culture

This research study found in the digital educational process during Covid-19 that negative attitudes of teachers and students toward the use of online learning tools became a major hindrance to the successful completion of the process (Nuere & Miguel 2020). Whereas, 08 articles in selected 22 articles highlighted that attitude and skills are marked as one of the major issues faced by education sector during Covid-19. In particular, because of the absence of a good learning attitude, pupils were also found in trouble. One of the crucial aspects to be discussed in order to verify that all pupils use the online learning method to a significant degree is the cultural element. The overall culture for change orientation is worthwhile as it molds the behavior and mindset of people to embrace positive change for the

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well-being of organization (Iivari & Ventä-Olkkonen, 2020). Keeping in view the phase of digital transformation; some of the HEIs were found reluctant to change and show cold response to new ways of online education system. Their perception got obsolete and that is how their attitude towards digital culture was not remarkable (Almaiah et al., 2020).

Social Issues

Because of the current pandemic scenario, only a machine and multiple members of a family remain in any building. When parents telework, they will have to share the machine, and maybe a brother wants it too (Nuere & Miguel, 2020). The interference of people and pets here is the unwanted presence or disturbance of friends, family members & or pets that may interrupt or distract the attention of online learning participants during the online COVID-19 (Adedoyin & Soykan, 2020). While conducting the systematic literature review, this study observed that during this e-learning scenario, both teachers and students face social problems as one of the main issues. Students lack personal space for peaceful environment to study online as well as electricity shortage and poor internet access disturbed pupils during initial stage of transition (Dhawan, 2020; Joshi et al., 2020). Five articles in selected 22 articles highlighted that attitude and skills are also counted as major issues faced by education sector during COVID-19.

Digital Capability

Current research further addresses concern with the ability to introduce modern technologies into learning and teaching activities during Covid-19, as well as the ability of the current system to welcome and implement the new system. 04 articles in selected articles highlighted that digital capability is also one of the major issues faced by education sector during COVID-19. The paper by Fletcher and Griffiths (2020) elevates the digital divide associated with COVID-19 through the digital maturity lens and the intrinsic flexibility of technologically mature organizations to adapt to survive with the pandemic's effects. In order to cope with any potential crises, the study suggests the need for corporations across all industries to reimagine their businesses to transform their digital capabilities. Via the academic prism, the research by Davison (2020) explores the various aspects of online education and the lack of student engagement during remote lectures. Iivari and Ventä-Olkkonen (2020) assess the effects on basic education in India and Finland, the digital transition inside Covid-19 education is empirically investigated. The research work also noted the inherent complexities stemming and the creativity, perseverance from educators and resilience, as they have difficulty to integrate the pre-requisite digital applications within the learning situation.

Poor Social Development

The issue of lack of face-to-face interaction falls the students in low level of social capital. Therefore, students' social growth is also emerging as a severe concern and it highlighted by only one article in the selected articles. Social growth, i.e. sharing and learning from other peers, was limited because student and teachers had limited interactions with other school community members (Sepulveda-Escobar & Morrison, 2020). Further studies undertaken in China by Wang et al (2020) came with a significant effect on China's economic and social growth with the rapid proliferation of new corona viruses worldwide in 2019-2020. The fear of low amount of social interactions in online means of education bothered the pupils and most of them were found missing face-to-face meetings and gatherings for group study. But later on, the students overcome this issue to some extent by engaging in virtual groups or communities such as, whatsapp groups and Facebook pages (Mohammed et al., 2020).

Change Management Issues

Existing literature concluded that issues and challenges regarding change management were having less importance during pandemic mentioned in only one study out of 22 articles. Via semi-structured interviews, Almaiah et al (2020) found that resistance to reform in the adoption of the e-learning paradigm is a concern because there are students and teachers who favor the conventional way of learning and teaching. The aspect of change management regarding digital transformation is too expensive and thorough and thus, is not affordable for every education institution (Nuere & de Miguel 2020). But the existing nature of pandemic difficulties demands for change management in order to accelerate the education system and avoid any kind of loss and compromise on quality education. The issue, thus, was not seen repeatedly in the volume of articles based on Covid-19 challenges and issues for education stakeholders. Because all the HEIs were abide by the new policies on digital transformation, hence, all the educational settings adopted the change only to keep the students engaged through online means of learning rather a meticulous long-term planning (Flores & Gago, 2020; Maqsood et al., 2020).

