



Education for sustainable development through E-learning in Higher Education during COVID-19 pandemic

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Abstract

To adapt to the changes in higher education, digital learning has the potential to play a big role in providing meaningful lifelong learning for student achievement in the long run. E-learning is a service based on a software system that allows all materials for the educational process to be accessed and made accessible online to all students at their preferred time and location. This digitalization of Indian education sectors prevailed far before but as the world faltered from the outbreak of the novel Corona virus 1.38 billion learners got affected globally. Worldwide lockdown was imposed according to the government regulations, during this lockdown e-learning came up as a major platform to interact with trainers, learners and others involved in the education sector. This study focuses on e-learning; and discusses how e-learning is the best approaches during Covid 19 pandemic. The goal of this study was to see how effective e-learning is in higher education during the Sustainable Education Pandemic. The perceptions and knowledge of students of bachelor, master's and teacher trainers were examined. The six dimensions examined were: general expectations; quality of learning; teaching materials, pedagogical instruments and assessment; skills learned through the use of online platforms; satisfaction and interactions. The survey included a total of 67 respondents. Using a well-structured questionnaire, a quantitative analysis was conducted. The findings showed that the students surveyed thought that they achieved a high degree of motivation and satisfaction and achieved a successful learning outcome through E learning.

Keywords: Education for sustainable development (ESD), E-learning, Higher education, lockdown, Covid-19 pandemic.

Introduction

The global economy has been deeply tormented by the deadly and contagious Coronavirus natural event, conjointly referred to as Covid-19. This disaster has conjointly dazed the education sector, and this concern is anticipated to resonate through the education sector globally. Faculties and colleges were forced to stay briefly closed by the Covid-19 pandemic natural event. Globally, several places are affected and there's a concern of losing this complete current semester or perhaps a lot of within the close to years. In-person instruction has been discontinued by various faculties, faculties, and universities. As per the researchers' assessment, it's unclear if it'll shortly be attainable to come back to traditional teaching. This can have negative effects on learning opportunities, as the social distance is superior at now. Academic units try to search out alternatives to address this powerful scenario. These circumstances create the U.S. aware that the pressing would like for tutorial establishments to arrange eventualities¹. This is often a situation that needs humanity and peace. There's an on the spot would like for our students, teachers, teaching personnel, families, communities, and also the country as an entire to be preserved and saved.

E-learning is substitutable with multiple arguments. A number of the explanations relevant to online pedagogy are usability,

affordability, skillfulness, learning pedagogy, life-long learning, and policy. It's the same that online mode of learning is definitely accessible and may even reach rural and remote areas. In terms of the lower value of transportation, housing, and also the overall value of institution-based learning, it gives the impression to be a relatively cheaper mode of education. Another fascinating feature of online learning is flexibility; a learner might prepare or schedule their time to finish the courses out there online. Mingling learning and flipped lecture rooms are the end result of mixing face-to-face lectures with technology; this kind of learning surroundings can boost students' ability to find out. Students will learn at anytime and anyplace, thereby gaining new skills that contribute to womb-to-tomb learning within the method. During these dynamic surroundings, the govt conjointly acknowledges the growing significance of online learning.

In terms of online learning, the acute explosion of coronavirus illness can create the U.S. adds another purpose, i.e., in time of crisis, online learning is a nostrum.

E-learning and sustainability education: Today, as interlocking ideas, education and property are widely familiar. Within the present, education contains a responsibility and a central role to play in redefining education, surpassing its 2 typical roles of study and teaching within the case of property.

Recent analysis exploring the distribution and deepening of upper education property finds the start of broader and a lot of general approaches. Technological advancements have provided opportunities in several ways: social, technical, and environmental, international and native, due to the variability of the coaching method, the employment of technology, and new approaches to teaching and learning. Therefore, they are essential academic drivers for property development².

The introduction of E-Learning seems to be a basic necessity in two ways: 1st, the adoption of E-Learning is usually thought-about a strategic response too causative to (more) property in education. Second, it offers opportunities that embrace and facilitate innovative and wide-ranging teaching and learning concerning property development³. Once developed to strengthen or prolong to vary of goal teams for education, e-learning turns into particularly current. During this manner, demographic barriers or different restricted structure necessities are often demolished for international education.

