

Online Learning in Higher Education during COVID-19

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Abstract

With time trends toward digital patterns are more in a manner adopted by educational institutions as providing quality education requires a certain amount of medium of communication in order to continue deliverance towards enrolled students. Online education has become a trend as people are more focused on taking online education rather than physical. The adoption of e-learning increased within pandemics as higher education commissions integrated digital patterns to ensure the engagement of students during the Covid-19 situation. Collaboration among students with course instructors and university management assists in providing students with on-time lectures. The transformation of educational practices associates several challenges and benefits for both educational institutes as well as towards students. Identifying relative online processes implemented during pandemics within e-learning techniques was the centre focus as by involving educational management certain number of pros and cons will be highlighted within the current study. The current study aims to identify the influence e-learning approach on the higher education process during the Covid-19 situation. The study's research objectives focus on identifying certain benefits of e-learning and relative challenges associated with delivering online education within pandemics. The literature section in the study will highlight traditional approaches of physical teaching and transformation being practiced within a time frame. The methodological section will provide various processes and relative directions adopted in the study in order to involve participants in the study. The current study used a mixed methodology, i.e., quantitative, qualitative etc. The participants are students of higher education, i.e., universities. By conducting interviews and a five-point Likert scale questionnaire, data is being collected from the participants. Results are generated by using thematic analysis and SPSS. The results are included in the study on the basis of which developed research objectives are justified, and the purpose of the study is accomplished.

Keywords: Online Learning, Higher Education, COVID-19

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Introduction

Background of the Study

Covid-19 altered the mediums of every management core in the context of various sectors. The lockdowns and the restricted movement during the onset of the Covid-19 pandemic asserted effects on almost

every product and service sector. During the lockdowns during the time of the pandemic of Covid-19, there was an unexpected and long closure of the educational institutions, which prompted the educational authorities around the globe to shift from the traditional learning mechanism (Camargo et al., 2020). As a result of this, online learning has been adopted across the globe to prevent a longer halt in the education and learning processes. E-learning is adopted in every educational institute ranging from primary to the higher education sector. E-learning refers to the phenomenon under which the learning process is carried out by the utilization of electronic devices like laptops and mobile phones without any physical restriction of remaining inside the premises of the classroom (Maatuk et al., 2022). The traditional learning processes were completely replaced by online learning under the lockdowns for catering for the pandemic. Hence online learning played a key role in the continuation of learning processes during the pandemic restrictions.

Furthermore, online learning also played a key role in limiting the spread of the virus, as a social gathering in the classroom and physical interaction got eliminated. During the pandemic of covid19, online learning was regarded as one of the most significant tools for ensuring the academic process's continuation. Before the emergence of the covid19 pandemic, very few students, especially in the context of higher education, were familiar with online learning, but the pandemic restrictions forced the Higher education authorities to proceed with digital and online learning for higher education across the globe. As per the reports of UNESCO, around 194 countries suspended physical and educational institutions during the pandemic, and more than 1.5 billion students got affected worldwide (Tadesse and Muluye, 2020). However, the utilization of online learning minimized the educational damage to some extent.

Moreover, the process of online education was not easy for the higher studies as the student was reported to face many problems such as IT issues and internet connectivity, followed by knowledge and handling of digital teaching resources. However, some higher institutions effectively implemented online learning by channelized planning and implementation. Another vital element associated with online learning is that E-Learning makes the university-based educational process affordable and accessible while also transforming the educational methods into an interactive model (Chang and Fang, 2020). The current research study explored the multiple dimensions involved in the process of online learning for the sake of higher education provision during the pandemic of COVID-19.

The adoption of E-learning techniques enhances learning practices as implementation was processed from primary educational institutes to the domain of universities. The implication of online learning techniques provides ease for management within educational institutes (Syauqi et al.,2020). Within the pandemic, the initiative towards providing effective learning to the students becomes necessary. In order to maintain certain standards of procedure, the transformation towards the online process is applicable as the engagement ratio of students has increased largely. The higher education commission provides large-scale investment in order to practice quality education on the basis of which students are provided with an effective outcome. The integration of online techniques creates relative understanding regarding digital methods to be used within current educational practices in order to increase students' relative abilities and skills. The major challenges associated with online methods within Covid-19 are the usage of digital patterns to communicate and interact with students daily, which becomes a significant problem (Shahzad et al.,2021).

In order to process the E-learning approach globally, the intervention by local government and regulatory authorities is being practiced for bringing innovative development within private as well as public sectors of education. Although the situation of the pandemic created socio-economic downfall, however, in order to sustain the educational process, the role of educational management, government institutes, faculty members, teachers, course instructors, students, parents etc., was larger due to which continuous improvement is being practiced within the Covid-19 situation (Carrillo and Flores.,2020). Disciplinary practices and professionalism is the core emphasis by the management and course tutors on the basis of which an effective learning process is being introduced. In order to enhance the engagement ratio, coordination and cooperative strategies are being practiced in order to bring effective growth. The implication of digital techniques to be introduced within the online teaching methods becomes relevant, i.e., by providing online classes on zoom, google classrooms etc., providing time learning opportunities for students (Nambiar.,2020).

The integration of artificial intelligence and the internet of things (IoT) provides certain delays as educational institutes are practicing efficiency. In order to provide students with quality education, various timings are being provided to increase the student's motivation level (Alqahtani and Rajkhan.,2020). The virtual learning practices provide both opportunities, i.e., audio, video etc., on the basis of which relative educational experiences are being conveyed to interested students. By utilizing online learning dimensions, the higher education commission provided enhanced engagement level of the students by initiating comfort and flexibility

towards management of the educational institutes. In order to provide technical skills to students, various educational workshops are being provided on the basis of which development will be processed among the students (Cicha et al.,2021). It is being identified that implication of E-learning techniques, i.e.by, introducing virtual classrooms on zoom application, web e-learning, video methods etc., is more accessible to educational practitioners as by providing customized material to students, their cooperation practices are being enhanced.

It is being identified that with time, the adoption of digital technological patterns creates relative awareness within the educational management to introduce online methods within current educational practices as it is a resource-based process, i.e., time, cost etc. Moreover, it initiates accessibility and affordability for students on the basis of which quality education will be provided.

Purpose of the Study

The purpose of this study centralized over the cores of online learning adoption for higher education during the pandemic of Covid-19. The primary purpose of this research study revolved around investigating the online learning dimensions in relation to higher education. Besides this, the study also highlighted some of the major positives associated with online learning-based education during the pandemic, followed by enlisting some of the major problems associated with the effective adoption of online learning for higher education.

Literature Review

Positives associated with Online Learning in Higher Education

Many research studies and literature highlighted the importance and benefits of online learning adoption during the pandemic and the movement restrictions imposed during Covid-19. According to the findings of a research study, online education followed the cores of distant learning, which played a key role in the successful accomplishment of limiting the spread of Covid-19 while continuing the learning process, as in the context of higher education, the unwanted delay during the educational process would damage the education and learning of adults, but the adoption of online learning allowed the safe and less stressful learning for the individuals involved in the higher education (Pelikan et al., 2021). Besides this, another research study established the fact that online education also significantly contributed to mental and physical well-being in a positive manner by eliminating the element of fear, stress and anxiety during the learning process (Bolatov et al., 2021). Hence Online learning displayed some of the major positives during the process of learning in higher education provision.

Besides this, some of the researchers highlighted the overall benefits associated with the implication of online learning in the context of Higher education. Online learning allows students to juggle versatile careers as they proceed toward professional and academic life with an alignment under flexible learning schedules and distant classes. Moreover, online learning also made the higher learning process cost-effective as the cost of travelling and campus accommodation got eliminated; this factor created equality among the diverse student base involved in higher education (Xie et al., 2020). Moreover, another research finding elaborated on the fact that online learning was associated with the creation of networking across the global channels that formed the integrated network of educational providers across distant borders (Zhao et al., 2022). Thus, the cores of online education are highlighted to be associated with some of the major advantages.

According to the study of Adeoye et al. (2020), it is being identified that in order to provide complete course classes to students on the basis of online methods, there associate technical materials with being used as well as proper technical staff and a technical maintenance team in order to avoid certain technical hazards. In this regard, the coordination between educational management and technical staff needs to be practiced effectively to manage lectures. Moreover, effective coordination is required between teaching staff and course tutors in order to provide quality education during pandemics. Online e-learning practices involve effective communication between students and their teachers to attain productive outcomes. It is significant responsibility towards educational management to maintain the relative interests of investors, i.e., government, private etc., on the basis of which significant growth is being practiced during the Covid-19 situation as well as the post-pandemics time frame is being managed as well (Besser et al.,2022).

By promoting online education, relative interests and motivation among students will be managed in the long run (Arora and Srinivasan.,2020). It is being identified that online educational practices are cost-effective for students as providing subject and course programs within online methods is relevant. The convenience associated with the online e-learning approach is larger as compared to physical methods, i.e., time, cost etc. It can be seen that consistent development within educational practices is being processed within the pandemics time frame (Marek et al.,2021). The ratio of responses from students, i.e., primary, secondary, university etc., increased to a larger extent, which influenced positively maintaining higher efficiency within teaching practices. In order to maintain sustainable growth, transformation towards online methods is beneficial enough as energy

consumption is minimal. However, the physical teaching approach associates larger carbon emissions as face-to-face interaction consumes more energy than online methods.

It can be seen that human resource practices within the educational process initiated during the Covid-19 situation on the basis of which highly qualified staff and experienced teachers were recruited by using online methods. According to the findings of Garris et al. (2022), it is being identified that hiring policies were focused largely on recruiting educational staff who possess certain capabilities regarding the deliverance of course and subject lectures by using online e-learning techniques. Moreover, new teaching staff must possess relative past experience regarding teaching online courses to students as certain capabilities towards handling students via online methods must be possessed by teachers (Almanthari et al.,2020). Providing online lectures by using audio and video techniques will be relevant on the basis of which student engagement ratio will be practiced effectively. The integration of zoom and google classroom methods creates a relatively enhanced coordination ratio between students and lecturers.

Lacking in Online Learning

Despite the success and mass adoption, many research studies indicated the negative elements associated with the adoption of online learning in higher educational settings. A research study established the fact that online learning developed an additional workload over the faculties associated with higher education provision, and the teachers faced psychological stress over the online teaching cores (Chandra, 2020). Besides this, a researcher also elaborated that the students and teachers faced technical difficulties in virtual platform utilization. Furthermore, online learning highlighted ineffective education in medicine, nursing and sport-related education. The researchers also highlighted the element of excessive teaching and a lack of relationship development between students and teachers (Zarei and Mohammadi, 2021). These factual findings established the lacking associated with online learning.

