

TO EXAMINE THE CHANGE IN LEARNING WAYS AFTER COVID-19 PANDEMIC AND USE OF MORE TECHNOLOGY DURING PANDEMIC

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Abstract: *This research assess the education delivered in schools is famously complicated and challenging to comprehend due to the intricate structure of teachers' responsibilities and obligations. Tutors, classmates, and teachers are only a few of the many potential sources of knowledge, and online learning may play a significant role. Some of these educational possibilities, especially those that need pupils to work together with their teachers and classmates in large groups, have been compromised by the COVID-19 pandemic. A questionnaire administered to 307 distinct students. Descriptive research methods were used for this investigation. As can be seen from the results, a large percentage of the course has been moved online. Students and educators alike will be affected by the shift in format because of its potential impact on teaching strategies. Therefore, it is necessary to take a systematic approach to evaluating the effectiveness of online pedagogical and scholastic adaptations.*

Keywords: *knowledge, online learning, educators, teaching strategies*

1. INTRODUCTION

1.1 Online learning

The term "online education" refers to the process of acquiring information and skills via electronic devices connected to the internet, such as laptops, mobile phones, tablets, etc. The convenience of online learning allows teachers to more easily connect with students and impart the skills and knowledge they require. Those who are unable to take courses in a conventional setting can now access a wealth of information and resources online (Martin et al., 2022). Benefit of receiving one's education online is that one may go to school from anyplace one has internet access. Moreover, it removes the geographical limitations on schools' ability to recruit new pupils. In addition, online lectures can be recorded, stored, and distributed for use at a later time (Wang et al., 2013). Because of this, students can access the course materials whenever it is convenient for them. In terms of their educational path and preferred method of study, every student is unique. Some students learn most effectively through visuals, while others are auditory learners. Some pupils flourish in a school environment, while others, who prefer to work independently, struggle when exposed to so

many other people (Sofie et al., 2022). With a variety of tools at your disposal, the online learning platform may be tailored to your specific needs. It's the most effective method for customising lessons to the specific requirements of each student. When taking classes online, students have more chances to work together because of the convenience of online group projects and meetings. Students can share their thoughts on text material and class discussions using online courses' internet forums and collaborative tools. Students can benefit from both studying and socializing from much more one-on-one time with their lecturer through virtual learning. Students can complete their work for grading and connect with their teachers in an interactive online forum (Greenhow et al., 2022). With the advent of the internet, students now have access to a wealth of educational resources any time of day or night. Students will have more options for when, where, and how they study thanks to the proliferation of powerful computing devices (such cell phones) and the widespread accessibility of the internet. This level of adaptability to education is impossible to achieve in the conventional classroom setting because kids remain four-bound in this setting. Students can receive virtual instruction and instruction in the form of voice, writing, video, animations, conversations with instructors or coaches, and more through online education. These are the strategies for teaching pupils the content they'll need to master in order to succeed as experts in their industries. Today's students are increasingly turning to online learning opportunities. Many students favour this method of education since it allows them to study at their own speed and is relatively easy to access (Archambault et al., 2022). Generally speaking, students want more independence and freedom of thought as they advance through school. They may be able to take college-level courses or other highly individualized education programmes because to the accessibility of online learning. These, when paired with practical applications, authentic experiences, and in-depth evaluations, can have a significant impact on students' development as learners. Before deciding on a concentration, they can try their hand at a variety of introductory courses across disciplines. These students can benefit from online education platforms by becoming more self-directed learners when they enter higher education (Al-Salman & Haider 2021). Online courses can be structured to appeal to a wide range of student preferences on how they prefer to learn. The best way to integrate online learning courses into the syllabus will likely need us as instructors to put in extra work. Teachers and administrators can now take use of online training programs aimed at improving their knowledge and abilities in areas such as curriculum design, policy, school standards, and management, either on their own or with the assistance of their respective institutions (Wijaya et al., 2021). Even though students can do their homework whenever is most suitable for them, good time management is still required to meet the professor's expectations and succeed in an online course. Time management skills are honed in online classes because students are expected to actively participate rather than merely show up for the class on the scheduled day and time. This is because the proliferation of online education removes many of the traditional constraints on learning. Online education has made it possible to study almost any topic imaginable. In addition, many online platforms allow students to design their own courses. Students would be able to take more specialised degree classes that aren't offered at nearby campuses by attending college online. Because of the ease with which knowledge may be shared

in an online classroom, more individuals in more places can benefit from educational opportunities that might otherwise be out of reach.