The instruments associated with degrees techniques employed in e-learning are abundant lower in carbon intensity from an overall perspective than typical teaching⁴. A lot of significantly, the employment of e-learning and teaching ways can in theory follow a giant quantity of your time, face-to-face engagement, and even student and workers quality. Because of falling technological costs, increased net access, and improved digital infrastructure in several nations, the usage of ICT has dilated globally. All the same, or accurately, it had been claimed too soon that e-learning offers the industrial world a chance to expand education and supply equal access to education at a lower cost. E-learning will so not be fully used, principally to the damage to developed nations, to its most potential. As a result, e-learning has assumed an important role for developing countries in academic ways. The declaration of the property Development Objectives (SDGs) in 2015 started a big push to advance e-learning as a technique for achieving the target of "fantastic schooling"

For Continuous Development, E-Learning Tools in Pedagogy: E-learning has been classified into 10 sorts however it's wide differentiated into 3 major heads:

Synchronous e-learning- This refers to learning expertise during which, together with the trainer/facilitator for live interaction, a gaggle of scholars has an interest in learning at a similar time. every kind of synchronous learning is thought about to be academic video conferences like zoom and alternative applications, interactive webinars, chat-based online conversations, and lectures transmitted at a similar time as they're given.

Asynchronous e-learning could be a learning method that doesn't happen at a similar location or at a similar time. The combined learner network and therefore the system through that

they connect square measure spoken as Associate in Nursing asynchronous learning network, like emails, eBooks, blogs, etc.

Blended e-learning- It is an academic approach that comes with online educational materials and online engagement opportunities with standard place-based teaching strategies. It desires each teacher and student's physical presence, with some components of student management over time, place, direction, or speed.

LMS has currently well-tried to be a regular pedagogy tool for promoting interaction, property, and collaboration with and between one another. The LMS has therefore become a useful instrument for promoting pedagogy teaching and learning. Another continuous improvement in E-Learning is electronic appraisal (e-evaluation), which utilizes ICT in numerous types of instructive appraisal. These types of instructive appraisals will embody a large scope of understudy activities, as for example, on-screen assessment or companion survey. In spite of the means that E-Learning is broadly speaking acknowledged in advanced education, very little labor has been worn out the sphere of assessment to nonetheless.

Mixed learning is probably the foremost notable e-learning pattern, and it's a lot of the time alluded to because of the "new ordinary"⁵. For an oversized assortment of teaching arrangements, a well-designed combination of every technique may additionally final result in ideal solutions. On average, mixed learning features a major profit over standard face-to-face lessons, Meta-analysis showed⁶. Digital quality could be a comparatively new idea that has emerged as a result of technological advancements⁷.

Computerized skillfulness is that the plan of allowing students to exchange and speak with educators and individual students from numerous countries utilizing the foremost exceptional ICT⁸. Virtual skillfulness will likewise be remembered for alloyed learning conditions to figure on worldwide and intercultural trade, as per practical instances of advanced education showing understudies⁹.

MOOCs square measure another notable development within the ramified realm of e-learning. The first idea of MOOCs is to supply free online education to an oversized variety of scholars. Dave Cormier in of the University of Prince Island coined the term MOOC to characterize a Connectivism and Connective data course in 2008 (CCK08). A couple of people were awake to the tutorial implications.

Statement of problem: In recent months, the Corona virus pandemic has had a world impact and threatens to tug most industries down, with education being one in all the foremost affected. Due to the intense natural event of this international Covid-19 pandemic, the bulk of the globe is in quarantine and thence several cities have changed into phantom cities and its effects can even be seen in faculties, colleges, and universities¹⁰.

The Corona Virus has created it attainable for organizations to travel from offline to online pedagogy mode. This crisis would create new technology embraced by organizations that were antecedently proof against adapt. This tragedy can show the North American nation the remunerative facet of teaching and learn online. We will moralize an outsized variety of scholars at any time and in any part of the globe with the help of online modes of teaching. All organizations should take away multiple selections for online pedagogic ways and attempt to use technology additional effectively. So as to understand the desperate would like for this current state of affairs, several universities around the world have fully digitalized their operations.