According to the findings of Almusharraf and Khahro. (2020), it is being identified that in order to stabilize economic decline the educational practices are transformed towards digital platforms in order to process effective growth; however, relative challenges encountered involve less know-how regarding digital methods to be used by new practitioners and relative students due to which there associates mental stress and negative influence towards psychological wellbeing of students. Moreover, the technical risks associated in order to deliver course lectures to students by using online patterns reduce the motivation level of educational management. It can be seen that stakeholders associated with educational institutes include, i.e., management, faculty, lecturers, course instructors, teachers, students, parents, investors, government etc. The research study of Mouchantaf. (2020) indicates that to fulfil stakeholders' expectations, online methods were introduced to create relative growth within the educational sector, i.e., private, public etc. In this regard, large-scale investment is being practiced to bring online advancements and relative improvements within online teaching methods.

One of the significant challenges encountered within the online e-learning process involves a lack of knowledge among students and educational management, due to which the majority of students faced certain hurdles while managing digital technological principles in the beginning. In this regard, maintaining an online learning environment becomes relatively difficult for educational management (Coman et al.,2020). As the educational sector is the major contributor to economic growth within a country, therefore, effective utilization of resources needs to be practiced efficiently. In order to maintain educational practices, consistent online learning activities were introduced in order to provide significant know-how towards online usage. In this regard, the assistance of technical staff is being processed in order to reduce technical errors. Moreover, in order to guide teachers as well as students regarding the proper utilization of technical equipment is being practiced largely (Kamal et al.,2020). The arrangement regarding virtual classrooms and online zoom meetings is being practiced in order to provide quality education towards associated subjects and courses.

It can be seen that relative perceptions of administrative staff functioning within educational institutes regarding the adoption of online methods of education create relative challenges for educational management to practice effective learning towards students; however, on the basis of learning activities, relative mindset within the educational staff is being transformed towards positive professional attitudes (Ali.,2020). Moreover, various educational process involves practical learning practices which are not applicable to be delivered via, i.e. online e-learning methods. As nursing and engineering courses will be delivered on the basis of physical methods rather than an online approach in order to engage students efficiently requires face-to-face interaction among course teachers with students. According to the study of Armstrong-Mensah et al. (2020), the practical usage of equipment, machines etc., is being practiced within engineering courses. Similarly, teaching nursing courses requires physical interaction with patients etc. In order to provide quality deliverance to students belonging to engineering and nursing courses requires physical means rather than using online methods.

The research study of Subedi et al. (2020) indicates that nursing institutes involve providing physical education to students as new nursing practitioners will be assisted effectively by engaging face to face rather than by online methods. In order to maintain effective development among students, a practical approach is relevant enough on the basis of which the productivity ratio will be enhanced. In this regard, significant barriers are being encountered by nursing management towards delivering course education to students. Moreover, digital literacy provides add-on risks toward efficient lecture deliverance, due to which huge communication gaps are created between the course teachers and students relatively. Technical errors, as well as larger illiteracy among users, create certain time delays and higher costs to be introduced in order to conduct proper lectures. Moreover, students learning experiences were influenced largely due to certain barriers encountered within an online educational process, as implementing e-learning methods requires collaborative principles to be practiced on the basis of which the ratio of errors will be reduced (Naciri et al.,2020).

It can be seen that a lack of know-how regarding the usage of digital online techniques creates certain hindrances among educational management, as providing efficient deliverance of lectures becomes relatively challenging. The implication of online e-learning techniques within pandemics creates certain problems for its users (Rajab et al.,2020). In order to provide consistent quality education to students requires relative interest among both management as well as students on the basis of which continuous development will be processed.

Adoption of E-learning approach

In order to adopt E-learning techniques, relative difficulties are being encountered by management in order to transform operational activities towards online platforms. According to the research study of Almaiah et al. (2020), it is being identified that the rapid change practiced by the higher education commission within pandemics creates relative challenges for course instructors in order to provide students with quality education requires concentration of both teachers as well as students. The implication towards expeditionary learning techniques creates intellectual development within students as in order to enhance their motivation ratio relative innovative methods were introduced from time to time to increase students' interest and engagement. In this regard interacting with students of primary institutes becomes a challenging task as a smaller age group requires large-scale cooperation from the management and teachers. It is being identified that in physical classrooms, extra-curricular activities increase the cooperation ratio of the students with teachers; however, interacting with students on online e-learning platforms is associated with significant risks (Subashini et al.,2022).

The research study of Patra et al. (2021) concludes that challenges associated with E-learning and online methods involve, i.e., technical errors, lack of concentration, psychological stress etc., due to which many institutes fail to provide quality education to students within the pandemic time frame. In order to integrate continuous improvement practices by initiating training methods for providing relative learning towards online teaching, patterns will improve engagement and coordination ratio among students with teachers. Similarly, by introducing extra-curricular activities, coordination between course instructors and students will be increased. The initiative toward extra-curricular activities is being processed in order to increase the motivation ratio of the students towards studies (Dahleez et al.,2021). In order to enhance psychological development within students, proper training is being provided to course instructors in order to improve course and subject learning on the basis of which relative growth will be practiced.

The implication of e-learning practices is being adopted by educational institutes in order to overcome significant challenges faced during pandemics regarding physical processes. The transformation within educational policies is being adopted in order to provide relative comfort towards educational management on the basis of which stability will be maintained within the educational system (Susilawati and Supriyatno.,2020). It is being identified that face-to-face teaching methods were avoided in order to maintain standards of procedure. The positive perception among students regarding online teaching methods creates relative development within educational policies. The implication of audio and video techniques brings relative advancement within online e-learning methods as government and private investment creates broader aspects to be introduced within educational practices as certain opportunities were provided towards educational management as well as students (Yulia.,2020). The learning process was transformed positively among students as focusing on career development practices became simpler.

By using digital means, i.e., equipment etc., relative communication between teachers and students is created on the basis of which provide online course lectures becomes simpler, according to a research study by Baber. (2020), the encouragement provided by teachers and parents creates relative motivation among the students on the basis of which their learning capabilities were enhanced during the Covid-19 situation. Introducing online e-learning activities increase the engagement ratio among students to take timely lectures, which influences the improvement of their examination results in order to overcome psychological distress

during the Covid-19 situation the involvement of educational management with students' results is beneficial enough. Online learning activities create productive knowledge within students on the basis of which positive motivation will be developed (Fauzi and Khusuma.,2020). The influence of digital technological practices provides ease towards gaining online education for practitioners and students. It has been identified that the e-learning approach creates significant motivation and dedication among students.

It can be seen that traditional educational practices, i.e., physical, face-to-face approach etc., are transformed towards electronic methods, i.e., online e-learning techniques, and digital technological principles on the basis of which effective deliverance of courses is being practiced. Although physical methods of teaching involve creativity principles and certain innovative concepts on the basis of which students' interests and their learning capabilities will be enriched (Radha et al.,2020). As physical activities conducted within classrooms develop a relative interest ratio of the students and their dedication will be increased towards each course or subject. However, delivering course curricula by using online e-learning methods will be efficient for teachers as well as students as accurate learning will be processed. There is no doubt that digital technology practices involve various techniques on the basis of which proper lectures will be delivered to enrolled students. In order to maintain effective coordination among teachers and students requires effective means of communication on the basis of which efficient conversation will be maintained (Iglesias-Pradas et al.,2021).

Benefits of online education practices

According to the study of Fatonia et al. (2020), it can be seen that the adoption of online methods within a digital technological process is more relevant and comparatively economical as it develops communication among teachers and students regardless of distancing. Within the pandemic time frame, the imposition of a lockdown situation created certain hazards and numerous challenges for the higher education commission. The government's involvement becomes a necessity as operational risk is associated with initiating an online educational approach. In this regard, large-scale investment is being practiced by both governments as well as private investors in order to transform educational practices from physical to online methods (Simamor., 2020). The predicted outcomes associated' with large-scale risks, such as technical failure, lack of engagement between students and teachers etc., are the centre of attention. However, the response ratio was higher as promotional activities were being processed to provide relative know-how to new practitioners. The emphasis of the course instructors was on course assessment, learning outcomes, subject or course outline, etc., to initiate quality education for enrolled students within each course.

In order to continue educational practices within the Covid-19 situation, health protocols were considered on the basis of which online methods were prioritized by regulatory authorities and educational institutions (Hoq.,2020). The administrative policies were transformed towards virtual activities on the basis of online applications. However, educational institutes encounter a vast number of challenges; however, virtual platforms provide ease towards educational management. The findings of Ilieva and Yankova. (2020) indicate that the integration of advanced technical principles brings new processes within online approaches, due to which maintaining effective communication becomes relatively simpler. In order to initiate continuous improvement practices within the educational system, the implication of the digital online process indicates significant growth within the primary as well as a secondary educational process. It can be seen that stakeholders associated with the educational process are involved, i.e., students, teachers, course instructors, school administrators, government etc. The educational policies are designed in order to fulfil relative stakeholders' expectations and their relative interests.

The advancement techniques within the online learning process bring relative development as within post pandemics time frame; the adoption ratio increased to a larger extent. The ratio of social engagement is enhanced as the contribution ratio from parents provides relative comfort towards educational management, according to a research study by Mseleku. (2020) the positive attitude among the students assists in the learning process, which results in gaining significant growth within educational practices during the Covid-19 situation. The learning behavior of the young students was positively impacted as psychological motivation reduces certain bottlenecks on the basis of which stabilized learning growth is being practiced. In order to maintain the literacy rate stabilized during the Covid-19 situation, online methods provide a relative gateway for educational practitioners and students. In order to enhance children's growth principles and development process, strategic coordination among educational management with students becomes relatively significant on the basis of which relative interests of the students will be managed. The integration of online digital development techniques creates relative know-how among the parents to convince their children to utilize online methods in order to continue their studies (Jena.,2020).

The strategic collaborative decisions taken by primary and secondary educational institutes provide significant development toward educational practices. The regulatory influence practiced by a local government with educational administration to bring relative growth within the education system and current policies initiate effective principles. However, the adoption of e-learning techniques negatively influences physical activities, due to which the physical well-being of students is impacted largely (Cutri et al.,2020). As for social nurturing and mental development, the influence of physical activities is relevant; however, in order to provide students with effective education during pandemics, relative processes were adopted from time to time. By maintaining professional practices, transformation within educational policies is being practiced. The implication of virtual classrooms and online zoom meetings provide ease for lecturers as well as practitioners, i.e., students etc., as an order to deliver the course and subject lectures become simpler (Irawan et al.,2020). By providing online education, creative management will be processed. Moreover, learning capabilities regarding time management will be practiced efficiently.

Methods

The current study will focus on a mixed methodology within which both qualitative as well as quantitative methods involves, according to the findings of Ryser. (2021), it can be seen that by using both methods within a study, more relevant and accurate results will be collected. By involving human subjects in a study, a more elaborate discussion will be practiced. As the current study is conducted within the pandemic time frame, therefore, online questionnaires will be collected by the involved participants, which indicates a quantitative methodological approach. The rationale for using the online questionnaire technique is that it is one of the economic approaches, i.e., time, cost etc. The core objective of the researcher is to manage resources while conducting a study. Moreover, the online questionnaire technique will provide confidentiality to involved participants as their personal information will be secured. Moreover, the study includes a qualitative approach within which structured interviews will be conducted (Natow.,2020). On the basis of in-depth structured interviews, relative feedback will be collected.

