

Perspectives On Analysis Regarding the Impact of Online Teaching and Higher Education - Strategies and Perspectives for Future Readiness

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ABSTRACT

During crises, society must adopt a transformative process, regardless of the difficulties and problems it may present. The recent pandemic has swiftly and significantly affected all facets of individuals' life, encompassing their daily routines, jobs, and social connections, both locally and globally. This study examines the educational sector to demonstrate the substantial transformations taking place in higher education institutions. The impetus for these alterations is the pressing necessity to digital their pedagogical approaches. This transformation presents hurdles for instructors; some possess insufficient technological proficiency for online instruction, whereas others are adequately prepared. To maintain competitiveness and provide superior education amid swift digital transformation, disruptive technological advancements, and constant fluctuations, it is imperative for universities and higher education institutions to proactively confront these problems. This study examines the challenges and concerns universities face in achieving their goals, along with the technology tools and tactics they have implemented to transform higher education in response to the C-19 epidemic. The discussion and conclusion offer a succinct summary of essential themes that can enhance the digitisation of education. It is expected that the upcoming time will be marked by the dominance of online services and the necessity to adjust to the changing technological environment.

Keywords: C-19 - COVID-19, Digitalisation, Digital transformation, Higher education institutes, Online learning, Online Teaching, Technology.

INTRODUCTION

The ongoing C-19 pandemic has caused unprecedented disruption, leading to significant changes in both economic and social domains (Mou, 2023). Furthermore, the rapid global dissemination of the C-19 virus has elicited a strong sense of astonishment worldwide. The worldwide crisis has led to the closure of schools in around 180 countries, significantly disrupting the educational experiences of over 1.7 billion children, adolescents, and their families (Hari et al. 2023). To mitigate the transmission of the virus, numerous governments and societal organizations worldwide implemented social isolation strategies, enforced lockdown protocols, and imposed restrictions on interactions with others beyond one's immediate family. Two years after the onset of the pandemic, numerous organizations continue to have persistent obstacles, as a significant portion has not yet resumed physical operations. They have opted to persist with remote work arrangements, usually referred to as work from home (WFH). The continuing pandemic has significantly affected educational pursuits (Othman, 2021).

The overarching viewpoint was compromised by various adverse effects, including rampant inflation, financial distress, societal turmoil, and notably, the student body contending with challenges stemming from modified instructional methods and interpersonal interactions within the academic environment (Alawamleh, et al. 2020).

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The school system has faced an unprecedented health crisis that has profoundly disturbed its core framework. Given the prevailing ambiguity, it is essential to attain a thorough understanding of students' experiences with online learning during the C-19 pandemic (Schultz and DeMers, 2020). Despite substantial research in this area, there is still a lack of understanding regarding the challenges faced by students and the specific strategies they employ to overcome these obstacles (Stone and Pate, 2020). The entire educational system, from primary to higher education, must undergo comprehensive change promptly to enable the shift to an online teaching and learning environment. This modification is crucial to facilitate the transfer and evaluate a new delivery sequence and educational framework for instructing the students. Nonetheless, a small percentage of persons successfully completed the assignment, while the others encountered difficulties due to numerous circumstances.

The pandemic-induced disruptions have precipitated a significant digital transformation within the worldwide higher education system (Adedoyin and Soykan, 2023). This is affecting the establishment of a new standard. Carolan et al. (2020) discovered that the abrupt and mandatory transition to remote instruction has placed educators and learners in unexpected situations, requiring swift adjustment to virtual or online learning environments. The contemporary educational approach utilising information technology and conducted online is commonly termed "e-learning," a designation generally recognised in this context (Singh and Thurman, 2019). Due to several unforeseen causes, colleges, universities, and other institutions of higher education have been compelled to rapidly convert their instructional techniques to an online or virtual format. Due to the nature of this alteration, it was essential to utilise pre-existing technology resources, and it also necessitated the involvement of academics and researchers who may have lacked sufficient technological proficiency. It is essential for the university system to proficiently provide education of exceptional quality (Ayu, 2020). The educational environment is swiftly changing due to digital transformation, disruptive technological innovations, and the rapid expansion of the educational landscape. The emergence of disruptive innovations signifies a period characterised by uncertainty and potential risks; yet, it concurrently offers a beneficial opportunity that enhances expertise and creativity within the realm of education. Due to the inadequate preparation of numerous higher education institutions for the aforementioned change, all parties concerned encountered time constraints and stress. Consequently, several enterprises were incapacitated for prolonged durations due to their inadequate preparedness

(Aguilera-Hermida, 2020).

A disruption is an abrupt cessation or an unforeseen interruption in a routine or activity. The term "disruption" denotes a deviation from conventional methods of knowledge transmission in the realm of education. Marcillo & Desilus (2016) assert the ability to transcend or destroy obsolete paradigms while concurrently presenting innovative alternatives. They inadvertently obstruct the operation of existing educational paradigms, first by reinforcing such models and subsequently by providing fresh insights into their developmental trajectory. An instance of educational innovation that could be deemed disruptive is the emergence of innovative learning opportunities that challenge and transform existing methods and systems of information dissemination. Moreover, it improves existing pedagogical methods by integrating information and communication technology, also known as "ICT." Both the educator and the learner are regarded as active participants in the learning process, as per the endorsed paradigm of the educational revolution, while contemporary digital education facilitates the execution of an open curriculum. This phenomena necessitates the development of innovative educational materials, platforms, environments, and methodologies, together with a transformation in students' roles and their methods of acquiring and employing academic information. Disruptive innovations can efficiently satisfy the needs of both established consumer demographics and the existing products available. The duration, extent, and significance of the shift should serve as the basis for educational progress and transformation. Universities must actively cultivate involvement and encourage critical thinking grounded in empirical evidence to effectively move beyond antiquated educational systems. This will promote the effective transition from outdated learning platforms.