Few students of bound courses square measure nearly attending to lose one year of valuable time in their education because the state of affairs has forced the academic establishments to clean up as per government laws. It's no surprise that the scholars and their oldsters feel drained each psychologically and showing emotion thanks to varied reasons and education being one in all it. However, the extended internment has additionally made up a path to the betterment in the instructional sector by its technological up-gradation as we have a tendency to utilize its services to cope up with the circumstances. So e-learning offers the chance to boost the quality of colleges and alternative instructional establishments. There was an amendment from standard study halls to e-homeroms short, as an example instructors have modified their entire instructional thanks to agitating taking care of arising business parts and acclimating to evolving conditions. The inquiry throughout this hard amount is not whether or not internet-primarily based instructing learning systems will offer quality coaching, but however scholastic foundations will settle for internet primarily based learning in a very significantly monumental manner.

Resistance to reform won't profit any worldwide instructional unit. In such a brief amount of your time, they'll be judged on their speed to regulate the changes and their capability to take care of quality. The integrity of teaching units is in danger and beneath investigation. Their adaptive capacities replicate however well they behave and the way well they sustain their customary of education within the inside of this crisis. The sole attainable difference is that the transition from face-to-face lectures to online courses. Indeed, it'd not be possible for educational establishments to show all their faculty curricula into online tools nightlong. The 3 main obstacles for online teaching embody distance, size, and personalized teaching and learning. Solely artistic institutional methods can facilitate the North American nations agitate this pandemic. A quick amendment to the net learning mode is required; so, in such problematic circumstances, Google merchandise may be terribly useful; they're Gmail, Google Forms, Calendars, G-Drive, Google Hangouts, Google Jam board and Sketches, Google room, and Open Board software system (not a Google product helps in recording conferences within the kind of files). These

tools may be used with success for face-to-face categories as an alternate¹¹.

Rapid technical advances have enabled distance education. Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, mixed learning, m-learning, for ex.) have in common the power to use a laptop connected to a network, that gives the likelihood to be told from anyplace, anytime, in any rhythm, with any means¹².

Online learning will be outlined as AN instrument that will build the method of teaching and learning a lot of student-centered, a lot ingenious, and even a lot of versatile. Online learning is outlined as "learning experiences in synchronous or asynchronous environments exploitation completely different devices (e.g., mobile phones, laptops, etc.) with web access¹³. In these environments, students will be anyplace (independent) to be told and move with instructors and alternative students"¹⁴. The synchronous learning atmosphere is organized within the sense that students attend live lectures, that educators and learners have a period of time interactions, which instant feedback is feasible, whereas asynchronous learning environments aren't properly structured¹⁵. Learning material isn't accessible within the sort of live lectures or lessons in such a learning environment; it's out there through varied learning structures and forums. Inside such AN atmosphere, instant feedback and immediate response aren't attainable. Synchronous learning can give several prospects for social interaction. Such online platforms square measure needed within the inside of this deadly virus wherever: video conferencing is feasible with a minimum of forty to fifty students, discussions with students will be controlled to stay categories organic, web connections square measure robust, lectures square measure accessible on mobile phones moreover and not simply laptops, the power to look at lectures already registered, and instant feedback from students.

Considering this scenario the scientist felt the necessity to try to do this study to research however Electronic learning offers a chance for property improvement in pedagogy and to extend the quality of upper education establishments by taking the perception of scholars regarding E-learning in pedagogy throughout the pandemic.

Objectives of the study: i. To study about E-learning as a major platform of education during lockdown. ii. To study the perception of scholars on E-learning throughout Covid-19 pandemic.

Methodology

The study has adopted a quantitative analysis method; this study collects primary knowledge by surveying through the well-structured designed for the study from students of different colleges and other higher education establishments. All the people who answered the survey were knowledgeable

concerning the confidentiality of their responses and were additionally knowledgeable concerning the aim of conducting this survey. The questions focuses on the perception of scholars on E-learning throughout the covid-19 pandemic. The survey rendered sixty-seven responses. Apart from these sources like journals, books, and magazines were additionally thought-about for the study. The analysis of this survey was done electronically.

Results and discussion

The survey enclosed a complete of sixty-seven respondents. Within the survey six dimensions were examined: general expectations; quality of learning; teaching materials, education instruments, and assessment; skills learned through the utilization of online platforms; satisfaction and interactions. The study has additionally incorporated the positive aspects of E-learning practices.