1.2 Virtual learning tools

1.2.1 Google classroom

Google Classroom is an all-in-one platform designed for educators that allows students to access their courses from any device, anywhere in the globe. Educators can save time by performing tasks like making teaching materials, monitoring student progress, and utilising a variety of imaginative tools to liven up their lessons. Any online education platform, including Google's own, is only used because of external motivators (Andri 2022). Every student and educator's Google Calendar can be synced with Google Classroom. When a new class is formed in Google Classroom, a new folder is made in the appropriate Google service where students' assignments can be seen and evaluated. Teachers may reach all of their students in one fell swoop by using Gmail to send out class-wide messages and polls. Teachers have the option of adding students to their classes through the Google Apps catalogue or giving them a code that must be typed in to gain access to the course. The classroom is where students first experience the online learning setting. Students are now expected to take at minimum one online course as part of their degree requirements at many institutions (Fauzi et al., 2021). If students are familiar with Google Classroom before entering higher education, they may have an easier time adapting to certain other learning platforms (Oktaria & Rahmayadevi 2021). They are more likely to use technology to take charge of their own education because of their familiarity with it. The classroom environment lends itself to a wide variety of opportunities for student participation and group work. It allows educators to give students individualised tasks, integrate media like movies and web sites into courses, and design projects that encourage students to work together in groups.

1.2.2 Zoom

During the epidemic, many students took their education online, and Zoom became increasingly popular as a presentations tool and webinar platform. Zoom is a great platform for online education because of its safety features, live video class capabilities, and chat capability for social interaction. Since the advent of the Covid-19 pandemic in December 2019 and the subsequent shift to telecommuting and online education, Zoom has experienced meteoric growth. Zoom is a video communication application that offers a solution for click-to-connect conferencing. It can be used for classroom instruction and learning, discussion groups, and even individual office hours. Zoom is a simple-to-use application for hosting video conferences, inviting students, soliciting participation, and sharing materials. It is the closest you can go to being in the exact same classroom or office yet both studying and learning from home (Alfadda & Mahdi 2021). One of the factors for Zoom's success is the reliability and high standard of their video calls. Many older communication services boast the same qualities, but their execution is poor, leading to interrupted video calls or garbled audio. It's crucial that a teacher is able to convey their point clearly; as any

time spent explaining oneself detracts from the opportunity to instruct on another topic. Because of limitations like this, many competitors to Zoom's meeting technology have been forced to withdraw. Zoom provides a number of useful conference tools, including the option to broadcast one's display (Kohnke & Moorhouse 2022). Any user, from the teacher to the kids, can benefit from this straightforward function. With just two clicks, all meeting attendees can see what the presenters see by expanding the presenter's display. Zoom also includes a whiteboard that may be used by the host even if they haven't planned a presentation or want to explain anything.

1.2.3 Microsoft team

Microsoft Teams, which was initially released as a platform for corporations, has undergone a number of changes and improvements and is now a suitable platform for usage in educational settings. Commonly known as Microsoft Teams for Education, the service is essentially the same free, public Microsoft Teams platform, modified for educational institutions. The site provides a virtual classroom where educators and students can work together on assignments and projects using a variety of tools (including third-party apps). Educators can form groups that include the whole class or a smaller subset of students. Larger numbers, such as a math club, committee, or even just a math class, are also possible. More and more educational institutions are embracing Teams for education as a means to improve their students' educational experiences. In addition, after experiencing distant education, many students are asking their institutions to adopt hybrid teaching methods. Future-proofing your school's approach to hybrid learning with cutting-edge technology such as Microsoft Teams for schooling will set you apart from the competition. Microsoft Teams for School is a cutting-edge system that allows for meetings, easy collaboration, school and assignment management, as well as information for students and the entire school as a whole. Prominent teachers consider it the pinnacle of learning environments. Students will learn in many different ways. Some individuals learn more well in groups, some in actual schools, while others benefit from digital experiences. Microsoft Teams for Schools increases studying in a variety of ways. Microsoft Teams for Classroom also allows students to learn relevant skill sets.