The C-19 pandemic has led to a notable increase in individuals choosing to pursue their education online. In recent years, there has been a notable transition in pedagogy from conventional face-to-face teaching approaches to the adoption of online courses. Furthermore, there has been a shift from personalised training to virtual training, as well as a move from traditional seminars to webinars (García-Morales et al. 2021). The pandemic is expected to initiate a substantial era of technological revolution and accelerate the digitisation of higher education worldwide. The C-19 pandemic has resulted in significant changes, creating both opportunities and challenges for the transformation of higher education institutions (HEIs). To effectively adapt to new conditions, higher education institutions, including universities and other colleges, face the challenge of reassessing and

restructuring their educational programs, delivery systems, and teaching-learning processes. Amidst the ongoing dynamic transformations in academic settings, the structure underwent a comprehensive redesign, leading to various obstacles and necessitating alterations in delivery models (Shih-Ling Lin et al. 2021). Upon evaluating the deficiencies, our aim is to rectify them by showcasing the prompt execution of digital education and training at Higher Education Institutions (HEIs), facilitated by the accelerated use of digital delivery methods. Educational institutions must recognise possible problems, implement innovative tools and approaches, and effectively integrate technology into the teaching and learning process to successfully navigate transformation. This also required the application of pedagogical strategies that specialists used to introduce innovative approaches and instructional techniques. This study seeks to evaluate the many technology tools and methodologies utilised by universities, while also identifying the main issues encountered by the academic community, including faculty, students, and the institution overall. This study aims to examine the many technological tools and methodology utilised by universities, as well as the advantages and challenges linked to different delivery modes. The study also seeks to evaluate students' receptiveness to the new educational environment.

The study presents conclusions derived from an extensive analysis including college students and staff members regarding their experiences with online learning. The research combined grounded theory and an online data collection strategy to develop a paradigm model for online learning experiences in this particular demography. This research presents a paradigm model that delineates the evolution of online learning, with particular emphasis on its adoption, efficacy, and results. The model encompasses the elements and conditions that initiated and facilitated the primary event's progression. This study examines the strategies employed by students and educators to surmount external and internal obstacles that hindered their learning. Furthermore, it analyses the contextual factors that influenced the effectiveness of different strategies. Ultimately, the model assesses the outcomes of these efforts. Ultimately, the above paradigm model yielded the following units of significance. Initially, stakeholders expressed skepticism over alternate pedagogical methods, including online education. Their self-regulation improved progressively, and their understanding of self-control deepened. Digital literacy, particularly regarding generational disparities, significantly influences the facilitation of learning, the cultivation of online communities, and the promotion of personal growth through

virtual interactions. Subsequently, the impact of the comprehensive learning environment on the future objectives of online education was considered. The requirements for online education were established based on the knowledge and experience of those directly engaged in online learning.

REVIEW OF LITERATURE

A multitude of research studies has been conducted to investigate many aspects of online learning, including student satisfaction, the acceptability of e-learning, success criteria in distance education, and the effectiveness of online learning. Ayu (2020) contends that the incidence of online learning in higher education has markedly increased, establishing itself as a crucial element of global education. This can be ascribed to the emergence of online educators, developments in Internet technology, increased student expectations, and the adoption of successful teaching methodologies. Dhawan (2020) conducted an observational study during the C-19 pandemic that examined the challenges associated with online learning in the Indian context.

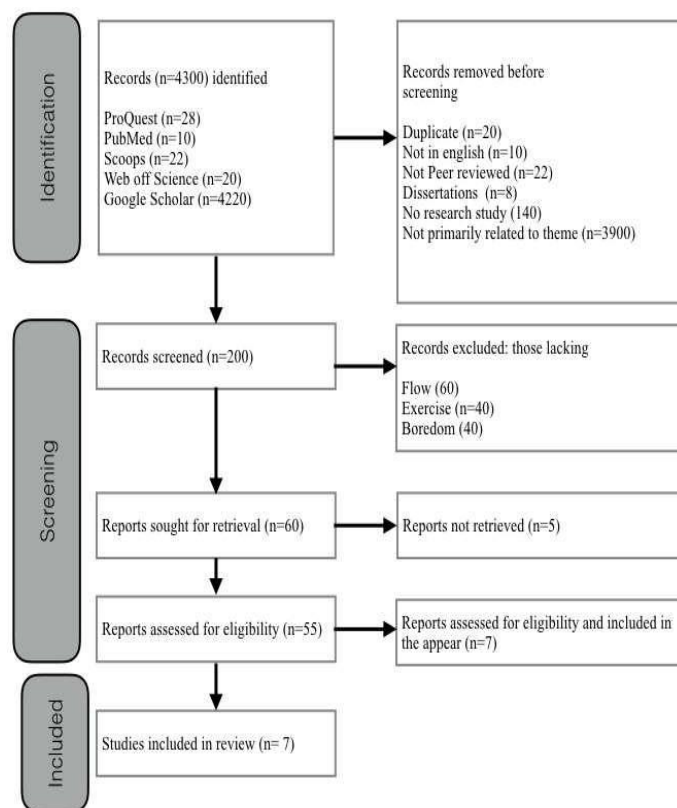


Fig 1. Flow of ROL methodology adopted

The C-19 epidemic resulted in the closure of numerous schools and institutions at its initial emergence. During the outbreak, a substantial majority of respondents, specifically 70 percent, expressed a willingness to engage in education via online courses. Nonetheless, rural students face challenges in accessing online learning programs due to inadequate broadband connectivity in their regions. The study's findings indicate that participants in online programs perceived the coursework as more challenging and distinctive than that of traditional classes due to factors such as inadequate instructor interaction, technological constraints on internet connectivity, and delayed responses from instructors. Furthermore, the human connection that occurs in a physical classroom setting was absent, and such interactions are highly beneficial for learning from peer team members, specifically. Barrot et al. (2021) assert that the C-19 pandemic has significantly affected the mental health of children and the quality of their educational prospects. Students can surmount these challenges by employing many strategies, including enhancing their technical proficiency, optimising resource management and utilisation abilities, effectively managing their time, and expressing control over the learning environment. Bahasoan et al. (2020) observed that implementing online learning programs during unforeseen social circumstances can be challenging if both educators and students lack the requisite knowledge for effective execution. In such circumstances, examining the learning methods of Generation Z students can assist educators in comprehending their students' learning processes and fostering a deeper understanding of them within the context of online education.