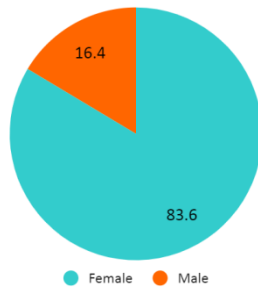


Figure-1: Gender distribution of students, 2020.

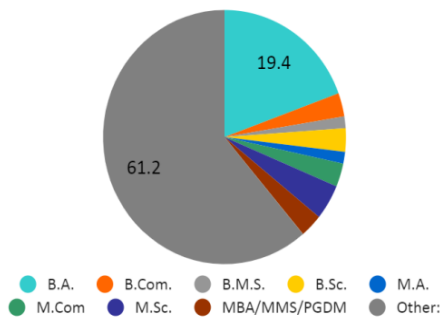


Figure-2: Distribution of students by course, 2020.

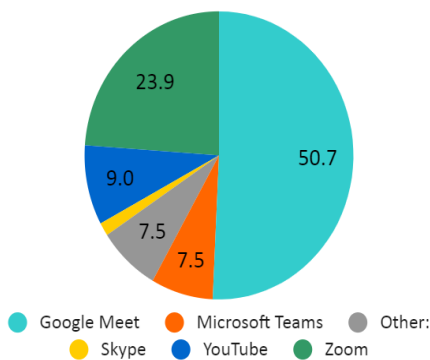


Figure-3: Distribution of students by online platform(s) currently using for online learning, 2020.

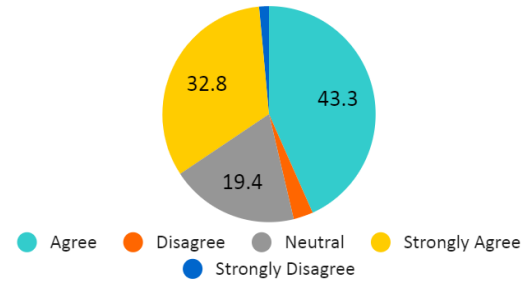


Figure-4: Shows the percentage of students who believe that switching to an online learning format is a good way to avoid COVID-19 infection.

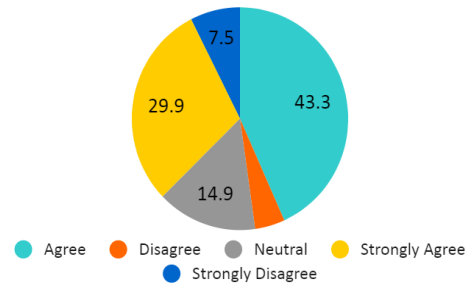


Figure-5: Percentage of students who believe that continuing their education through online learning is a wise decision in the COVID-19 situation.

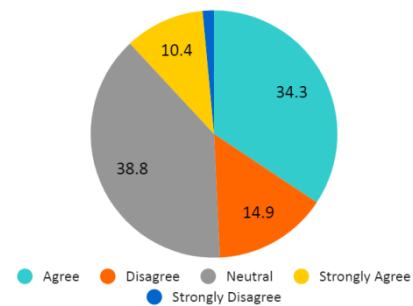


Figure-6: The percentage of students who believe that online learning has more benefits than drawbacks during the COVID-19 circumstance.

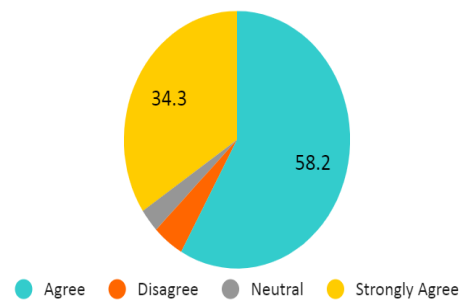


Figure-7: Percentage of students who answered that online learning is a convenient way to continue education and avoid the spread of COVID-19.

Out of 67 responses 16.4% are males and 83.6% are females of age groups 20-35 yrs. 80.6% of the students are studying through online platforms, 50.7% of students use Google meet, 23.9% through Zoom, 9% through you tube and 7.5% use other platforms. 31.3 percent of students highly agree, 40.3 percent agree, and 19.4 percent have a neutral attitude that online learning is a smart choice for continuing education during the covid-19 epidemic.