Participants

The participants considered within the study will be students of different universities from which both questionnaires, as well as interviews, will be conducted. The sample size within the study will be 150, from which quantitative data will be collected on the basis of the questionnaire technique. Moreover, in order to collect qualitative data, the interview will be collected with five respondents who will be enrolled on different universities. The participants will be provided with complete information regarding where their data will be used. It is the responsibility of the researcher to provide complete confidentiality towards the responses of the participants, as their informed consent needs to be considered while involving them within the study (Arifin.,2018). In the same manner, providing security for the personal information of the participants is significant. In this regard researcher's direct involvement with the participant is significant. According to the research study by Broesch et al. (2020), the respondents will be provided with complete freedom to withdraw their responses anytime from the study whenever they feel uncomfortable in order to store collected data from online questionnaires; password-protected USB devices will be used, which will consist of encrypted folders. Further, the data will be secured within password-protected laptops, which will consist of encrypted folders.

Research objectives

- To study the effect of the Covid-19 situation on the higher education process.
- To investigate the impact of e-learning techniques to cope with challenges encountered due to Covid-19 within the higher education system.
- To identify the challenges faced by students of higher education institutes during the e-learning process.
- To evaluate the benefits of the e-learning process for students during Covid-19.
- To recommend improvements within the e-learning process.

Research Methodology

The research methods to be used within the study associate, i.e., qualitative and quantitative etc.

Qualitative Research

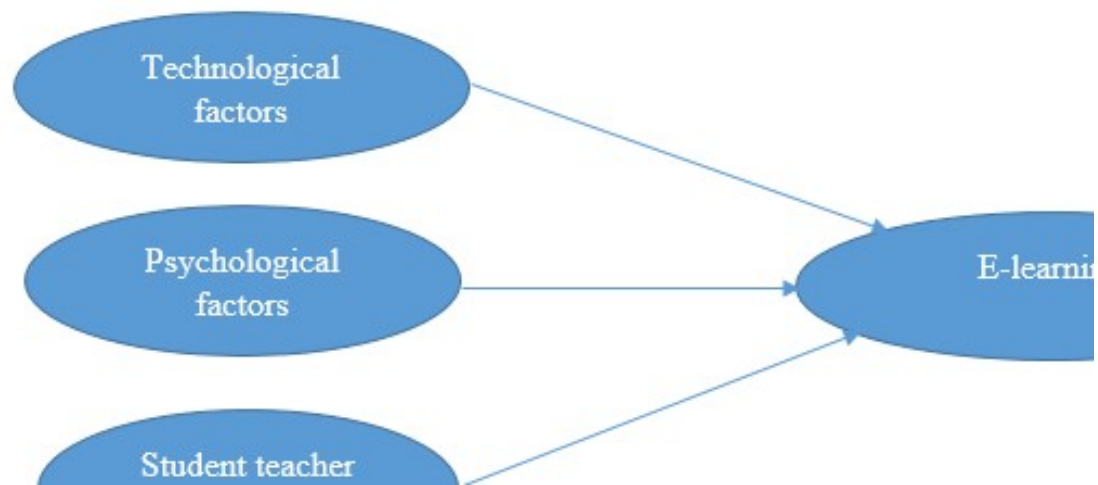
In order to collect primary qualitative data, interviews will be taken with students who are involved in the study. The students will be selected on the basis of a random sampling technique within which various universities will be considered (Iliyasu and Etikan.,2021). Moreover, in order to conduct interviews, a physical setting will be arranged where interviews will be conducted. In order to provide confidentiality for involved students, a proper room will be arranged for conducting a face-to-face interview with respondents. In order to ensure the validity of interview questions, expert opinion will be considered. The responses collected from participants will be

analyzed on the basis of thematic analysis, as within primary qualitative studies, thematic patterns are used in order to identify common themes within the responses of the participants.

Quantitative Research

In order to collect primary quantitative data, the closed-ended questionnaire will be used, which will be measured on the basis of the five-point Likert scale technique. Moreover, for collecting relative responses of the involved participants, online methods will be used. In order to further analyze relative responses collected from students, SPSS software will be used.

Research framework



Findings

Qualitative results

Results

Primary Codes	Axial Codes	Frequency of Occurrence
Role of e-learning towards students learning capabilities	<ul style="list-style-type: none"> • Psychological well-being • Develops relative interests and comfort toward students • Cost-effective, i.e. reduces time, effort etc. • Increase concentration and motivation ratio. 	<ul style="list-style-type: none"> • 3 • 4 • 2 • 4
Challenges faced within the e-learning process	<ul style="list-style-type: none"> • Technical errors • Lack of time management process • Less engagement due to communication gap • Difficulty in handling online mechanism 	<ul style="list-style-type: none"> • 3 • 4 • 2 • 1
Influence of technological process in bringing e-learning improvement	<ul style="list-style-type: none"> • Large-scale investment by the government • Certain accuracy and precision due to advancements • Time management by reducing delays. • Large adoption due to new processes • Continuous improvement 	<ul style="list-style-type: none"> • 4 • 3 • 2 • 2 • 4
Benefits of using an e-learning approach	<ul style="list-style-type: none"> • Quality deliverance of education. • Innovative learning practices, i.e. audio, video etc. • Cost-effective approach 	<ul style="list-style-type: none"> • 4 • 3 • 2
Different aspects of educational learning	<ul style="list-style-type: none"> • Physical teaching process • Online teaching approach • Lack of communication gap • Concentration and collaboration principles. 	<ul style="list-style-type: none"> • 4 • 3 • 2 • 4

Discussion

Role of e-learning towards students learning capabilities

The participants in the current study considered the e-learning approach as beneficial for gaining a quality education. According to the research study by Farhan et al. (2019), e-learning results to be favorable approach within pandemics time frame.

Participant:1

".....Umm, in my point of view, the e-learning practices are efficient enough order to engage students within a pandemic time frame, as psychological well-being is impacted negatively by a majority of practitioners and students enrolled on various courses. The implication towards online e-learning techniques create significant development within the education process as providing quality education becomes relatively simpler on the basis of online methods."

Participant:2

".....Yes, of course, the initiative toward the e-learning process creates relative opportunities for course teachers to convey their lectures by coordinating effectively with the students. The engagement ratio among both increased to a larger extent during the Covid-19 situation. The implication of e-learning practices results to be favorable towards educational stakeholders."

Participant:3

"..... In my point of view, the adoption of the e-learning process positively influences towards mental well-being of the students. The mental distress encountered by students within physical classes created an effective impact on their learning capabilities. However, taking online classes creates physical as well as mental comfort, which impacted their wellbeing significantly."

Participant:5

".....Umm, in my point of view, e-learning practices are beneficial as in order to process effective engagement between students and course instructors, online methods are better than face-to-face approaches. It can be seen that distant (remote) learning is possible on the basis of online techniques, as in order to take physical classes, a certain time and effort needs to be provided by students. However, distance learning requires effective concentration and motivation from students, which significantly influences learning approaches. In order to practice effective learning, self-satisfaction within students is significant on the basis of which positive outcomes will be generated."

These participants provided an overview that the e-learning approach is favorable and impact positively on mental capabilities and learning efficiencies. During the pandemic, the e-learning approach provides significant opportunities for educational management and course instructors to convey course lectures effectively. As online education is a cost-effective method, i.e., time, cost etc. However, physical classes require a certain time and effort by students, due to which their psychological well-being is impacted largely. According to the findings of Kassymova et al. (2020), it is being identified that the e-learning approach is beneficial in order to generate effective learning opportunities for students. The adoption of online techniques creates certain growth within the educational process. On the basis of effective communication developed between teachers and students, quality education is being delivered to enrolled students. The research study of Dhananjaya. (2022) indicates that the Covid-19 situation created a relative transformation from the physical teaching approach to online methods, which becomes an ease for institutional management.

Participant:4

"..... Umm, in my opinion, physical education brings proper nurturing to students as class-based activities and group-based task with other class fellows provides continuous learning opportunities for each student. The teacher's coordination with each student will be maintained on the basis of which on-time queries will be resolved. For those students who belong to engineering and nursing backgrounds, taking physical classes is compulsory for them on the basis of which practical learning for the students will be ensured. As online classes provide limited education due to which certain limitations were initiated."

This participant's viewpoints contradict the above four participants regarding the usage of e-learning techniques. Physical methods of teaching are more beneficial compared to online methods. The ratio of interaction between course instructors and teachers is significant within classrooms where certain queries are resolved in a timely manner. The study of Choi et al. (2021) investigates that students are more convenient to get an education by attending physical classes rather than the online approach in which certain lacking, i.e., technical error, lack of concentration etc., will be encountered.

Challenges faced within the e-learning process

According to the findings of Lestiyawati. (2020), it is being identified that certain challenges are being encountered by educational management as well as students while utilizing e-learning practices within pandemic situations.

Participant:1

".....As a student of health sciences, I understand the relative perceptions of students within the pandemic time frame, as taking online class lectures is quite a hectic process. The Covid-19 situation created inactive behavior within students, due to which a lack of concentration developed among them. The further proper time management challenge is being encountered as taking classes within the scheduled time frame becomes a relatively difficult process."

Participant:2

"..... While involved within the e-learning process associates several challenges towards students, i.e., certain delays within lectures due to technical errors reduced lack of concentration due to which the ratio of interest decreases among the enrolled students within various courses."

Participant:3

"..... As a student of electronics engineering, I encountered relative challenges while taking classes within a pandemic time frame. As our course is based on practical functioning, therefore, by initiating various activities, effective learning will be practiced. By taking online classes, relative lacking will be faced as a communication gap is being developed. Within physical university classes, proper question and answer sessions will be conducted on the basis of which queries will be resolved within each class. However, attaining the facility regarding effectively coordinating with course teachers on the basis of online e-learning process creates certain hindrance."

Participant:4

"..... Yes, obviously, as the e-learning approach is new to a majority of students, therefore the morale and dedication ratio decreases as compared to physical classes for which students are habitual. While taking online classes, lack of concentration is the foremost problem for beginners. Similarly, handling online technological mechanisms takes larger time for students. As in order to join zoom classes and google classroom is one of the complex processes for students due to which certain delays are being practiced within classes. Moreover, providing quality education by using online methods is a challenging task for course instructors and subject teachers as an order to convey each lecture to students without physically being involved with each student creates certain difficulties. Similarly, class attendance is another issue as the online presence of students requires dedication and interest."