During the C-19 pandemic, much research has been conducted to assess the factors influencing students' satisfaction and academic advancement in online courses. Consequently, a substantial corpus of academic research has been generated in this domain due to these studies. Bozkurt and Jung Xiao (2020) sought to ascertain the comparative effectiveness of traditional face-to-face teaching methods vs online or hybrid learning approaches. They aimed to ascertain whether strategy was more effective. Research indicates that pupils attain much greater academic success through online learning compared to traditional educational settings. A meticulously planned and effectively implemented course design can enhance student satisfaction with the educational system. Conversely, a well-structured course significantly increases the likelihood of student engagement with the online learning platform, hence enhancing academic success. Friedman et al. (2021) did an observation utilising data from the Household Pulse Survey to examine the status of online education for children in the

United States during the early fall of 2020. The study's main aim was to focus on children lacking access to the Internet or a computer. The authors reported that, on a national level, 10% of children engaged in online education lack sufficient access to both the Internet and a computer. The study indicates a troubling discrepancy in the intellectual aptitude of youth in the United States. The quality of the instructor is a crucial component in evaluating a student's satisfaction with an online course.

An individual is deemed highly competent in education if they possess a deep understanding of their pupils' educational requirements, exhibit exceptional teaching characteristics, and effectively address those needs. Despite students' positive feedback regarding the quality of online instructors, the previously discussed studies and the authors' findings indicate that four key criteria significantly affect students' learning outcomes and satisfaction during online sessions. The factors are: 1) class structure; 2) instructor quality; 3) timely feedback providing; and 4) student expectations from the class. Moreover, according to the findings of Lasfeto (2020), students progressively acclimate to the online learning environment and experience a process of rearrangement and recognition. Throughout this process, they proactively prepare for learning and employ various strategies to mitigate any interruptions in their educational experience.

Research Gap

Recent study reveals a significant lack of studies examining the effects of course design, instructor proficiency, timely feedback, and student expectations and satisfaction with online courses during the pandemic. Despite comprehensive research by numerous experts on the factors influencing student satisfaction, along with the related challenges and constraints, this gap has been recognised. As a result of the outbreak, educational institutions were forced to shift to a new platform, requiring educators and students to acclimate to the unfamiliar learning environment. This was a consequence of the epidemic's emergence. All participants saw this undertaking as a daunting challenge. Prior to executing a significant alteration in the curriculum, inadequate measures were taken to guarantee that the children's psychological readiness was thoroughly considered. The primary aim of this research is to investigate the apprehensions voiced by students regarding the use of online education as a means to mitigate the effects of the pandemic and to prepare for unpredictable future crises. This study aims to analyse many factors influencing students and their perceptions, as reflected by their overall happiness with the experience.

This study thoroughly investigated several methods to improve online courses, aiming to effectively meet students' educational needs.

Significance of Present Study

The global pandemic has profoundly affected the ways in which education is delivered internationally. The epidemic has accelerated the transition from traditional educational methods to digital and internet-based options. When interacting with the faculty and students at the relevant universities, these organizations and institutions generally employed the specified method of communication. To implement this plan, it is crucial to precisely identify and subsequently address various obstacles and issues. We may proceed to the subsequent stage only thereafter (Gupta, 2021). The virtual learning method encompasses the use of high-quality short films, interactive visual aids and exercises, instructional presentations, and active participation, including cold calling. This method aims to promote and maintain student engagement in the learning process. Following the containment of the outbreak, a significant segment of the community believes that the prevalence of online education will persist and may even experience additional growth. This is a common and dominant belief among the public. This assertion is substantiated by the considerable number of individuals who hold the same perspective, representing a substantial segment of the population (Al Lily, 2020). Nguyen et al. (2020) contend that a substantial amount of educational instruction will occur through online platforms, resulting in a diverse array of academic programs for pupils. A student's academic progress can be influenced by several factors, including the quality of instruction, the extent of course objective attainment, instructor skill, and the application of appropriate technology. A significant feature of online learning is the opportunity for students to participate in interpersonal interactions. The user participates in the exchange of ideas, contributing insights and seeking the viewpoints of a varied international community dedicated to the quest for knowledge. Participants in the training program get a profound and comprehensive grasp of the world through the exchange and discussion of diverse experiences and opinions throughout the course. It is plausible to presume that all students will utilise technology and eagerly adopt its capabilities. However, it is essential to recognise that this assumption cannot solely be based on the numerous advantages associated with technology. To demonstrate the numerous benefits of modern technology, it is essential to make a comprehensive investigation of the impact of online

learning and virtual collaboration on academic achievement. Through the utilisation of virtual collaboration and online learning, policymakers can assess academic performance and implement educational programs that significantly impact a substantial number of higher education students. The study's conclusions hold substantial importance for the formulation and implementation of public policy. A thorough study intervention is necessary. This study is important since it investigates the challenges faced by students in online education and explores viable strategies for future integration of online courses. This facet of the research holds substantial importance.

The Purpose of the Study

Due to the broad epidemic, many facets of public life were considerably restricted, marking a substantial departure from prior periods. This illustrated the magnitude of the transformation. This resulted in the complete elimination of all forms of individualised education and training. This study will assess students' ability to manage stress, their study habits, academic performance, and overall well-being. The primary objective of this project is to analyse the challenges faced by educators and learners and propose feasible and ecologically sustainable solutions. Additionally, it proposes investigating alternative strategies that could improve the efficacy and accessibility of online education for diverse student populations.

ASSUMPTIONS AND INFERENCES

1. Quality of the instructor and satisfaction of the students

Paul and Jefferson (2019) assert that a growing amount of evidence suggests that educators who demonstrate genuine concern for their students' educational experiences are more likely to be effective. The evaluation of a teacher's overall efficacy can be partially achieved by assessing student satisfaction with the knowledge imparted by their teachers. This strategy likely significantly enhances student engagement and improves learning outcomes in online education. This scenario can be realised if the instructor clearly defines the challenge and fosters student motivation. This research study investigates the notion of teachers having a certain level of experience. Thus:

Assumption 1: Students who participate in online classes report higher levels of satisfaction when their teachers are competent.