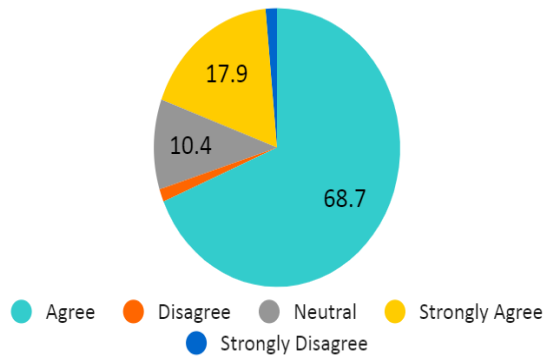


Figure-8: Percentage of students who are confident in their ability to do fundamental computer activities necessary for online learning.

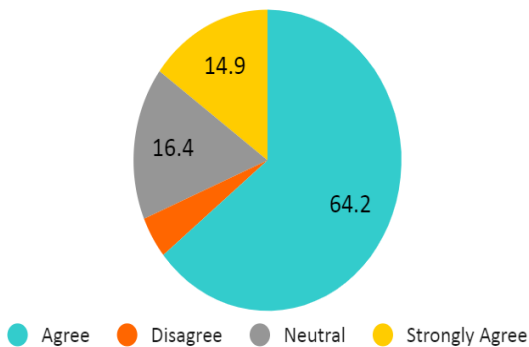


Figure-9: Percentage of students that are confident in their knowledge and skills in using online learning tools.

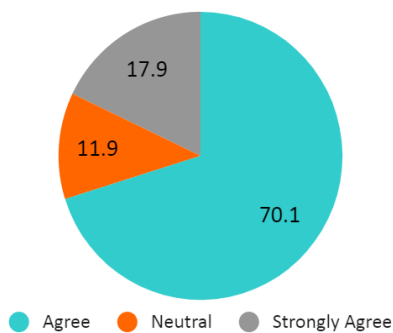


Figure-10: Percentage of students that are comfortable utilising the Internet to search for or obtain information for online learning.

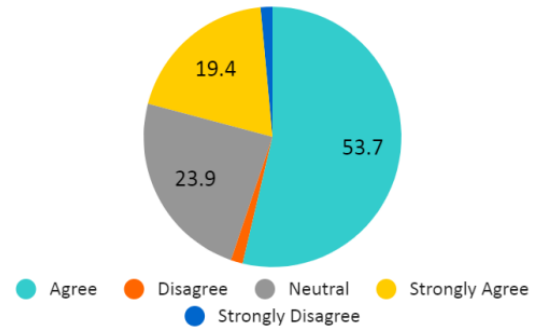


Figure-11: Percentage of students who are confident in their ability to communicate successfully with others utilizing online technologies during online learning sessions.

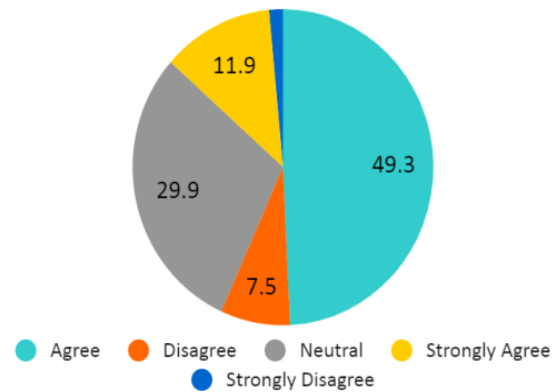


Figure-12: Shows the percentage of students that believe online learning is simple to utilize.

43.2 percent of students believe that online learning has more benefits than drawbacks in the Covid-19 circumstance. 82.1 percent of students are confident in their ability to do fundamental computer operations and manage software essential for online learning, 68.7% are confident in their ability to effectively communicate with others during online learning sessions, and 23.9 percent are undecided.