Participant:5

".....I believe that Covid-19 created an effective influence on the psychological well-being of students, due to which their mental capabilities towards understanding lectures within online classes become difficult. It is being identified that maintaining effective concentration is a significant challenge for the students which creates certain problems in order to clear the examination with good marks."

These participants provided relative viewpoints regarding certain challenges faced by students while taking e-learning classes. In this regard, various challenges involved, i.e., lack of concentration due to inactive behavior within lockdown situation, technical errors which creates certain delays, time management lacking, communication gap due to improper interaction, and unfamiliar with usage create certain problems for new practitioners. According to the study of Blake et al. (2021), it is being identified that negative influence on psychological well-being within students during Covid-19 creates several hectic issues towards understanding and gaining proper lectures, which further influence reducing interest towards particular course.

In the same manner, the students who belong to engineering and medical fields encounter relative challenges as their studies are based larger on the practical process as compared to theoretical lectures. Therefore, physical classes will be preferable for the students enrolled in such courses rather than the online approach. Moreover, in order to attend timely lectures, it is necessary to take classes within a scheduled time frame, as certain delays become unfavorable for students. However, physical classes enable creative, effective communication between course instructors and students.

Influence of technological process in bringing e-learning improvement

The implication of technological techniques creates effective advancement within the current e-learning process, due to which providing quality online education to students becomes simpler. The findings of Mystakidis et al. (2019) indicate that certain innovative principles introduced within technological processes by educational institutes enable adopting a cost-effective approach as e-learning becomes popular with the passage of time.

Participant:1

".....Yeah, it's quite obvious that with the passage of time, advancement within technological practices creates relative awareness among the technology users to facilitate online technological techniques. As current online methods are effective enough in developing communication towards its users on the basis of which time management is being practiced."

Participant:2

"..... It is being identified that from time to time, relative government spending on online technological processes creates significant growth and continuous improvement practices. Nowadays online approach has become ease for educational institutes. As within pandemics' time frame, large scale students were provided with online education as technological innovation is beneficial in the long run."

Participant:3

".....Umm yeah, I understand that e-learning techniques bring effective growth as providing online education becomes a significant trend as the ratio of adoption is increasing with the passage of time. In this regard, large-scale spending is being processed which influence towards bringing new practices within online e-learning principles."

Participant:4

"..... I believe that technology has positively influenced online teaching methods as a customized teaching approach initiates certain improvements within teaching techniques. By using visual equipment, students' interest in lectures will be enhanced on the basis of which effective learning will be processed. In this regard, the utilization of augmented and virtual reality techniques provides ease towards course instructors to elaborate lectures more effectively. It can be seen that the physical classroom involves learning material techniques in which teachers provide relative course guidelines or certain lectures within the format written printed format, which assist in the learning process of students. However, within the e-learning process, course material is provided in softcopy format, which is being uploaded on google classroom. E-learning technique is an economical approach within which quick student learning will be practiced."

Participant:5

"..... In my opinion e-learning process has been revolutionized in the past few years, due to which its adoption has become simpler for educational practitioners and management. It is being identified that traditional e-learning approaches were not efficient; however current practices are beneficial due to which educational management provides continuous attention towards students in order to improve their learning skills and relative qualities."

The following above participants provided a viewpoint regarding the integration of technological techniques is beneficial to the current e-learning approach as various advancements within technological patterns create effective growth within the educational practices. The implication of online methods during the Covid-19 situation provides relative ease towards teaching approaches on the basis of which long-term growth will be practiced. The government's significant focus on providing large-scale investment in order to bring relative development within teaching practices enhances learning skills and potential abilities for enrolled students. According to the Research of Aboagye et al. (2021), it is being identified that traditional approaches within e-learning methods are not as effective due to which certain delays within lectures and proper connectivity within class lectures lacks behind, which significantly influence towards learning capabilities of the students. However, with the passage of time, relative innovation within online educational practices brings long-term growth as the internal abilities of the students will be enhanced.

The research study by Mystakidis et al.,(2021) indicates that augmented and virtual reality techniques provide significant opportunities for educational management as well as course tutors, due to which guiding students become relatively simpler. In order to educate beginners and practitioners, online methods are transforming on

the basis of which gaining informative education improves learning skills and develops the significant interest of the students.

Benefits of using an e-learning approach

According to the research study by Rahrouh et al. (2018), it is being identified that e-learning provides significant improvement towards educational processes adopted by the management. Further, it creates a relative concentration of students towards the course outline. The psychological stability is larger for students within the e-learning approach as compared to physical teaching methods.

Participant:1

"..... Yeah, in order to engage students within pandemics e-learning approach is significant on the basis of which provides proper education becomes easier for university management. Moreover, the implication towards online digital platforms and various processes, i.e., Google classroom, zoom etc. proper coordination among the students and management will be maintained on the basis of which continuous improvement will be practiced."

Participant:2

"..... It is being identified that e-learning practices are significant enough as by introducing team-based activities, effective knowledge will be provided to students. Similarly, by introducing online learning and development courses, continuous improvement will be practiced within the students, which creates interest to gain an education."

Participant:3

"..... I believe that online e-learning methods are useful towards students as in order to gain innovative learning practices there is a significant requirement towards initiating online techniques, i.e., audio, video etc. on the basis of which innovative learning opportunities will be provided towards students."

Participant:4

".....In my opinion e-learning process is favorable towards students as the ratio of students is larger within pandemics towards online e-learning platforms on the basis of which deliverance towards quality education will be processed. I think that the government's decision to transform educational practices towards online platforms is beneficial as physical education was reduced due to the lockdown situation imposed by a government within each country. It can be seen that students learning approaches are being continuously changed by introducing new online methods and processes with the passage of time."

Participant:5

".....Yes, of course, e-learning is the major contributor towards bringing continuous improvement and innovative principles to students, due to which students are more attracted to online methods of education rather than physical processes. Moreover, it is a cost-effective approach which largely focuses on engaging students to gain quality education. It can be seen that with the passage of time educational ministries and higher education commission are emphasizing largely in order to bring new processes on the basis of which effective long-term growth within educational practices will be adopted."

These participants provide relative viewpoints regarding the benefits associated with the e-learning approach as online educational practices as online digital techniques, i.e., google classroom, zoom etc., provide relative opportunities for educational management and course instructors on the basis of which effective communication will be maintained. The initiative toward digital technological patterns creates innovative growth as quality deliverance will be practiced in the long run. The intervention of online techniques is being practiced within the Covid-19 situation as physical methods are reduced, and the e-learning approach will be initiated. The implication of audio and video techniques assists course instructors in providing timely lectures as the online approach is economical. According to the study by Almoula et al. (2022), it is being identified that the government's continuous intervention and large-scale investment within the online educational process bring certain improvements as transformational techniques initiate dedication and interest ratio of the students.

Different aspects of educational learning

There associate various methods of learning in which physical teaching and e-learning are common approaches. The findings of Oke and Fernandes. (2020) investigated that physical teaching patterns associate innovative learning approaches on the basis of which effective education will be provided to students. However, less

interaction within the e-learning process creates significant challenges for management as well as course instructors to provide quality education.

Participant:1

"..... I believe that the learning process is dependent on students' own interests and relative preferences. It can be seen that majority of students feel comfortable to take a physical class rather than online process due to which their engagement ratio influenced negatively during Covid-19 situation."

Participant:3

".....In my point of view, the physical teaching process is better as compared to the online approach. The ratio of student's engagement within a physical process is effective as face-to-face interaction provides in-depth understanding regarding enrolled courses."

Participant:4

"..... In my point of view, the physical approach is beneficial as compared to the online method, as students' interaction with course instructors is larger within physical classes. However, various challenges are faced by students while taking online classes. It can be seen that a large number of questions arise within students' minds while taking online classes, due to which understanding lectures becomes complex. Moreover, statistical and mathematical courses bring certain hindrances as physical classrooms are better for students in order to understand mathematical and calculus equations."

Participant:5

"..... According to my personal experience, the physical teaching approach is better as compared to the online process as in order to attain effective quality education attending physical classes is beneficial as compared to the online approach. It can be seen that the ratio of lack of concentration within physical processes is minimal as compared to the online approach, within which technical errors, time management processes, and less interest within students in taking online classes create certain communication gaps within the learning phase. However, by attending physical classes, proper concentration is being developed by students as teachers provide their relative efforts in order to teach and guide students regarding enrolled courses."

The above four participants provide an overview regarding the physical learning approach to be better as compared to online techniques as in order to gain effective knowledge taking lectures within classrooms will be better. The face-to-face mechanism is beneficial as, in order to resolve certain queries, direct involvement with the course teacher will be better as compared to online methods in which a communication gap is being developed between teachers and students. The findings of Cavanaugh et al. (2022) indicate that for those students who are enrolled on mathematical and statistical courses, physical classes will be better as compared to online techniques in which understanding calculus lectures becomes relatively difficult. Moreover, certain challenges associated with online teaching methods involve, i.e., technical errors and time management processes, as taking timely lectures is difficult, which creates certain lacking within the learning phase of students relatively.

Participant:2

"..... I believe that physical teaching practice is a traditional approach which is resource consuming process, i.e., time, cost etc. Although face-to-face interaction between teachers and students influences positively towards learning practices of students however online tools are advanced mechanism on the basis of which continuous development will be processed."

The response of this participant contradicts the above four as he provides an overview of the online learning approach better as compared to the physical learning process. It is being identified that students feel comfortable while taking online classes as a relaxed environment is being practiced by students within their homes, due to which the ratio of concentration will be enhanced effectively. Moreover, the online technique is more cost-effective and economical rather than the physical process.

Quantitative results

Reliability

[DataSet1]

Scale: ALL VARIABLES

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

The validity of the study is dependent on the reliability of the data. The reliability test indicates how reliable is the data collected from the respondents included in the study. The reliability of data shows validation of the study. The more reliable the data is, the more valid results will be generated further. The Cronbach's alpha value needs to be greater than 0.6. Within the current study, the reliability of data is 0.83, which is greater than 0.6, which shows that data collected from the respondents (university students) is reliable.