2. Course design and satisfaction of students

The configuration of the class significantly influences both individual and collective learning outcomes and the degree of satisfaction achievable by students. According to the research conducted by Bozkurt and Jung Xiao (2020), dynamic course design produces more favourable results in achieving desired success levels than standard course design. When developing an educational curriculum, it is essential to consider the various cognitive processes via which students may acquire knowledge and comprehension. Students participating in an online course may display varied learning styles; yet, it is still feasible to develop the attributes of a well-structured curriculum despite these differences. This study assumption that course design influences student satisfaction, thus:

Assumption 2: Students' happiness with their online learning experience is positively affected by the course design.

3. Prompt feedback and satisfaction of students

Thompson and McDowell's research indicates that providing feedback to students enhances teacher-student interaction on the students' overall performance. Moreover, studies have shown that the prompt provision of feedback considerably influences students' satisfaction levels. This finding constitutes an extra contribution to the previously reported discovery. This study suggests that providing timely feedback to students in online learning enhances their perceived satisfaction with online education (Thompson and McDowell, 2019). Thus, this study assumption that prompt feedback affects happiness:

Assumption 3: Students are more invested in and satisfied with their online learning experience when they receive timely comments on their work.

4. Expectations and satisfaction of students

A prior observation by Bagali (2024) asserts that a significant percentage of online educational workshops employ a constructive methodology to augment students' pre-existing expectations, hence influencing the satisfaction obtained from their educational experiences. The Expectation Disconfirmation Theory (EDT) is a theoretical framework employed to evaluate an individual's degree of satisfaction. Increased expectations among students is hypothesised to positively influence their satisfaction with online learning. This hypothesis is based on empirical information gathered from a thorough examination

analysing the potential association between student expectations and their overall pleasure (Shenoy & Shenoy, 2020). This study posits that there exists a relationship between student expectations and their degree of satisfaction, thus:

Assumption 4: When students come into online learning with high expectations and a strong desire to succeed, they are more likely to enjoy the experience.

5. Performance and Satisfaction of the students

Performance can be understood as the outcome of the collaborative efforts of students and teachers. The attainment of goals and achievements holds considerable importance in the field of education. The principal aim of the comprehensive educational system is to attain student success. The academic performance of students significantly impacts the overall efficacy of educational institutions and is a crucial element in fostering robust socio-economic advancement. Academic achievement has a vital function in fostering the acquisition of knowledge and skills. Jessie et al. (2021) advocate for the necessity of routinely conducting assessments or examinations. This study posits that there is an assumption about the impact of student well-being on academic performance. Consequently, it is asserted that student satisfaction positively influences academic performance in the realm of online education. Research indicates a correlation between student satisfaction and overall academic performance; hence:

Assumption 5: How well students learn from online courses is positively correlated with their degree of satisfaction with such courses.

6. Satisfaction as mediator

The purpose hypothesis aims to elucidate the importance of integrating pleasurable activities into children's educational endeavours, while simultaneously promoting academic progress. Students who possess a thorough awareness of the factors influencing their academic success often have a tendency to attain more favourable educational outcomes. The research by Barrot et al. (2021) investigated various institutional factors, specifically academic expectations, timely feedback, course design, and instructor quality. This study demonstrates that factors such as instructional quality, class organisation, feedback timeliness, and individual student ambitions substantially impact students' achievement of their educational goals.

Various factors can affect the degree of success that students attain in an online learning setting. The criteria encompass the instructor's ability, course organisation, promptness of response to students, and students' individual expectations. These several aspects collectively influence the evaluation of a student's contentment, which in turn affects their overall academic performance.

Assumption 6: Several factors influence students' performance in online courses, including the quality of the teachers, the layout of the material, the speed of the feedback systems, and the students' own expectations. There are a number of elements that contribute to students' happiness, which in turn affects their performance in school.

Research Question

The ongoing pandemic has profoundly affected various markets, particularly the education sector. This has resulted in a range of ramifications, encompassing both beneficial and detrimental effects for the firm. Despite several challenges, many institutions struggled to adapt to the altered environment, with negative consequences surpassing the positive features. Some individuals necessitated much time to effectively acclimate to the new timetable, however others shown rapid adaptability. Certain individuals shown adeptness in adapting to the new regimen. Conversely, a significant segment of the population encountered difficulties in effectively adapting to the new mindset. This challenge arose from the execution of the new pattern. Students transitioning from conventional teaching methods to contemporary online learning have noted a substantial rise in their stress levels. The implementation of additional obstacles has negatively impacted the academic performance and grades of the youth. The outlined circumstances have adversely affected the students' overall academic achievement. The initial part of the problem-solving process involves collecting information from the diverse perspectives of many stakeholders. The study aimed to explore viable solutions and improve public perception of online education. This study aims to examine the challenges, problems, and obstacles related to online education to promote the creation of more effective and appropriate solutions.

Data collection

The project aimed to engage students enrolled from 2020 to 2022 in educational institutions that provide online course offerings and online student registration. This participation was solicited via the completion of an online survey. The research employed a random number generator to select educational institutions, each of which provided a database

with information pertinent to its student population. Conversely, participants who had engaged in online educational courses for roughly ten months during their academic careers were explicitly invited to participate in the study. This phenomenon can be elucidated by the notion that the duration of participants' exposure to the system significantly influenced the severity of the symptoms they encountered. A digital survey was conducted to gather data, with participants allotted a designated time frame to answer the questions. A total of 400 respondents were finally incorporated as samples in the final study.

Data analysis

A subsequent group of participants opted to engage in the research as members of the cohort by engaging in the study. The absence of a comprehensive total throughout the analysis may be ascribed to several complex conditions. This is a potentiality. Nevertheless, one can obtain the exact statistics and details regarding the sample and participants by directly contacting the original author of the study undertaken. The analysis was conducted and its results published due to the inaccessibility of the material non question to the broader public.