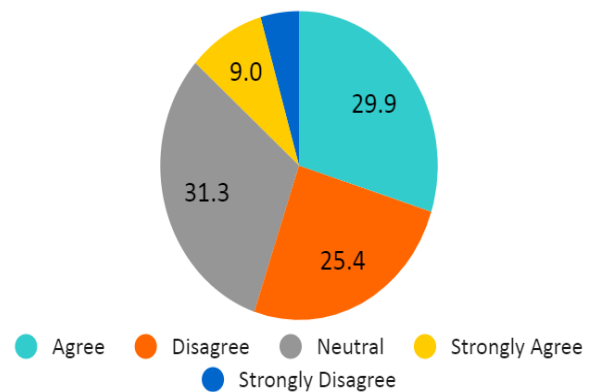


Figure-13: Percentage of students that believe online learning is simple and easy to understand.

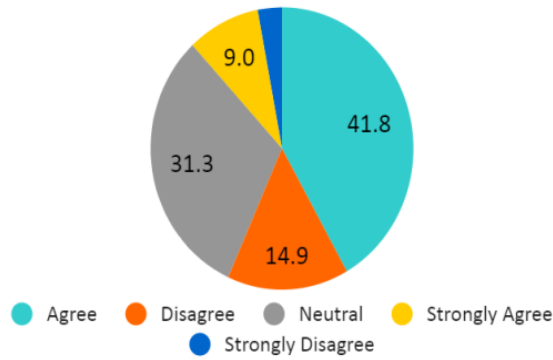


Figure-14: shows the percentage of students that believe online learning is flexible.

25.4% of students strongly agree that online learning to be clear and understandable while 31.3% is of neutral opinion and 25.4% disagree with the opinion. 37.3% and 31.3% finds online learning flexible and has improved the academic performance while 14.9% and 22.4% disagree with the opinion.

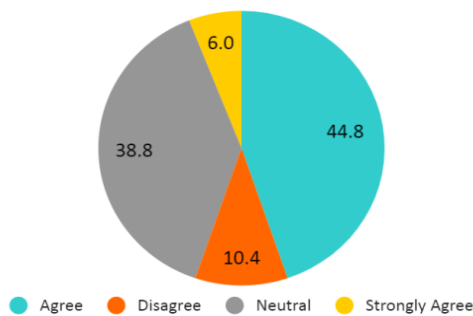


Figure-15: Percentage of students who consider that online learning would help them improve my academic performance.

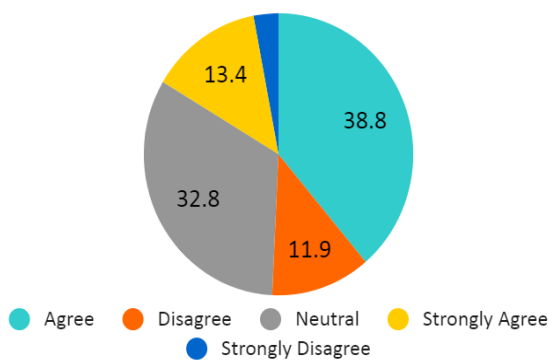


Figure-16: Percentage of students who consider that Class communications with the instructor using the online learning tools are fast.

31.3% agrees that online learning has improved their academic performance, 34.3% agrees with the statement class communications with the instructor using online learning tools are fast.

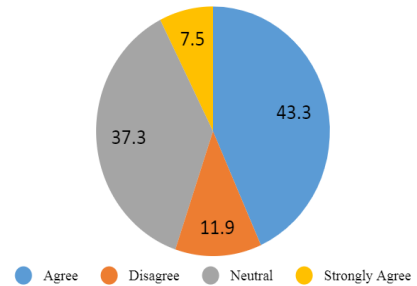


Figure-17: Percentage of students who believe that online learning helps them be more productive during the COVID-19 setting.

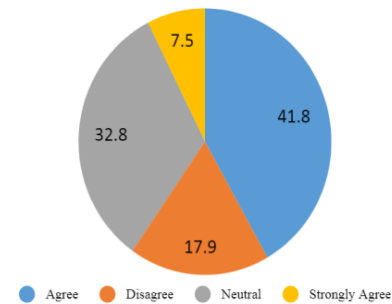


Figure-18: Percentage of students who consider that online learning sessions are very motivating to them.