Descriptives

[DataSet1]

	N	Minimum	Maximum	Mean	Stc
Question1	150	1	5	3.13	
Question2	150	1	5	3.19	
Question3	150	1	5	3.05	
Question4	150	1	5	2.75	
Question5	150	1	5	3.13	
Question6	150	1	5	3.05	
Question7	150	1	5	3.11	
Question8	150	1	5	3.06	

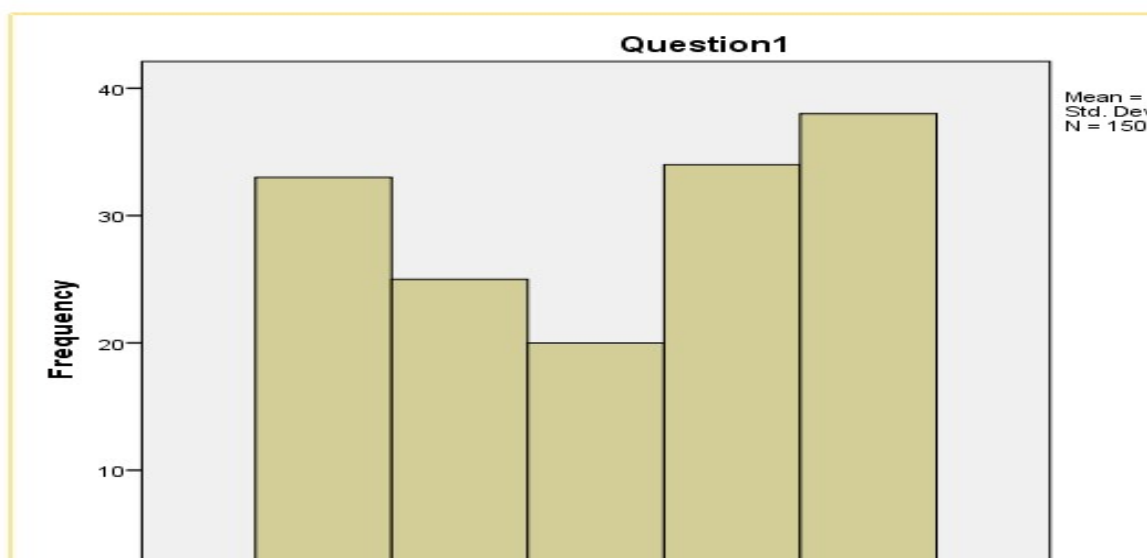
The descriptive analysis test shows mean and standard deviation values. The mean test within the descriptive analysis indicates average values for each question. In order to calculate mean values, each participant's response for each question will be added separately and divided by a total number of respondents on the basis of which average values for each question will be calculated. The average mean values within the current study are around 3 for each question. It shows that the mean values for each question are alike.

The standard deviation values indicate the scatteredness of the responses and how near or far the responses are from the average mean values. The table shows that standard deviation values are 1.5, which is near to the mean values, i.e., 3, which indicates that the responses of the participants are near to each other.

Frequency Table

Question1

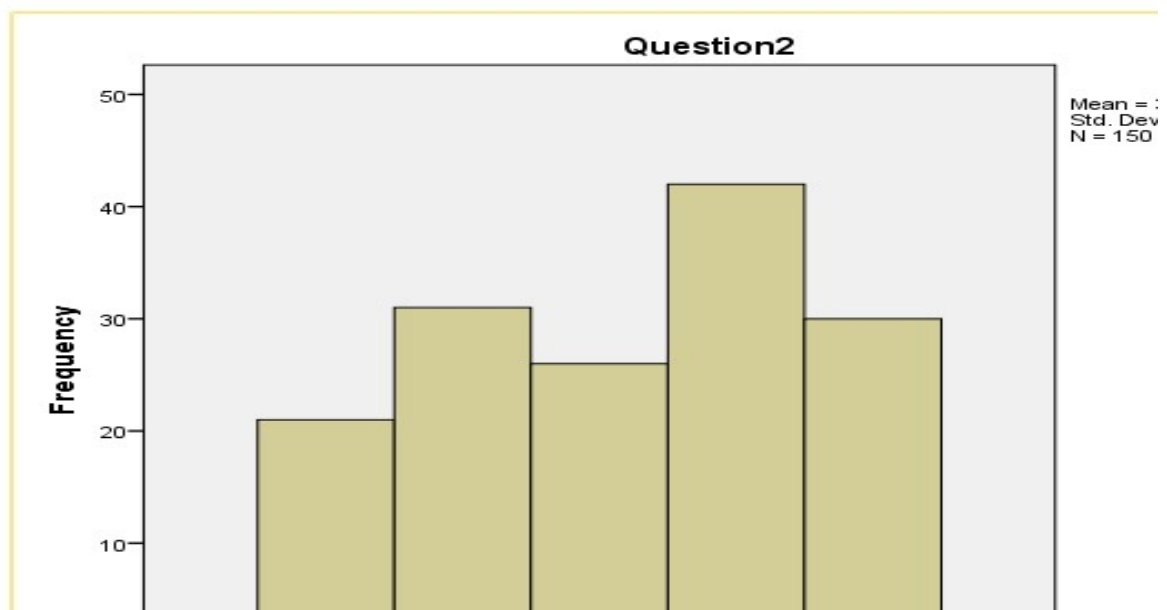
		Frequency	Percent	Valid Percent	Cumulat Perce
Valid	1	33	22.0	22.0	
	2	25	16.7	16.7	
	3	20	13.3	13.3	
	4	34	22.7	22.7	
	5	38	25.3	25.3	1



The frequency test is the part of the descriptive analysis in which each table and graph indicates a ratio of each response selected by participants. In the question: 1, which online learning approach is more complex rather than physical learning, when asked from involved participants indicated that 33 students strongly agreed with the question, 25 agreed, 20 responded neutral, 34 responded disagree, and 38 responded strongly disagree, according to the study by Khan and Rafi. (2020), it is being identified that physical methods of teaching are more convenient for students as direct involvement with teachers positively influences towards continuous development of the students. Moreover, it assists in maintaining effective communication with course instructors on the basis of which queries will be resolved within each class lecture. However, online learning methods are complex for gaining effective knowledge due to lack of concentration and certain challenges faced by educational management as well as students enrolled on each course.

Question2

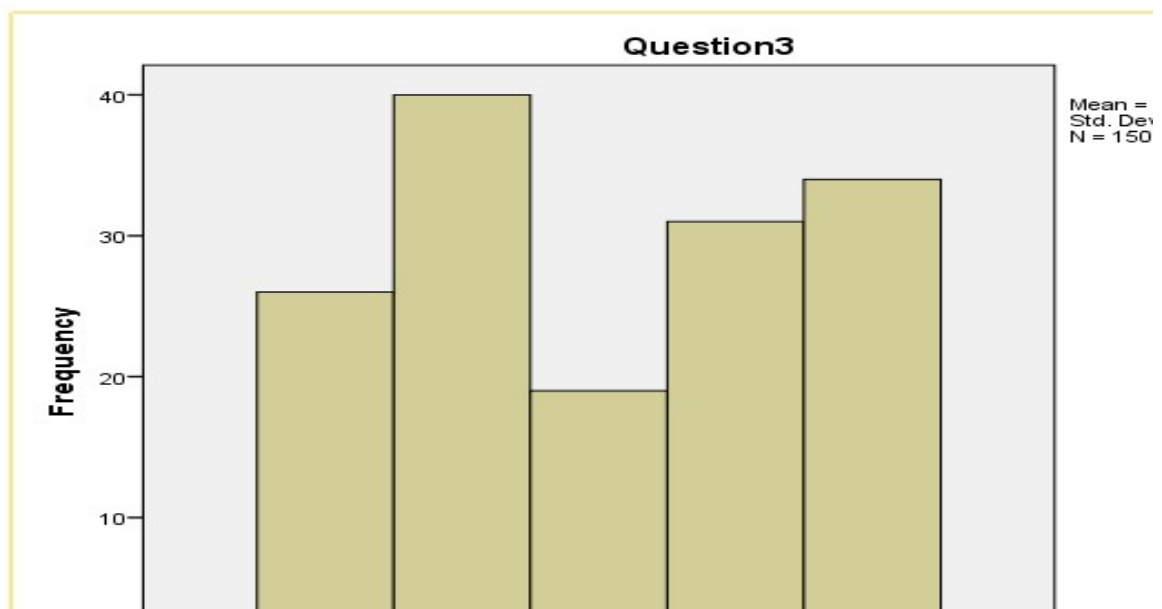
		Frequency	Percent	Valid Percent	Cu F
Valid	1	21	14.0	14.0	
	2	31	20.7	20.7	
	3	26	17.3	17.3	
	4	42	28.0	28.0	
	5	30	20.0	20.0	



The second question shows that the e-learning process is beneficial for students to continue their educational practices during pandemics. On asking the question students, 21 replied strongly agree, 31 replied to agree, 26 replied neutral, 42 answered disagree, and 30 answered to agree. The research study of Peimani and Kamalipour. (2021) indicates that during lockdown situations, online methods of education are more convenient for students on the basis of which timely lectures are delivered by teachers, which assist students in proper learning even during the Covid-19 situation.

Question3

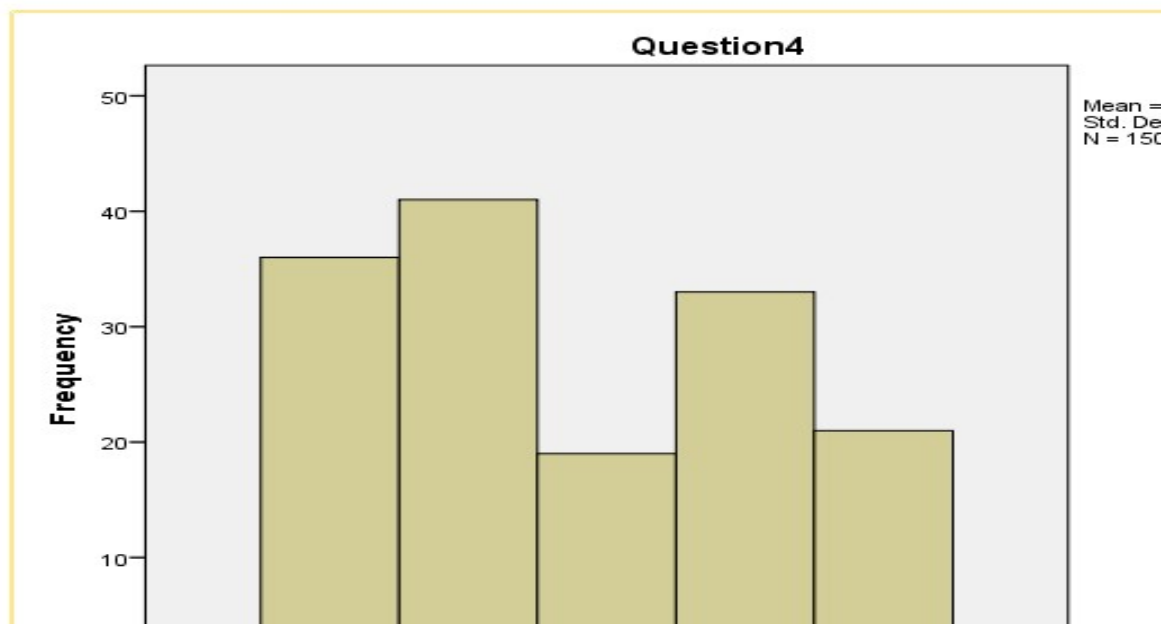
		Frequency	Percent	Valid Percent	Cu F
Valid	1	26	17.3	17.3	
	2	40	26.7	26.7	
	3	19	12.7	12.7	
	4	31	20.7	20.7	
	5	34	22.7	22.7	



The third question indicates that advancement within technological practices brings significant growth within the e-learning process. 26 students answered strongly agree, 40 answered in to agree, 19 answered neutral, 31 replied to disagree, and 34 replied strongly disagree. According to the findings of Khan et al. (2020), it is being identified that with the passage of time, new processes and techniques were introduced within the online e-learning approach, which provides ease towards course instructors to engage effectively with the students on the basis of which quality learning will be ensured. In this regard, large-scale investment is being processed by government institutions in order to improve traditional approaches of online methods in order to enhance students learning skills and relative capabilities by providing more opportunities.