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Figure 3
Mind Mapping of the Study Findings

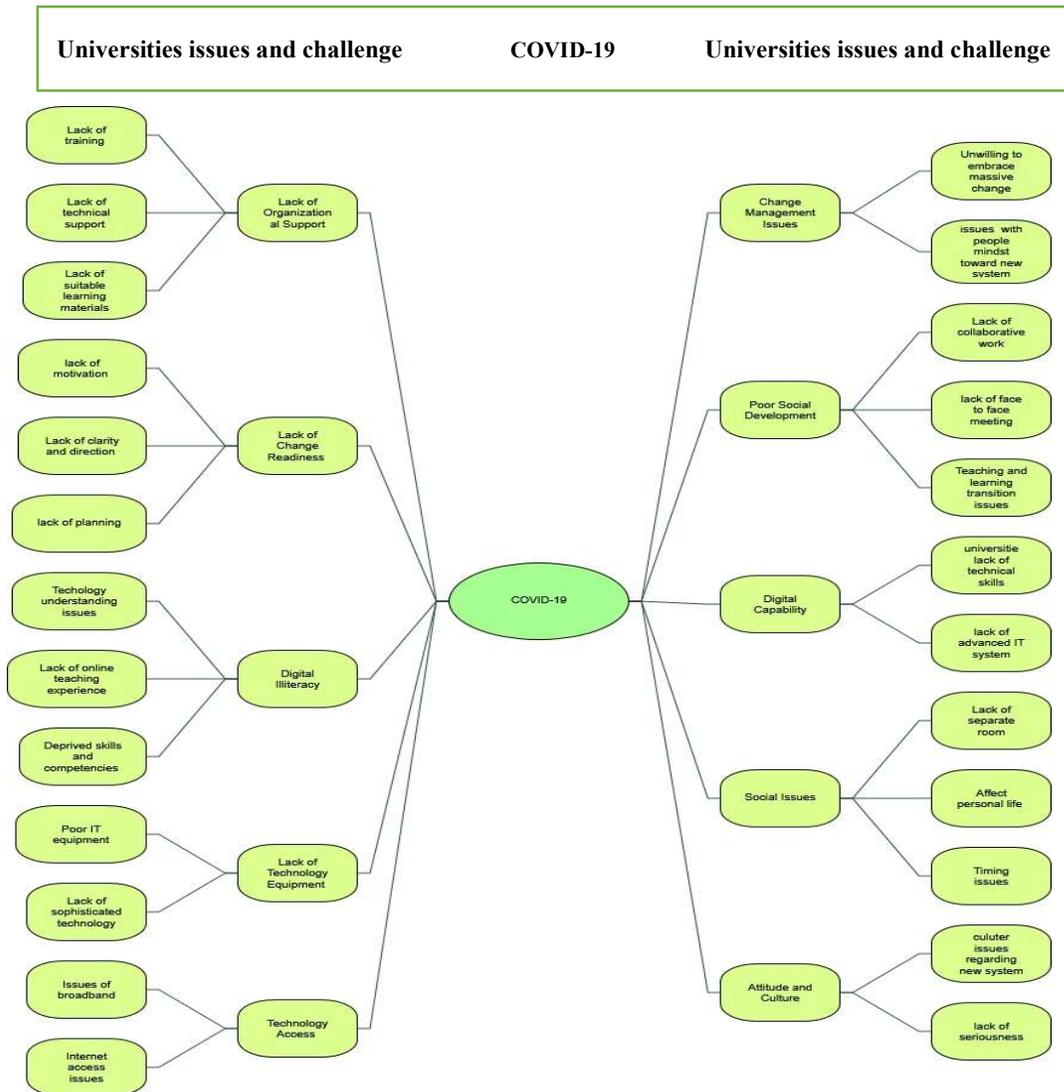


Figure 3 represent the mind mapping structure of overall 25 findings of the current study. Mind mapping help us to generate new concept and we can analyze our data more effectively.