Higher Learning Institutions' Approaches and Resources in the Face of Pandemic Disruption

The C-19 pandemic's promotion of social isolation among students has led educational institutions to increasingly depend on online learning to fulfil the necessity of providing educational services during emergencies. This is an unforeseen consequence of the steps implemented to halt the epidemic's progress. Scholars globally are compelled to swiftly modify their study methodologies and knowledge base for suitability on diverse online platforms. The transformation transpired abruptly, necessitated by the preexisting conditions and the surrounding environmental elements. According to the findings of Govindarajan and Srivastava (2020), the global pandemic required a significant time of trial with the adoption of remote education systems globally. This novel technique has been termed "emergency online education" in several academic research (Rotas and Cahapay, 2020). The installation of the system presented challenges for individuals and university officials, requiring rapid adaptation from those involved to maintain uninterrupted institutional operations. Furthermore, students necessitated support regarding technological issues during this developmental phase.

Although other businesses have proven their ability to fulfil the project effectively, select organizations can successfully execute the task independently. Conversely, some individuals opted not to engage in the project, whereas the majority deemed its implementation unfeasible due to the presence of numerous conditions and stakeholders. The adoption of the system presented challenges for both staff members and university administrators. These personnel were compelled to swiftly adapt to sustain the operation of the institutions despite the systemic issues involved. Moreover, challenges emerged for students needing support with the technical aspects of their education during this specific period. The mission was successfully completed by several distinct institutions, and additional organizations exist that possess the capability to achieve the same outcome. Nevertheless, other organizations opted not to undertake the work, with the overwhelming majority concluding that it was unfeasible due to the multitude of complexities and stakeholders involved in the process.

Table 1. Challenges Faced by Students in the Online Learning Environment

<i>Adoption of Online mode of learning</i>
Emotional connect
Active Academic Involvement
More time spent in class (day-today arrangements)
Managing several assignments
Strong and full Infrastructure support
High level of excellence and effectiveness
Decreased engagement
High Quality participation
Practical class understanding
Following Unstructured evaluation methods (different format)
Stress, tired and less concentration
Timely submission (assignment time management)
<i>Source: Authors Primary Data collection</i>

The onset of the pandemic has expedited the progression of the digital revolution in higher education, a process that began several years prior but has rapidly resulted in substantial changes within a few period. The previously described event commenced some years ago, although it has already led to substantial changes within a little period of weeks. Numerous higher education institutions (HEIs) acknowledge that the incorporation of technology into the educational framework necessitates significant alterations to pedagogical methods, essential competences, requisite abilities, evaluation systems, and strategies for student engagement (Sari and Nayır, 2020). It is essential for educational institutions, especially

universities, to shift from emphasising lectures as the primary teaching method to implementing problem-based learning strategies that actively include students in a digital environment (Marinoni et al., 2020). The shift from conventional in-person education to online or virtual education has profoundly influenced the whole learning process. This occurrence has necessitated a reevaluation of the skills and abilities expected from students in this new educational context (Jensen, 2019). The simplicity of adopting and utilising the online format for faculty orientation varied, with some individuals finding it basic while others considered it more tough than its actual complexity. The study revealed that the simplicity of adopting and utilising the technologies varied. The current measures of social isolation are expected to endure for an extended period. Consequently, educational institutions must meticulously reevaluate their curricula to conform to the demands of the changing environment.

The development of digital learning methods and the establishment of a complete digital learning environment, along with necessary resources and support systems, are essential for educational institutions, especially universities, to promote a successful online learning atmosphere. This phenomena can be ascribed to the increasing prevalence of online education. This methodology is the only method by which the required tasks may be completed. Online education is expected to persist for an extended period in the future. The use of technology across all stages of the educational process exemplifies the changing dynamics of education (Şahin et al. 2021).

To successfully execute digital education, it is crucial to employ some fundamental components. These aspects include the development of appropriate infrastructure and the utilisation of several technical platforms, including Blackboard, Moodle, and Microsoft Teams. Moreover, it is essential to implement servers that can support the growing demand for virtual schooling. Moreover, extensive training must be administered to both students and educators to provide them with essential skills and expertise in various online teaching approaches. This is due to the necessity of meeting the demand for virtual education. Educational institutions typically offer a variety of resources, such as webinars and manuals, to facilitate ongoing professional development for teaching personnel. Moreover, several academic institutions have established strategic alliances with commercial entities, such as Microsoft, to supply software, programs, and online platforms for collaborative electronic endeavours within academic communities. Examples of these offerings comprise Office and Teams.

The aforementioned relationships have enhanced the accessibility of resources inside academic communities. The poll results indicate that a substantial majority of individuals continue to rely on temporary, time-limited platforms. This claim is supported by the evidence that. The digitisation of the educational process can be improved through various online communication tools and platforms. These tools and platforms are internationally available and can be utilised by anybody irrespective of their geographical location. A recent empirical study was conducted at an academic institution, where researchers noted the widespread use of various technology tools for instructional support during the lockdown period. The technologies included the university online platform, instant messaging services such as WhatsApp and Telegram, video conferencing platforms like Zoom, Skype, Google Hangouts, and Google Meet, in addition to educational applications such as Google Classroom. Alongside traditional communication methods like email and telephone, there was a focus on sustaining direct communication with students. Moreover, other technology platforms, such as Microsoft Teams, GoToMeeting, and Cisco WebEx, were effective in achieving intended goals.