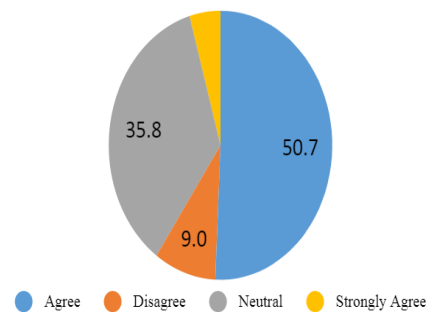


Figure-19: Percentage of students who consider that discussions in the online learning motivate them to participate.

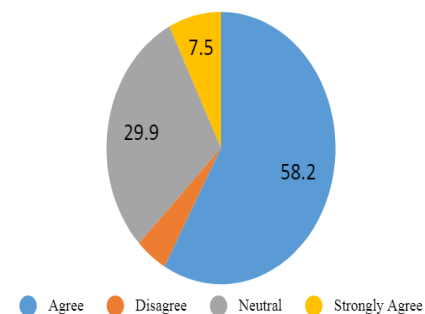


Figure-20: Percentage of students planning to use online learning during COVID-19.

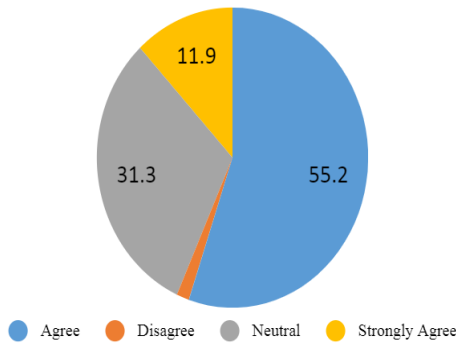


Figure-21: Percentage of students who plan to use online learning to further their education during the COVID-19 circumstance.

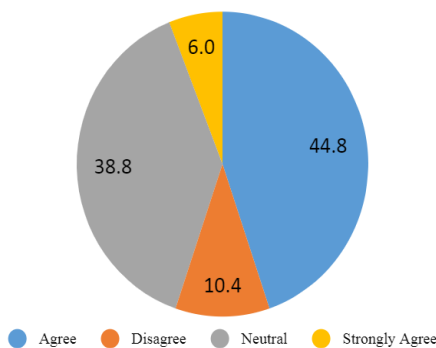


Figure-22: During the COVID-19 circumstance, the percentage of students who believe that using online learning improves their academic achievement.

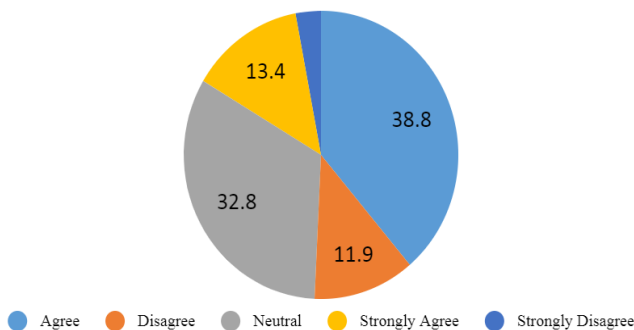


Figure-23: Percentage of students that believe online learning has improved their contact with peers and teachers during the COVID-19 circumstance.

During the Covid-19 circumstance, 40.3 percent of students strongly think that online learning boosts productivity, while 38.3 percent agree that online learning sessions are extremely motivating. 7.5 percent highly agree, 55.2 percent agree, and 29.9 percent are undecided about using online learning during the covid-19 pandemic. During the Covid 19 circumstance, 52.2 percent agree to use online learning to improve their understanding.

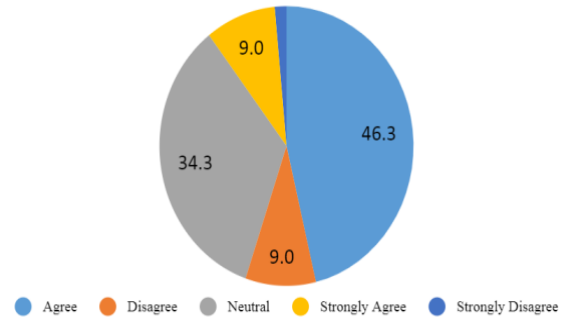


Figure-24: Percentage of students that believe they can use Online Learning to track their individual success (i.e. personal growth) during the COVID-19 circumstance.