Figure 4
Mind Mapping of the Themes with their Respective Frequencies

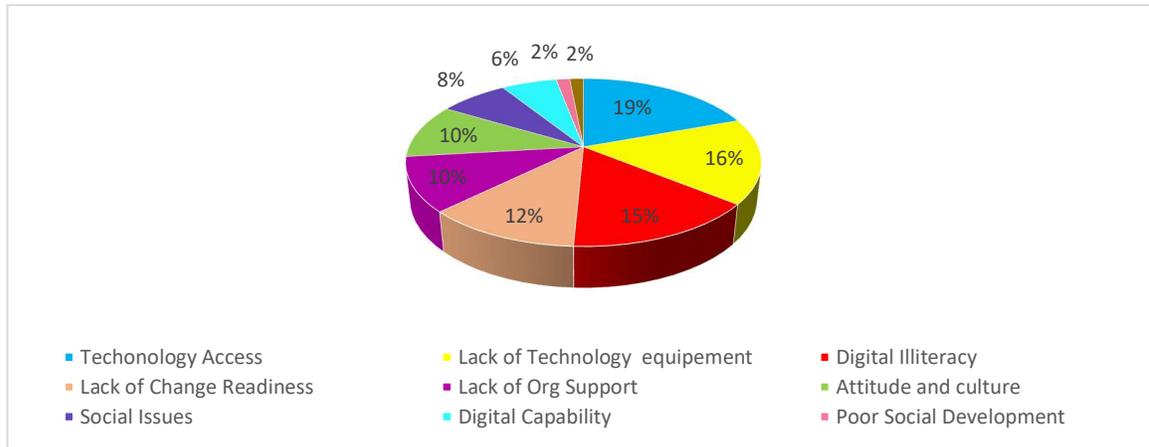


Figure 4 represent the mind mapping structure of overall 25 findings of the current study with their respective frequencies.

Conclusion

The urge for conducting research in education sector is imperative and deliberated like a back-bone in the development of any nation. Therefore, the current study used one of the important research approach such as systematic literature reviews to highlight the major issues and challenges faced by education institutions during Covid-19 as mentioned by different authors during the pandemic period. Total 25 in numbers of major issues and challenges were found that are further categorized into 10 major themes. During the systematic literature review, 19 percent articles highlighted that for the period of Covid-19 technological access has emerged as the key issue for the education sector. 16 percent articles highlighted that lack of equipment is the major issue, while 15 percent articles suggested that digital illiteracy is the vital issue. The issues and challenges that are faced by education institutions during Covid-19 are summarized in figure4. Moreover, findings of the extant systematic literature review emphasized that most emergent challenges that are faced by education institutions is technological issue. In the current study, 50 percent articles underscored that technological challenges are the major issues during Covid-19. Therefore, education institutions need to prevail change culture and try to implement and maintain a proper digital transformation stream throughout the organization to avoid such issues in the near future.

Implication of the Study

Covid-19 posed a big threat to the higher education institutions for teaching and learning settings. Using a variety of interactive technologies, educational institutions do their hardest to overcome these problems. In e-learning instruction, however, institutions have been faced with a significant problem that specifically affects the aspirations of all main stakeholders. A comprehensive literature review undertaken by this research study could provide educational institutions with a concrete contribution to understand the key challenges and problems fronting educational institutions. In the current Covid-19 situation, which is very important for the digital transformation of the education sector, the findings also provide

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the government with a fruitful insight into taking well-defined steps to help the education sector to minimize its issues and challenges. A fruitful perspective from this systematic literature review is provided to the educational institutions who tend to prepare for an effective and efficient digital transformation.

Future Suggestions

The urge of technological pace demands for digital transformation even in the traditional means of education. So, schools/colleges/universities have to make proper information system strategy, information technology strategy, change management strategy, and knowledge management strategy. Assurance for the successful implementation is led by proper alignment and governance that ultimately ends in sustainability. The HEIs must adopt the proactive approach and try to induce process driven approach rather function driven approach. ERP system would be smarter by developing cross-functional approach instead of functional one. The BPR and BPM must be analyzed accordingly through open strategies and change orientation should prevail throughout the education system, so that no more threats in future could hinder education at any platform.

The present study ranked the major issues and challenges from 1 to 10. It opens ways for future research likewise a deeper look into the intermingled cultural issues, values, attitudes, mindsets and identities are needed. Different challenges and opportunities outlined in the systematic literature review relate to digital transformation in education sector during Covid-19. The findings reflect that common issues/challenges are more concerned with all the educational stakeholders. So, future research should explore the major changes in people, processes and technology. The pandemic has brought immense human suffering around the world, offering an impetus to examine the successes and failures of the structures deployed, the costs associated with them, and scaling this to increase connectivity/access should deliberate in future research. In order to study the effects of Covid-19 on the education system regarding the magnitude of teaching, learning and other administrative tasks, more in-depth analysis could be conducted. An inquiry to examine the transformation effect of pure online schooling on the performance of students may be of importance to future study.

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