Table 2. Faculty Challenges during Online Teaching

<i>Technology currently in place</i>
Contextual and situational
Staff Digital Literacy Training (Server Side Support)
Teaching and learning under cover of darkness
Students' difficulty learning (the results of the course)
Efficiency Loss Delivery
Moderate levels of student engagement compared to
High levels of student engagement
Objective evaluation of results compared to students
engagement and involvement in class sessions
Lowered quality of activity amongst students
The level of teamwork dropped
Discussion, Debate, and Involvement: Content Quality
Decreased level of engagement with case studies has
decreased.
Not allowed to use all available Assessment techniques
Wasn't able to follow it fully. Rubik's Cube (as a Project)
Source: Authors Primary Data collection

Faculty members have access to a variety of educational methodologies. These strategies encompass the use of online videos for lectures, dissemination of diverse content such as slides, videos, and presentations, communication via chat platforms, organisation of debate forums or workgroups, assessment of student progress and provision of guidance, recording explanations for easy student access, among other methods.

The quality displayed a varied range of fluctuations and alterations depending on the infrastructure utilised. When used together, these instruments can be deployed either synchronously or asynchronously, depending on the specific requirements of the situation.

Moreover, to cultivate and sustain students' interest and excitement for the course material, it is essential to implement an instructional strategy that integrates many modalities of course delivery, including online options. This objective can be achieved by selecting a distribution technique that is tailored to the specific demands of the student. To clarify educational objectives for each activity, teachers must provide audiovisual resources, provide a set duration for student assignments, and employ relevant technology, including tutoring, mentoring, and student assessment. Consequently, it is essential to develop methods that efficiently encourage peer collaboration among students and enhance communication among educators. A considerable percentage of institutions assessed faced obstacles and constraints in this area. In recent years, efficient strategies for online training and evaluation have been developed in direct response to the recent worldwide epidemic. These remedies have been formulated in direct response to the recent global outbreak. The choice of a suitable evaluation methodology is crucial as it represents the concluding phase of an extensive educational process. During the shift from conventional, in-person classroom instruction to online education, educational institutions have faced significant problems and achieved considerable advancements in teaching and learning during periods of mandated isolation. This transition has occurred during intervals of imposed confinement within the region. The procedure either displayed flaws, or the products did not meet the established efficacy levels.

Increased Obstacles, Difficulties and Challenges

The teaching activities underwent swift modifications due to the disruptive impacts of the C-19 epidemic. The sudden shift from in-person instruction to remote learning necessitates a substantial modification in the educational methodology for both students and educators (Carolan et al., 2020). The execution of this adjustment is essential due to the impending obsolescence of traditional education in its current form. A segment of the student body has articulated their discontent with the execution of remote learning during the C-19 pandemic. The students have recognised internet accessibility and eye strain as major problems in their experiences.

In contrast, a significant number of students said that participating in online courses was beneficial as it mitigated the instructional time lost during the extended school closure. The execution of this adaptive strategy faced difficulties and intricacies during the entire procedure (Goudeau et al. 2021). The study by Marinoni et al. (2020) emphasises that educational institutions must comprehensively comprehend the challenges that may emerge during transformation to ensure a smooth transition and attain favourable results. The execution of this measure is essential for achieving a smooth transition. Guaranteeing continuous transmission is essential for enabling a smooth procedure. The application of appropriate approaches is essential to enhance the probability of successfully addressing these difficulties. This study aims to assess the perspectives of key stakeholders involved in the educational process, including students, educators, and institutions, to deliver a thorough understanding of the issues faced in the field of education.

A thorough analysis of the students' experiences reveals that the shift to online education presented numerous substantial hurdles, chiefly arising from technology issues. Numerous analysts underscore the likelihood that online education may intensify the prevailing digital gap (Powell et al. 2022). Universities and higher education institutions must provide resources to guarantee that all students have equitable access to appropriate information technology infrastructure, internet connectivity, and technical support to successfully surmount this challenge. In light of the present circumstances, it is imperative for educational institutions to formulate and execute policies aimed at alleviating possible disadvantages faced by students from socioeconomically disadvantaged backgrounds. Establishing a learning environment that is equitable and inclusive for individuals of all backgrounds is vital. The obstacles encountered by communities lacking enough technological resources will be far greater. Students' capacity to sustain concentration in a wholly online learning environment is impeded by various issues, as identified through empirical research. This investigation considers the emotions linked to boredom, the perception of social isolation, insufficient time allocation for diverse themes, and a deficiency in the capacity to self-organise thoughts and activities (Zhang et al. 2022). Professors have emphasised the problem of isolation in course design, highlighting the necessity of attaining a balanced integration of student - centred, personalised learning and collaborative learning. Moreover, advocates promoted the establishment of virtual communities of practice as a means to enhance collaboration and interaction among students in a common academic environment.

The fair distribution of technology resources to all students required more mentorship and interaction between faculty and students. The rising frequency of mentorship and personal coaching in educational institutions is due to a transition towards a new paradigm in teaching and learning. The aforementioned transformation results from a shift to a new standard in education.

The educators had difficulties owing to the obligatory transition, since they were compelled to swiftly adjust to novel online pedagogical techniques without sufficient training in some instances. The above indicated condition presented numerous obstacles for the educators. The rapid shift from traditional in-person education to online education requires a teaching staff with varying levels of expertise to successfully employ the different pedagogical techniques and specialised talents at their disposal. A potential disparity in viewpoints may develop between senior academics, who mostly utilise conventional research methods without digital tools, and their younger colleagues, who exhibit greater comfort and competency with contemporary technologies. Some teachers, owing to their restricted exposure to technology and reliance on in-person interactions, have not achieved the requisite competency to effectively manage their students' online academic activities. Academic academics indicate that professors have substantial obstacles in fulfilling the high demand for specialised talents. These competencies encompass advanced computer proficiency, specialised communication skills tailored for online contexts, proficient use of various teaching and learning tools, and the capacity to swiftly resolve specific challenges that may occur during instructional sessions.