1.2.4 Google meet

Educators may gain a lot from using Google Meet. Google Meet is the finest way for students to acquire an excellent education. Teachers and students from all over the world can have simple and quick conversations. Over Google Meet, students can pose their inquiries. Google Meet improves the standard of online conversation. Google Meet facilitates better teacher-student dialogue. Google Meet allows educators to hold virtual conferences with their classes. New improvements to Google's Meet video-conferencing platform will make classroom life easier for instructors and students. Google has been steadily updating the platform over the past several months, adding features such as the capability to rearrange and relocate video feeds, a data saving mode supported by artificial intelligence. Some entertaining new features, such as visual backdrops, have lately come to make video conversations more interesting. One example of a tool that helps students study together is Google Meet. A digital whiteboard, polling, and attendance tracking are just some of

the tools you'll find there. The Google Jam board is a digital whiteboard designed for group brainstorming sessions. Participants are more likely to talk to one another thanks to these characteristics. In this method, participants are put in an environment that helps them think creatively and learn which makes them more productive. A growing number of today's educators and students are making use of video chat services to establish virtual relationships with peers all around the world. As a result, educators are able to network with one another, administrators are able to meet with elders, and students are able to network with peers and subject-m Google Meet, despite having less functionality than Hangouts, has been more useful for breaking down classroom barriers through video conferencing.

1.3 Change in learning methods after covid-19 epidemic and more technological use

The pandemic caused by COVID-19 has an effect on all aspects of human living. Globally, the COVID-19 epidemic has had a significant impact on the educational system (Kim & Fienup 2022). Online learning is currently adopted by educational institutions worldwide to provide students with on-going education during the COVID-19 pandemic (Kurniawati 2022). Because of the lockdown, students were unable to join their regularly scheduled classes, which will have a detrimental effect on their academic performance. As a result, the Indian government's Department of Education made the decision to provide students with the ability to finish their study by enrolling in online courses. This will result in an increased demand for various online educational techniques, and it was during this period that the significance of online education first became apparent. According to (Curelaru 2022) a large number of educational institutions, including schools, colleges, and universities, are now offering their students access to online classes. Internet-based classes enable students to improve their abilities and acquire new knowledge without having to leave the comfort of their homes. In times of pandemic, online education is the preferred method of education (Zhu et al., 2022). The spread of the COVID-19 pandemic has inspired innovative approaches to education (Besser et al., 2022). Higher educational institutions from around the world are increasingly turning to online learning environments to continuing the education of their students. Online education has become the standard, replacing traditional classroom instruction as the standard (Martono et al., 2022). There is now a global consensus that schools and students must have access to digital learning resources. This is an altogether new approach to teaching that many universities were required to adopt. Today, kids can acquire skills in a wide variety of extracurricular activities through the convenience of online instruction. Online education is used by virtually every school in the nation today. In the modern era, education that takes place entirely online is not novel. Educators must be proficient in both teaching and the use of instructional technology (Syam & Achmad 2022). Educators in the modern era need to be well-versed in a number of areas, one of which is internet technology. When it comes to acquiring and distributing information and data, the internet has evolved into a powerful and efficient tool, eliminating the need to consider spatial and temporal barriers (Tegowati et al., 2022). The current state of internet development influences many facets of society, including the political, economic, social, and educational spheres. The requirements of technological progress in terms of the competences that

educators (and their pupils) must give are intrinsically linked to today's educational aims. Educators rely on a variety of tools, including Google Classroom and others, to facilitate students' participation in online courses (Abdullah & Kauser 2022). Google Classroom is a free online application with a variety of features that promote student-teacher collaboration in a digital setting. It's a great tool for both the educator and the learner even during Pandemic of Covid-19. However, the author noticed that there were issues with the use of Google Classroom in the classroom. Due to the poor quality of the connectivity, some students opted out of using Google Classroom. It was discovered by Rozak and Albantani (2018) that this software allows educators to test out concepts in science with their students. According to the research of Ocampo et al. (2017), using Google Classroom as a teaching tool is one example of a technique that employs the use of technology to improve the educational experience for both teachers and students. Teachers can use Google Classroom to distribute course materials to students. Teacher might insist that their students give oral presentations of their projects for immediate feedback from their peers. Sharing one's screen is the most common means of doing this on Zoom. Students on other video chat services typically submit their work in the format of a PDF or picture file sent to the instructor. The lecturers are able to submit educational content, provide students with assignments, and submit the students' grades in order to instantly view their course performance. In addition, Google Classroom can be used to reschedule sessions when teachers are out of town or busy throughout class hours. Alim et al. (2019) discovered that Google Classroom reduces costs as a result of cheaper equipment as well as other supplies, as well as time-released energy. In summary, Google Classroom students will expend less energy and time than normal. The session continues online with the teacher sharing the student's work and providing feedback through annotations. This is a time-consuming procedure that frequently leads to frustration as users fumble with the technical settings. The whiteboard feature of Zoom is useful for online teaching (Quiamco et al., 2022). Zoom's whiteboard features only a pen and a text area as editing options. But, the whiteboard feature in Zoom does not have a highlighter, which may be seen as crucial when evaluating and commenting on pupils' work. Students can work together on a single copy of Zoom's online whiteboard to complete group projects like mind mapping or brainstorming. Google Meet, a video conferencing tool, has recently released a plethora of new features tailored specifically to educators and students (Sari 2021). You may now silence all participants, use moderation tools, and end the meeting for everyone with Google Meet's newly released capabilities. Google hopes that by implementing these new capabilities, online classroom harassment of instructors would be reduced (Putra 2021). Recently, there has been a surge in the popularity of mobile apps that expand students' access to educational resources outside of the classroom. Because they already have smartphones, these apps are being utilised to supplement formal education. During this challenging time of deciding on a future path of study, parents and educators must serve as guides and anchors by carefully selecting the educational materials their children have access to. Even before modern technology made it possible for everyone to participate, distant education has been practised for quite some time. There has been a recent explosion in the availability of online courses and other forms of digital training that complement the more traditional modes of education. Even in a world where educational