44.8% agrees that their academic performance is enhanced by using online learning while 47.7% agrees that online learning has enhanced the interaction with the peers and the teachers. 50.8% agree that individual progress can be monitored using online learning during covid 19 situation and 34.4 is of neutral opinion and 9% disagree with the statement.

Challenges: Online learning faces several obstacles, starting from issues for learners, issues for educators, and issues with content. To have interaction students and build them participate within the teaching-learning method may be a challenge for establishments. For lecturers, it's a challenge to transition from offline to on-line mode, adapt their teaching methodologies, and management their time. Developing content that not solely encompasses the fabric however conjointly involves students is tough¹⁶. A true drawback is that the consistency of e-learning services. In their instructional policies concerning e-learning services, there's no specific stipulation by the Govt. There's an absence of consistency, internal control, e-resource creation, and e-content distribution norms. This issue has to be addressed desperately to permit all to profit from quality education through e-learning¹⁷. The stress mustn't solely get on the professionals related to the adoption of on-line learning throughout the crisis, however ought to conjointly take under consideration the expansion and sweetening of the quality of virtual courses provided in such emergencies¹⁸. In e-learning, tons of your time and expense is concerned. It's not as easy because it looks, to urge the devices and instrumentality, to keep up the instrumentality, to coach human resources, and to make the web content, a major quantity of investment is needed. Therefore, so as to deliver education through the web mode and efficient education system has to be created.

In this powerful era, guaranteeing digital equity is crucial. Each digital devices, the net, and Wi-Fi don't seem to be receptive each lecturers and students. The shortage of sufficient digital resources, net property or Wi-Fi connections will cause tons of issues, inflicting several learners to miss learning opportunities. Establishments ought to build each effort to make sure that each students and school have access to the services required. Within the event that students don't have computers, they have to

conjointly make sure that all instructional applications operate cell phones moreover. Steps must, therefore, be taken to cut back the digital divide.

Practice makes a person nice may be a maxim that's in style and really true. E-learning was ne'er extremely practiced by students and lecturers through many universities. Most of them area unit contented and cursed with standard teaching designs. The unfold of the Corona Virus is a chance to create the foremost of the current state of affairs. During this hard to please state of affairs, we will learn tons. There area unit many instruments obtainable, lecturers area unit needed to decide on the simplest instrument and implement it to supply their students with education¹⁹. Educational establishments ought to prepare a stepwise guide which will guide lecturers and students on the way to access and use totally different e-learning resources and the way to hide major syllabus material through these technologies so as to attenuate digital illiteracy. The program will be viewed in numerous ways that by lecturers, i.e. videos, audio, and texts will be used. If lecturers supplement their lectures with video chats, virtual conferences, and so on, it's advantageous to urge instant feedback and maintain a private link with the scholars.

Conclusion

As a result of lockdown education, with a distinctive growth in e-learning, teaching on digital platforms has changed drastically²⁰. Research shows that online learning has been shown to improve knowledge retention, becoming beneficial to the scenario. Students thought that through E learning, they achieved a high degree of motivation and satisfaction, and had achieved a successful learning result of skills, competencies.

Students on the other hand feel a bit difficult to adapt to this brand new routine of learning as it requires time management skill and immense amount of self-discipline. At a phase like this where students lack social interaction and personal connection with peers it is odd if we expect the students to quickly approve this routine. Also there's lack of classroom entertainment and atmosphere from which the students suffer the most but "By changing nothing, nothing changes" some or the other actions need to be taken as there shouldn't be a compromise on health or future of students. The ideology of e-learning was like a savior to such disastrous phase of life. An apparent point to be duly noted is that we live in an ever-changing world that is ripe with new possibilities. We should be improvising and upgrading throughout every chapter of life and come up with a swift solutions to overcome any sudden problem as the use of e-learning in our education sector during lockdown.

This terrible turn of events has taught us that nothing is certain and that we must be ready to meet challenges. While we did not have much time to prepare for this outbreak, we should understand that preparation is the key. All of the crucial and unpleasant scenarios that may come must be prioritised and

prepared for. This pandemic has also taught us that in order to fight the epidemic, pupils must possess certain qualities, such as problem-solving abilities, analytical thinking, and, most importantly, adaptability. Educational institutions must build resilience into their systems to assure and prioritise the presence of these qualities in their pupils.

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