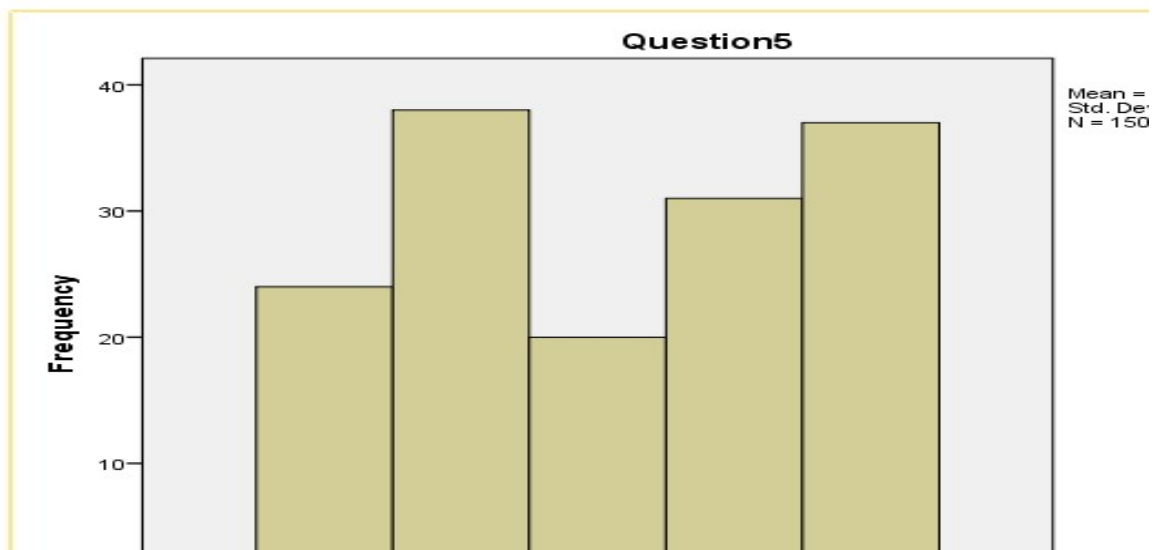
Question4

		Frequency	Percent	Valid Percent	Cu F
Valid	1	36	24.0	24.0	
	2	41	27.3	27.3	
	3	19	12.7	12.7	
	4	33	22.0	22.0	
	5	21	14.0	14.0	



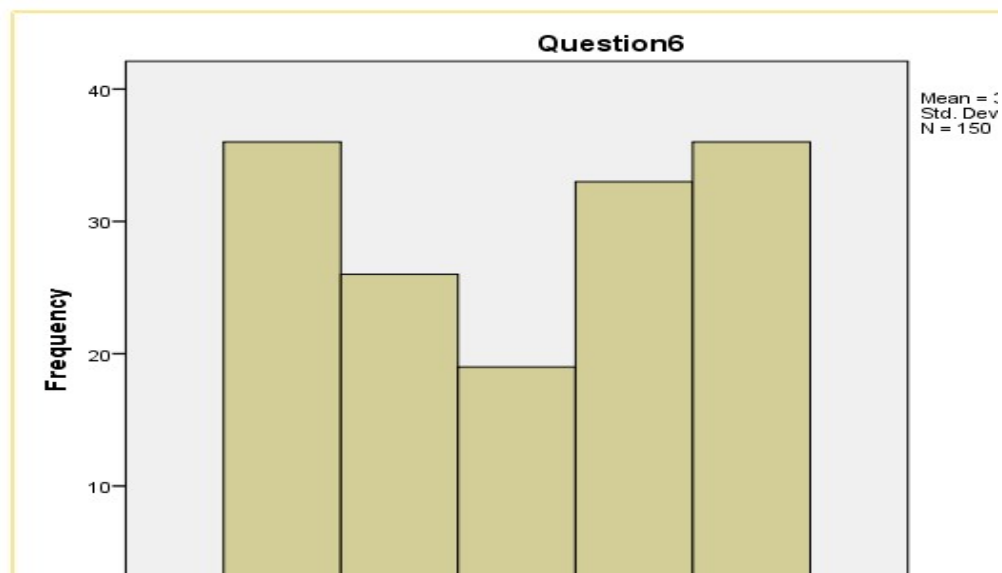
The fourth question indicates that e-learning methods are more economical to be used rather than physical techniques. While replying to this question, 36 responded strongly agree, 41 responded agree, 19 responded neutral, 33 replied disagree, and 21 replied strongly disagree. The research study by Isa et al. (2023) indicates that e-learning methods result in being more cost-effective for education institutions in order to deliver lectures to students. However, physical methods of teaching require large-scale investment as in order to provide a proper physical setting, i.e. well-equipped classrooms, proper facilitations for delivering lectures etc., involves huge expenses in order to provide quality education to students.

		Frequency	Percent	Valid Percent	Cum Pe
Valid	1	24	16.0	16.0	
	2	38	25.3	25.3	
	3	20	13.3	13.3	
	4	31	20.7	20.7	
	5	37	24.7	24.7	



The fifth question asks about various challenges, i.e., time management, lack of concentration etc., faced by students while taking online classes during a pandemic time frame. On asking this question, 24 replied strongly agree, 38 replied to agree, 20 answered neutral, 31 answered disagree, and 37 answered strongly disagree. The research findings of Singh et al. (2021) indicate that certain problems are associated with providing online education, as the e-learning approach creates relative risks for educational practitioners and students.

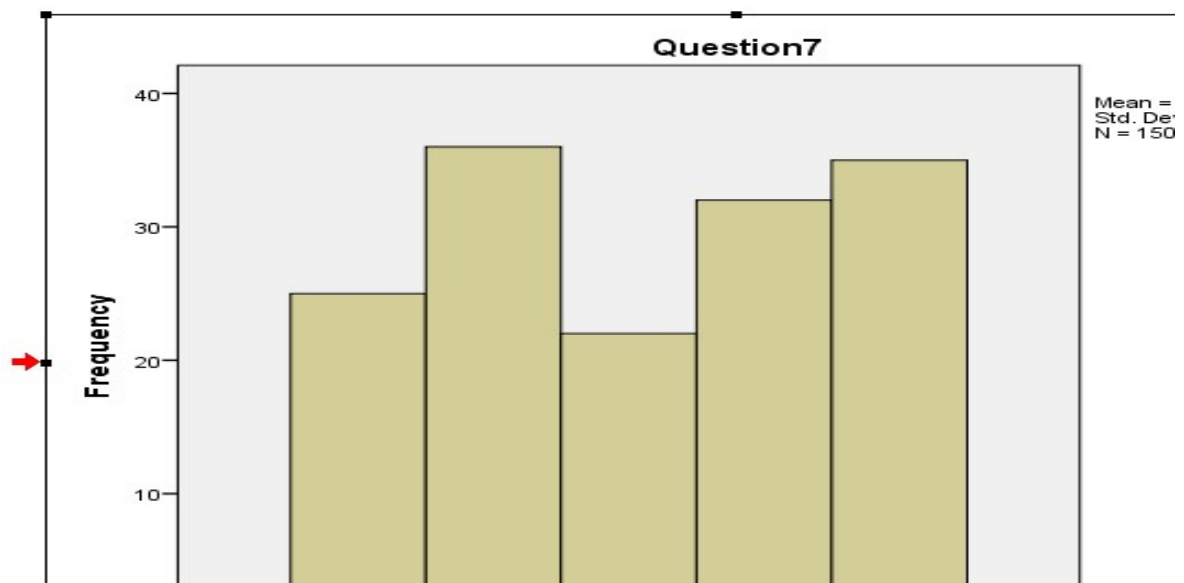
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	36	24.0	24.0	
2	26	17.3	17.3	
3	19	12.7	12.7	
4	33	22.0	22.0	
5	36	24.0	24.0	



The sixth question indicates that relative know-how among students and teachers regarding online teaching provides ease within e-learning practices on the basis of which deliverance of lectures within online classes becomes simpler. On answering the question, 36 replied strongly agree, 26 replied to agree, 19 replied neutral, 33 replied in disagree, and 36 answered strongly disagree. The research study of Hayat et al. (2021) indicates that significant knowledge regarding how to utilize the e-learning process and online educational approaches increase employee morale and dedication during the Covid-19 situation towards studies. As it can be seen, the ratio of online students increased as proper concentration and effective communication are being developed by course instructors on the basis of which the learning capabilities of the students are enhanced to a larger extent.

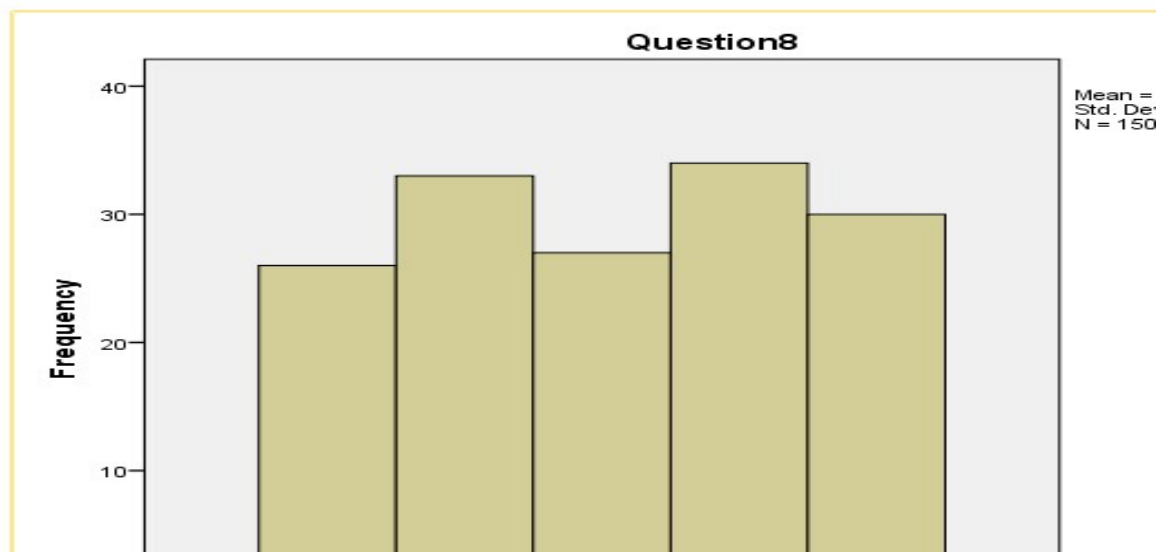
Question7

		Frequency	Percent	Valid Percent	Cu F
Valid	1	25	16.7	16.7	
	2	36	24.0	24.0	
	3	22	14.7	14.7	
	4	32	21.3	21.3	
	5	35	23.3	23.3	



The seventh question shows that the e-learning process is more complex as it creates both mental as well as physical influences on students learning capabilities. On asking the question, 25 replied strongly agree, 36 replied to agree, 22 answered neutral, 32 replied disagree, and 35 answered strongly disagree. According to the Research of Bures et al. (2022), it is being identified that e-learning brings certain problems to beginner students and new practitioners during a lockdown situation as continuous lockdown creates certain psychological issues for students. The mental well-being is impacted negatively due to which lack of concentration reduced towards online classes and course lectures. However, the physical pattern of classes, i.e., attending classes within universities, increases students' morale and increases their satisfaction ratio towards studies on the basis of which improvement within learning capabilities will be practiced.