systems and curricula have been developed and tested, the most education systems are the ones that change with the times and meet the needs of their kids, parents, and the community.

2. Review of literature

Psotka (2022) studied on full assessment of the impact of Covid-19 on online education is still premature, it is important to begin documenting the changes in the lives of students, educators, parents, and curriculum in order to be ready for future studies. It's possible that we'll be able to hone in on specific school years if we collect enough data, but we can definitely expect to learn about the key distinctions among preschool, elementary, secondary, and higher education. Many educational institutions throughout the globe have taken the lead in this shift by abandoning traditional methods of instruction and closing their facilities, while others have begun to experiment with new forms of education, such as online courses. It's possible that lower education levels were less ready for these dramatic shifts.

Ali et al., (2022) studied on instructional materials including courses, educational videos, discussions, as well as providing educational objectives, scores, engagement statistics, and learning patterns, are all examples of what may be accomplished in today's digital learning settings. Using cutting-edge hardware and software, academics and policymakers now have access to a wealth of new, important educational data that illuminates students' habits and preferences. By seeing, learning, and understanding a student's unique learning strategies, virtual learning environments are able to provide professional support for students who are having difficulty. Some students may still be at danger of negative learning methods including boredom, alienation, and incompetence, despite the presence of instructions and aiding tools inside these settings, as has been noted by numerous researchers. More so when dealing with novel or difficult pedagogical material

Weidlich & Bastiaens (2022) studied on widespread use of modern technologies, notably social media and social-networking sites like Twitter and Facebook. Despite the widespread use of online and distance education, many critics continue to raise valid points, including the potential for students to feel isolated from their classmates. In this work, we examine if and how ubiquitous awareness, a term developed in the study of the relational impacts of SNS, can play a significant role in the emergence of salient social impressions of peers and in the development of students' perceptions of the presence of others. For this purpose, we employ a model for forming first impressions in a distance learning course that spans four weeks (N = 51) and takes place entirely online. In our study, we discovered that students' perceptions of their classmates were shaped by their exposure to their surrounding environment. These perceptions were less prevalent than those gained through actual conversation.

Sharma & Dwivedi (2022) studied on schools and universities are increasingly adopting online and blended learning strategies to adapt to students' needs and the evolving educational landscape. But it's important to know how students feel about online and hybrid learning and whether or not they're adapting to the new environment. The purpose of this research is to get an understanding

of students' expectations for, and actual experiences with, online learning tools and methods, as well as the components and activities that make up a successful online learning environment. The research pinpoints essential features of a productive online learning environment in colleges and universities. As a tool for gauging how happy and fulfilled students are,

Besalti & Satici (2022) studied in the recent coronavirus (COVID-19) pandemic, stay-at-home restrictions and quarantines have resulted in a significant rise in the use of digital devices, which has changed the focus from in-person to online education. As a result, a significant number of students who were unfamiliar with online education were thrust into an unfamiliar setting. With the COVID-19 pandemic in full swing, researchers want to see how much of a toll internet addiction has on the academic success of distance learners. Of the 81 towns in Turkey, 249 university students from around the country responded to an online survey. Cross-lagged structural model was used to analyse the information. Online students' levels of satisfaction with their education were found to be lower in Time 2 if they had been addicted to the internet in Time 1. Furthermore, the data showed that internet dependence was not influenced by the level of satisfaction with learning experienced by online students at Time 1. (Time 2). Internet-dependent students were shown to be less satisfied with their educational experiences when taking classes online.