Another issue that emerges is the ability to effectively utilise a diverse array of instructional and educational resources. After an initial period of adaptation to new conditions and the execution of empirical studies, researchers have developed numerous important theoretical frameworks that can be effectively utilised to tackle issues associated with remote education. Before beginning their job, online education educators must first create an appropriate physical atmosphere, including factors like lighting and acoustics. Inadequate physical infrastructure significantly impedes numerous educational institutions. To support the shift to online sessions, a comprehensive evaluation of the in-class content is essential. Integrating group activities into the instructional approach is recommended to foster passion and enhance active involvement among students. This method not only enhances students' curiosity but also fosters an environment conducive

To collaborative learning. Given the intrinsic nature of online education, it is essential to prioritise the integration of activities that are directly related to the subject matter being taught. Nonetheless, the organisation and management of group activities presented a considerable challenge inside online platforms. A substantial number of educational institutions, especially higher education establishments, are anticipated to adopt a hybrid model that integrates traditional in-person interactions with virtual formats in the near future. Academic professionals are responsible for ensuring that students in both traditional and non-traditional educational settings receive a high-quality education.

Due to the ongoing pandemic, the implementation of emergency remote teaching necessitated a total cessation of all institutional activity. To enable the implementation of a sustainable framework for online education, educational institutions must leverage technology to reconfigure pedagogical strategies, reform assessment methods, redefine the role and use of traditional faculty (offering specialised instruction), and emphasise value through the re-envisioning and ongoing improvement of the service model. The schools under review demonstrated a lack of sufficient opportunities for dialogue and interaction between teachers and students. Therefore, it is necessary to enhance the platform to promote increased engagement and communication between these two groups. It is essential for students, educators, and administrators to engage in joint efforts aimed at providing support and evaluating the advancements stemming from the digital revolution. To successfully implement this transition, higher education institutions must address the financial constraints and limitations imposed by their existing information technology infrastructure. The decrease in government funding would lead to a proportional cut in the budgets assigned to public entities. The uncertain economic climate will simultaneously result in a decrease in enrolment numbers. The limited accessibility of IT infrastructure at academic institutions may impede their ability to fully adopt digital transformation, hence requiring targeted investments to improve their technological skills. Notwithstanding these obstacles, educational institutions generally maintain an optimistic outlook toward this transformation.

Cumulative Outcome of Responses- Qualitative analyses

1. The primary challenge they encountered was associated with the educational atmosphere present in the students' residences. A significant secondary obstacle experienced by the individuals in question was a lack of adequate computer knowledge and skills.

2. The pre-existing issues faced by students were exacerbated by the pandemic. This was particularly evident for the improvement of their educational experience, the safeguarding of their mental well-being, the sustenance of their financial stability, the promotion of social connections, and the protection of their mobility rights. Moreover, the global health crisis has exacerbated the challenges that students face regarding their mobility and freedom of movement.
3. The learning environment, characterised by several challenges, presents a significant impediment that students must surmount. The challenges encompass various disturbances that may arise in residential and hostel environments, particularly those caused by noise. Moreover, there are limitations about the accessibility of appropriate study areas and necessary resources. These constraints are quite substantial. Noise disruptions constitute one of the several forms of distraction that individuals may encounter in their focus.
4. The installation of lockdown measures has significantly and adversely affected the provision of educational opportunities for children. This is particularly applicable to students' participation in activities like internships and laboratory experiments. Moreover, this phenomenon has led to a reduction in interpersonal interactions between children and their teachers and peers, contributing to a rise in the incidence of sadness, stress, and anxiety among students.
5. It has been asserted that students from economically disadvantaged households have encountered financial challenges as a direct result of the measures enacted during the lockdown. The aforementioned pupils have said that they believe their experiences are a result of the implemented protocols.
6. A significant portion of the participants voiced concern about the restricted involvement of instructors in digital educational environments. Consequently, this phenomenon leads to a decline in participants' intrinsic motivation to engage in academic activities, ultimately resulting in a decrease in overall educational standards. The apparent deficiency in academic engagement may largely stem from several key factors, notably the limited interaction between the teacher and pupils, as well as the presence of numerous distractions inside the classroom setting.
7. Students have indicated an increased sense of social isolation due to the use of prophylactic measures intended to reduce the transmission of the virus between individuals. Restrictions on participation in collaborative endeavours and extracurricular activities occurring beyond school premises are incorporated in the preventive measures. A lack of intellectually stimulating academic discussions or debates was observed in the vicinity of the tea and coffee establishment. This was noted to be the situation.

DISCUSSION AND CONCLUSION

The worldwide ramifications of the C-19 epidemic and the advent of digital learning assistance tools have generated unexpected potential for revolutionary transformations in higher education globally. In the modern age marked by digital progress, it is improbable that online education will become obsolete. Notwithstanding the onset of the C-19 epidemic, online schooling has remained pivotal. The study's findings reveal that diverse technological tools, including educational applications, streaming conferences, web-based learning platforms, video conferencing tools, Massive Open Online Courses (MOOCs), and instant messaging tools, are utilised to improve the efficacy of online learning. The rapid and mandatory transition to online learning created numerous issues for the diverse stakeholders in the educational system, including students, educators, and institutions. Some folks reacted promptly, while others needed time for reflection, and for a few, the experience offered a pleasurable chance for growth and development. Universities must recognise these difficulties and swiftly dedicate resources to tackle them. Particular attention must be directed towards the digitalisation of the educational process, guaranteeing that academics, administrative staff, and students obtain thorough training in specialised technology. This will allow them to refine their talents and adeptly adjust to the requirements of a technology-driven landscape. To resolve the issue of fair access to essential technical resources, educational institutions must prioritise the improvement of their technological infrastructures.

Realising extensive digital change at this magnitude requires a monetary investment. The full implications of the shift to virtual learning for the future of higher education are not yet fully comprehended. Universities should endeavour to establish a sophisticated blend of in-person and online training. This strategy will enable them to efficiently leverage available technical resources, fulfil student expectations, and enhance their learning experience in the current digital environment. This study seeks to adopt a proactive approach to synthesise essential ideas on the transition from traditional higher education to online learning, in light of the shift towards online education and recent research. The human factor significantly hinders technological progress. For the transition process to achieve best outcomes, alignment among institutional administration, leadership, and all pertinent stakeholders, including teachers, students, and technical professionals, is essential. To ensure a successful transition in higher education, prioritising faculty development and the implementation of specialised policies is essential.