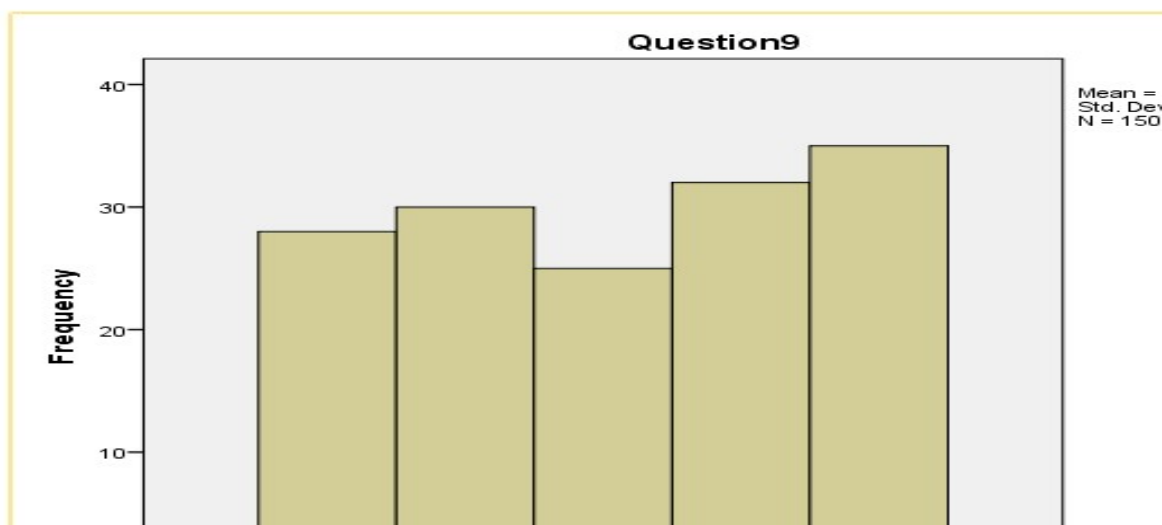
	Frequency	Percent	Valid Percent	Cu F
Valid 1	26	17.3	17.3	
2	33	22.0	22.0	
3	27	18.0	18.0	
4	34	22.7	22.7	
5	30	20.0	20.0	



The eighth question shows that the e-learning process provides significant opportunities for students to maintain their health and well-being and continue their studies by taking online lectures. On asking the question, 26 replied strongly agree, 33 replied to agree, 27 answered neutral, 34 replied in disagree, and 30 replied strongly disagree. The research findings of Pallavi et al. (2022) indicate that e-learning techniques provide relative growth and development on the basis of which learning skills and relative capabilities of the students will be enhanced. Moreover, certain standards of procedure are maintained as social distancing provides influences towards health and well-being of the students on the basis of which quality learning will be ensured.

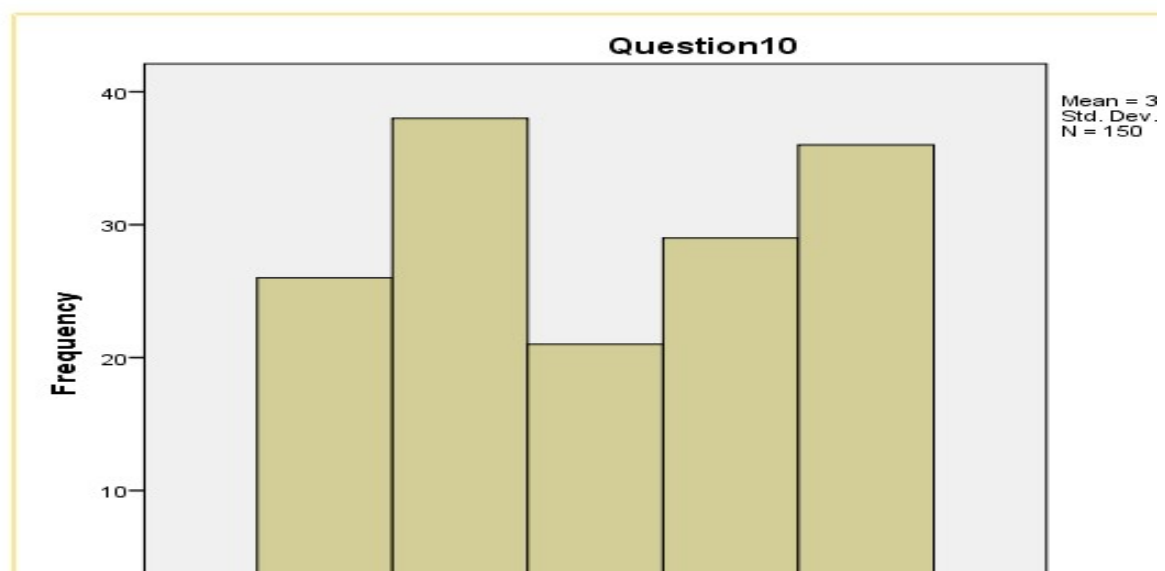
Question9

	Frequency	Percent	Valid Percent	Cl
Valid 1	28	18.7	18.7	
2	30	20.0	20.0	
3	25	16.7	16.7	
4	32	21.3	21.3	
5	35	23.3	23.3	



The ninth question shows that transformation towards e-learning technique is favorable as compared to a physical process. On asking this question, 28 replied strongly agree, 30 replied to agree, 25 replied neutral, 32 answered in disagree, and 35 replied strongly disagree. According to the research study by Azlan et al. (2020), it is being identified that the Covid-19 situation increased the trend of online learning on the basis of which class lectures are continued even during lockdown situations as proper engagement between teachers and students is ensured by using e-learning techniques, i.e., google classroom, zoom etc.

	Frequency	Percent	Valid Percent	Cu f
Valid 1	26	17.3	17.3	
2	38	25.3	25.3	
3	21	14.0	14.0	
4	29	19.3	19.3	
5	36	24.0	24.0	



The tenth question shows that the e-learning approach is not beneficial for student learning as a physical method is better. On asking the question, 26 students replied strongly agree, 38 replied to agree, 21 answered neutral, 29 replied disagree, and 36 answered strongly disagree. The research study of Challa et al. (2021) concludes that physical teaching methods are beneficial as direct involvement between course instructors and enrolled students assists in providing quality education. As each lecture brings innovative concepts on the basis of which improvement within students learning practices will be enhanced. Moreover, direct interaction between teachers with students impacts providing an in-depth description of each course. According to the findings of Elumalai et al. (2021), for the students who are enrolled on practical courses, i.e., engineering, medical etc., the e-learning process is not an effective approach as taking physical classes is beneficial.

		Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8
Question 1	Process	1	.224	.332	.326	.368	.299	.322	.382
	Corrected								
	Sig. (2-tailed)	.158	.158	.158	.158	.158	.158	.158	.158
Question 2	Process	.224	1	.274	.368	.369	.328	.269	.508
	Corrected								
	Sig. (2-tailed)	.000	.000	.004	.000	.000	.000	.004	.000
Question 3	Process	.332	.274	1	.281	.313	.377	.325	.300
	Corrected								
	Sig. (2-tailed)	.000	.004	.000	.000	.000	.000	.000	.000
Question 4	Process	.326	.368	.281	1	.381	.448	.318	.341
	Corrected								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
Question 5	Process	.368	.369	.313	.381	1	.427	.348	.373
	Corrected								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
Question 6	Process	.299	.328	.377	.448	.427	1	.249	.485
	Corrected								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.002	.000
Question 7	Process	.322	.269	.325	.348	.348	.249	1	.386
	Corrected								
	Sig. (2-tailed)	.000	.004	.000	.000	.000	.002	.000	.000
Question 8	Process	.382	.508	.300	.341	.373	.485	.386	1
	Corrected								
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
Question 9	Process	.158	.158	.158	.158	.158	.158	.158	.158
	Corrected								
	Sig. (2-tailed)	.158	.158	.158	.158	.158	.158	.158	.158

The correlational test provides a relation between two variables and factors used within a study. The correlational test explains the relationship between developed questions within the current study. The correlational value needs to be less than 0.05, indicating that two variables or factors are related. In current correlational results, all values within a correlational table are less than 0.05, which shows that all the questions are positively correlated with each other. However, one of the values within the table, which relates to questions: 5 and question:9, shows that the correlational value is greater than 0.05, which is 0.06 in the present case; therefore, it indicates that the themes represented within the question are not related to each other.

The theme asked within question:5 is regarding certain challenges, i.e., psychological influence, lack of concentration etc., encountered by students while taking online classes within pandemics, whereas the concept within the question: 9 indicates that transformation towards online practices is significant for the users of the e-learning process. The correlational table indicates that both of the themes are not positively related to each other. Moreover, the correlational test indicates a linear relationship between the factors and their strength. Therefore, the correlational results table indicates that questions 5 and 9 are weakly related to each other, and the linear relationship between the two is negatively directed.

Conclusion and recommendations

Conclusion

From the above analysis, it can be concluded that research objectives developed within the study are accomplished on the basis of a mixed methodology. The nature of the study and topic are considered to enable the researcher to select a mixed methodology within the study on the basis of which effective results will be generated. The literature section within the study provides an overview of past studies about traditional approaches used by higher education and how significant growth is being practiced due to the integration of technology as advancement is being processed. The current study provides an overview of the relative challenges faced by students and certain benefits of its usage.

On the basis of qualitative analysis, relative interviews are being gathered from involved students, which are interpreted within the study's qualitative analysis. By using a thematic approach, various processes and similar patterns are identified, which provides an understanding of objectives developed within the study. Similarly, on the basis of quantitative analysis, relative outcomes are generated in statistical formation as the results generated from SPSS are further derived and discussed within the section on quantitative analysis. The data collected from the involved participants are reliable and further interpreted within the study using descriptive and correlational analysis. The results generated within the qualitative analysis in thematic formation and coding pattern have been justified by conducting quantitative analysis, which indicates that the study's designed research objectives are attained.

The results in the study indicate that using the online e-learning process is beneficial for students learning as it is an alternative opportunity for the educational management as well as students to implement them in relative studies by enhancing their internal skills and potential capabilities. However, the results indicate that physical methods of teaching are appropriate for many students as physical classrooms are better for gaining effective learning.

Recommendations

By evaluating the above study and by analyzing relative challenges highlighted within the study regarding the usage of the e-learning process, the following are various recommendations:

- By providing online training to new practitioners and students regarding the usage of the online e-learning approach, certain know-how will be created on the basis of which certain improvements will be introduced within current online teaching methods.
- On-time deliverance will be made more effective by a transformation of formal interaction into informal, in which educational management cooperates with course instructors and teachers on the basis of which effective learning will be practiced.
- Initiating large-scale investment by both government and private institutions will integrate new methods and processes in online teaching on the basis of which continuous improvement and effective development will be practiced.

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Appendix-A Questionnaire

1. Online learning is more challenging than physical learning.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

2. E-learning methods proved to be convenient for continuing the learning process of students in higher education institutes during pandemics.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

3. The advancement in technology has made the e-learning process possible.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

4. E-learning methods are more cost-effective than the physical teaching process.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

5. Various challenges, i.e., time for managing classes, psychological influence, lack of motivation etc., are encountered by students within the e-learning process.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

6. Understanding of e-learning process by students and teachers has helped to make the e-learning process more effective.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

7. The E-learning process proved to be more hectic both psychologically as well as physically for the students during pandemics.
 - Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

8. Adopting e-learning methods has provided ease to the students in executing their learning process by maintaining sops.
- Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
9. Transformation towards online e-learning techniques is beneficial.
- Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
10. The E-learning method is not an interactive method of learning.
- Strongly Agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

Appendix-B

Interview Questions

- Q:1 How effective is the e-learning process's role in enhancing students' learning capabilities within pandemics?
- Q:2 What are the challenges encountered by students during the e-learning process?
- Q:3 How significant are technological principles towards bringing improvement within e-learning practices?
- Q:4 Is the adoption of the e-learning approach beneficial for students learning?
- Q:5 How interactive is the physical teaching approach from the e-learning process?

Appendix-C

Participants responses

Participant: 1

Answer:1

".....Umm, in my point of view, the e-learning practices are efficient enough in order to engage students within a pandemic time frame as psychological wellbeing is impacted negatively for a majority of practitioners and students enrolled on various courses. The implication towards online e-learning techniques create significant development within the education process as providing quality education becomes relatively simpler on the basis of online methods."

Answer:2

".....As a student of health sciences, I understand relative perceptions of students within a pandemic time frame, as taking online class lectures is quite a hectic process. The Covid-19 situation created inactive behavior within students, due to which a lack of concentration developed among them. Further proper time management challenge is being encountered as taking classes within scheduled time frame becomes a relatively difficult process."

Answer:3

".....Yeah, it's quite obvious that with the passage of time, advancement within technological practices creates relative awareness among the technology users to facilitate online technological techniques. As current online methods are effective enough in developing communication towards its users on the basis of which time management is being practiced."

Answer:4

"..... Yeah, in order to engage students within pandemics e-learning approach is significant on the basis of which providing proper education becomes easier for university management. Moreover, the implication towards online digital platforms and various processes, i.e., Google classroom, zoom etc. proper coordination among the students and management will be maintained on the basis of which continuous improvement will be practiced."

Answer:5

"..... I believe that the learning process is dependent on students' own interests and relative preferences. It can be seen that majority of students feel comfortable to take a physical class rather than online process due to which their engagement ratio influenced negatively during Covid-19 situation."

Participant: 2

Answer:1

".....Yes, of course, the initiative toward the e-learning process creates relative opportunities for course teachers to convey their lectures by coordinating effectively with the students. The engagement ratio among both increased to a larger extent during the Covid-19 situation. The implication of e-learning practices results to be favorable towards educational stakeholders."

Answer:2

"..... While involved within the e-learning process associates several challenges towards students, i.e., certain delays within lectures due to technical errors reduced lack of concentration due to which the ratio of interest decreases among the enrolled students within various courses."

Answer:3

"..... It is being identified that from time to time, relative government spending on online technological processes creates significant growth and continuous improvement practices. Nowadays online approach has become ease for educational institutes. As within pandemics' time frame, large-scale students were provided with online education as technological innovation is beneficial in the long run."

Answer:4

"..... It is being identified that e-learning practices are significant enough as by introducing team-based activities, effective knowledge will be provided to students. Similarly, by introducing online learning and development courses, continuous improvement will be practiced within the students, which creates interest to gain an education."

Answer:5

"..... I believe that physical teaching practice is a traditional approach which is resource consuming process, i.e., time, cost etc. Although face-to-face interaction between teachers and students influences positively towards learning practices of students however online tools are advanced mechanism on the basis of which continuous development will be processed."

Participant: 3

Answer:1

"..... In my point of view, the adoption of the e-learning process influences positively mental well-being of the students. The mental distress encountered by students within physical classes created an effective impact on their learning capabilities. However, taking online classes create physical as well as mental comfort which impacted significantly towards their wellbeing."

Answer:2

"..... As a student of electronics engineering, I encountered relative challenges while taking classes within the pandemic time frame. As our course is based on practical functioning, therefore, by initiating various activities, effective learning will be practiced. By taking online classes, relative lacking will be faced as the communication gap is being developed. Within physical university classes, proper question and answer sessions will be conducted on the basis of which queries will be resolved within each class. However, attaining the facility regarding effectively coordinating with course teachers on the basis of online e-learning process creates certain hindrance."

Answer:3

".....Umm yeah, I understand that e-learning techniques bring effective growth as providing online education becomes a significant trend as the ratio of adoption is increasing with the passage of time. In this regard, large-scale spending is being processed which influence towards bringing new practices within online e-learning principles."

Answer:4

"..... I believe that online e-learning methods are useful towards students as in order to gain innovative learning practices there is a significant requirement towards initiating online techniques, i.e., audio, video etc. on the basis of which innovative learning opportunities will be provided towards students."

Answer:5

".....In my point of view, the physical teaching process is better as compared to the online approach. The ratio of student's engagement within the physical process is effective as face-to-face interaction provides in-depth understanding regarding enrolled courses."

Participant: 4

Answer:1

"..... Umm, in my opinion, physical education brings proper nurturing to students as class-based activities, and group-based task with other class fellows provides continuous learning opportunities for each student. The teacher's coordination with each student will be maintained on the basis of which on-time queries will be resolved. For those students who belong to engineering and nursing backgrounds, taking physical classes is compulsory for them on the basis of which practical learning for the students will be ensured. As online classes provide limited education due to which certain limitation was initiated."

Answer:2

"..... Yes, obviously, as the e-learning approach is new to a majority of students, therefore, the morale and dedication ratio decreases as compared to physical classes for which students are habitual. While taking online classes, lack of concentration is the foremost problem for beginners. Similarly, handling online technological mechanisms takes larger time for students. As in order to join zoom classes and google classroom is one of the complex processes for students due to which certain delays are being practiced within classes. Moreover, providing quality education by using online methods is a challenging task for course instructors and subject teachers as order to convey each lecture to students without physically involving each student creates certain difficulties. Similarly, class attendance is another issue as the online presence of students requires dedication and interest."

Answer:3

"..... I believe that technology has positively influenced online teaching methods as a customized teaching approach initiates certain improvements within teaching techniques. The using visual equipment, students' interest in lectures will be enhanced on the basis of which effective learning will be processed. In this regard, the utilization of augmented and virtual reality techniques provides ease towards course instructors to elaborate lectures more effectively. It can be seen that the physical classroom involves learning material techniques within which teachers provide relative course guidelines or certain lectures within the format written printed format, which assist in the learning process of students. However, within the e-learning process, course material is provided in softcopy format, which is being uploaded on google classroom. E-learning technique is an economical approach within which quick student learning will be practiced."

Answer:4

".....In my opinion e-learning process is favorable towards students as the ratio of students is larger within pandemics towards online e-learning platforms on the basis of which deliverance towards quality education will be processed. I think that the government's decision to transform educational practices towards online platforms is beneficial as physical education was reduced due to the lockdown situation imposed by a government within each country. It can be seen that students learning approaches are being continuously changed by introducing new online methods and processes with the passage of time."

Answer:5

"..... In my point of view, the physical approach is beneficial as compared to the online method, as students' interaction with course instructors is larger within physical classes. However, various challenges are faced by students while taking online classes. It can be seen that a large number of questions arise within students' minds while taking online classes, due to which understanding lectures becomes complex. Moreover, statistical and mathematical courses bring certain hindrances as physical classrooms are better for students in order to understand mathematical and calculus equations."

Participant: 5

Answer:1

".....Umm, in my point of view, e-learning practices are beneficial as in order to process effective engagement between students and course instructors, online methods are better than face-to-face approaches. It can be seen that distant (remote) learning is possible on the basis of online techniques as in order to take physical classes, certain time and effort needs to be provided by students. However, distance learning requires effective concentration and motivation from students, which significantly influences learning approaches. In order to practice effective learning, self-satisfaction within students is significant on the basis of which positive outcomes will be generated."

Answer:2

".....I believe that Covid-19 created an effective influence on the psychological well-being of students, due to which their mental capabilities towards understanding lectures within online classes become difficult. It is being identified that maintaining effective concentration is a significant challenge for the students which creates certain problems in order to clear the examination with good marks."

Answer:3

"..... In my opinion e-learning process has been revolutionized over the past few years, due to which its adoption has become simpler for educational practitioners and management. It is being identified that traditional e-learning approaches were not efficient; however current practices are beneficial due to which educational management provides continuous attention towards students in order to improve their learning skills and relative qualities."

Answer:4

".....Yes, of course, e-learning is the major contributor towards bringing continuous improvement and innovative principles to students, due to which students are more attracted to online methods of education rather than physical processes. Moreover, it is a cost-effective approach which largely focuses on engaging students to gain quality education. It can be seen that with the passage of time educational ministries and higher education commission are emphasizing largely in order to bring new processes on the basis of which effective long-term growth within educational practices will be adopted."

Answer:5

"..... According to my personal experience, the physical teaching approach is better as compared to the online process as in order to attain effective quality education attending physical classes is beneficial as compared to the online approach. It can be seen that the ratio of lack of concentration within physical processes is minimal as compared to the online approach, within which technical errors, time management processes, and less interest within students in taking online classes create certain communication gaps within the learning phase. However, by attending physical classes, proper concentration is being developed by students as teachers provide their relative efforts in order to teach and guide students regarding enrolled courses."