These steps are essential to cultivate institutional resilience and improve readiness for crisis management in the imminent future. The rise of digital technology and the increased accessibility of information have created an era marked by unprecedented risks to personal privacy and security. To cultivate an environment marked by openness and dependability in online education, it is essential for educational institutions to confront these challenges by instituting codes of behaviour.

SUGGESTIONS BASED ON THE STUDY INTERVENTION

1. To alleviate potential issues, it is essential to prioritise readiness and preparation prior to initiating the implementation of online learning. If this activity is not executed, it may become essential to identify and resolve any impediments that occur during the implementation phase, hence necessitating the arrangement of training sessions.
2. In virtual classrooms, employing various pedagogical tactics, such as interactive discussions, formative evaluations, and question-and-answer exchanges, can significantly improve student involvement. The attainment of this purpose can be accomplished via facilitating the learning process. Moreover, it is advisable that use cases be articulated in a succinct, clear, and potentially engaging fashion. For example, demonstrations or puzzles may be categorised inside this specific classification.
3. Kindly strive to generate material that predominantly emphasises the pragmatic dimensions of the program. The content must include a variety of examples, real-world scenarios, and a specific part designed to encourage free and unrestricted dialogue.
4. Directions and recommendations for the correct execution of The use of technology into the educational framework is essential to improve the overall effectiveness of instruction and learning outcomes. The evaluation of training design, whether executed internally or externally, can be improved by focusing on the utilisation of contemporary technologies.
5. Given the significant duration students generally spend in their home setting throughout online programs, it is practical to offer counselling and mentoring services to their family members. The use of online platforms enables the analysis of individuals' motivations and interests across various subject areas.
6. It is essential that those experiencing stress, despair, or anxiety are granted access to counselling services offered by the Institute. Moreover, the Institute must take responsibility for adequately addressing mental health issues. The participation of professionals and experts in thesis sessions is possible, provided that
- 7.

adequate resources are available.

8. The faculty is presently conducting meetings and discussions to ascertain the most efficient approach for delivering education via online platforms. One may choose to employ professionals from either internal or external sources. In online education, skill development is crucial as it requires a unique approach and a certain level of expertise.
9. It is recommended to improve the content quality to render it more interesting and inspiring. Furthermore, it is recommended to incorporate engaging content into each presentation. Moreover, enhancing the use of visual aids, such drawings and diagrams, might be beneficial.
10. Questionnaires created to collect data regarding the needs of students and academic personnel. It is prudent to execute an intervention tailored to the needs of the individuals concerned, while taking into account the existing data. The implementation of this method is expected to result in improved participant engagement and heightened active involvement during the sessions.
11. The existence of a strong internet infrastructure, including a dependable Wi-Fi network, is essential for educational institutions. Moreover, it is essential for these schools to offer an online platform that adequately supports students lacking home internet access or facing inadequate connectivity. This situation is ascribed to the increasing number of students facing restricted access to internet connectivity within their homes.
12. To meet the expectations of the general public, it is essential to design, develop, and implement a digital platform that can address their needs, is user-friendly, and shows a significant level of effectiveness. The chat window design and the streamlined question-and-answer format of the user interface have been created to optimise interaction by providing a fluid and engaging experience. The practicality of this is enhanced by the user - centred design of the interface.
13. Given the varied socioeconomic origins of the student population, it is crucial to guarantee the availability of necessary infrastructure. The use of current technology can provide hurdles; nevertheless, these obstacles can be surmounted by fulfilling the necessary requirements.

Implication of the study

The goal of this study was to provide practical insights to university administrators, policymakers, and decision makers responsible for online education, allowing them to make educated decisions based on accurate data. To reach these conclusions, we will first identify areas of concern and then propose some possible solutions that can be implemented. The study's findings will help to improve the current online program at colleges, universities, and higher education institutes, resulting in a higher level of efficacy,

as well as investigate the viability of implementing an online learning model throughout the entire educational institution, encompassing all of its separate departments and classes. Furthermore, it aims to address the pragmatic issues that students are expected to face as a result of the shift to online education, with the goal of providing practical answers. This is done to prevent students from falling behind in their studies.

Research Model

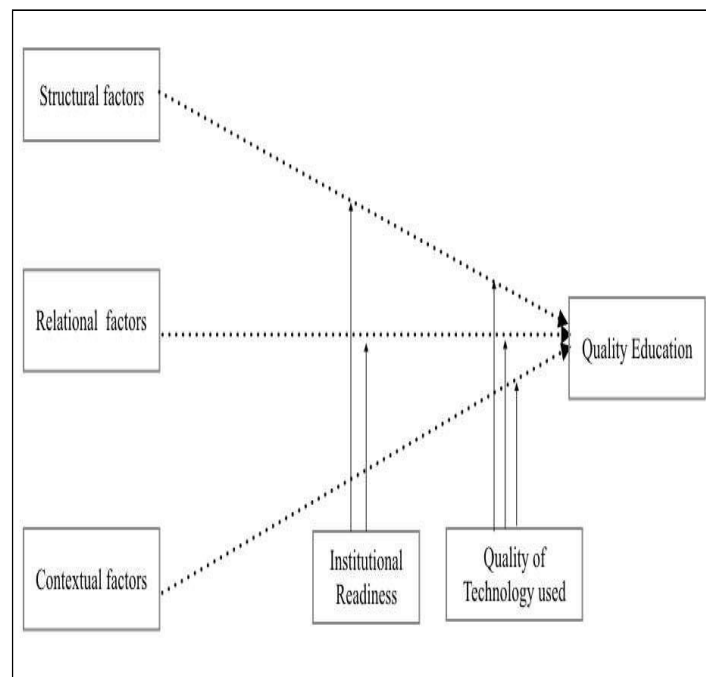


Fig 2: Hypothesised conceptual framework. A hybrid model for offering Quality Education in a Latent Path Analysis framework.

Ethical statement / declaration

Specifically, the statement should contain the name and location of the institutional ethics reviewing committee or review board, the approval number, the date of approval, and the details of the national or international guidelines that were followed, as well as any other relevant information.

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