Banunaek et al., (2022) studied on Education is just one area that has been profoundly impacted by COVID-19's rapid and widespread expansion all over the world, as well as in Indonesia. As a result, a plan to address the demands of education in the midst of the epidemic is required to ensure that teaching and learning may remain unchanged. When it comes to education, the internet is where it's at, and Google classroom is the tool that's helping people learns from afar. This, of obviously, calls on students to engage in autonomous, comprehensive analysis of the material covered in class.

Rizki (2022) studied on competition to learn, develop, and implement cutting-edge technology has emerged as a result of globalisation. The use of technology in the classroom is among the most promising approaches. Among the education-based programmes commonly used during online courses is Google Classroom, which is utilised to overcome hurdles in implementing remote education. This study set out to answer questions about how students feel about utilising Google Classroom for online instruction, what challenges they've encountered, and how they've developed creative workarounds. This study used qualitative descriptive methodology. The questionnaire and interviews were the primary methods of data collection used by the researcher. Thirty sixth-semester Class A students at the English Language of the University of Muhammadiyah Malang in the academic year 2019/2020 served as participants in this study. Thirty people were asked to fill out the survey by the researcher. After that, three pupils were selected for interviews by the researcher. Results show that 69% of students think that Google Classroom should be used in online classes, with 13% of that majority of the students agreeing with this statement.

García-Morales et al., (2021) studied on society in crisis must undergo a period of renewal, even if that renewal is disruptive. The present Covid-19 pandemic is causing abrupt and profound changes in people's employment, lifestyle, and interpersonal patterns around the world. This paper

examines the educational field to demonstrate how universities are undergoing profound changes due to the imperative to digitalize educational and training procedures in lightning speed, despite the fact that many professors lack the requisite technological skills for teaching via the internet. In an era of digital transformation, competitive technology advances, and rapid change, the school system must work to remedy this problem if it is to remain competitive and offer a high-quality education.

Putra (2021) studied on rise in the number of cases of Covid-19; we have had to make significant adjustments to our teaching methods. Consequently, classroom instruction has shifted away from face-to-face interactions and toward online platforms. Synchronous and asynchronous interactions between students and instructors are emphasised in online learning. Teachers reportedly found online instruction dull and focused more on completing administrative tasks than on engaging students in meaningful learning activities. The students' limited motivation to study English was a further consequence of this situation. As a result of the routine nature of the lessons, some students may lose interest and become disengaged from the classroom discussion and activities.

3. Research methodology

The research technique of a researcher defines how they intend to conduct their study. It is a methodical and logical technique to resolving a research problem. According to a study, teacher education has shifted from face-to-face interactions to online platforms as a result of Covid-19. The COVID-19 pandemic has inspired new instructional methods. Higher education institutions make extensive use of online learning environments, resources, and approaches to further students' education. 307 students are surveyed for data. In this research, the ANOVA test for variation is performed.

4. Result and discussion

Table 4.1 during COVID Students learnt from the home by online classes

Variance	$s^2 = 1.5648499$
Standard Deviation	$s = 1.2509396$
Count	$n = 307$
Mean	$\bar{x} = 2.33$
Median	$x = 2$
Mode	$z = 2$
Sum of Squares	$SS = 785.55$

Result: The results of Table 4.1 show that the mean is 2.33, the standard deviation is 1.25, and variance is ($s^2 = 1.5648499$) and that Covid allowed students to take lessons online from the comfort of their own homes.

4.2 Because of COVID19, online classes have become a necessity for students.

Variance	$s^2 = 1.5561769$
Standard Deviation	$s = 1.2474682$
Count	$n = 307$
Mean	$\bar{x} = 2.29$
Median	$x = 2$
Mode	$z = 2$
Sum of Squares	$SS = 781.20$

Result: According to the data that is compiled and displayed in Table 4.2, the average value is 2.29, the standard deviation is 1.24, and the variance is ($s^2 = 1.5561769$). This table's data provides the information produced in this table supports the claim that Because of COVID19, taking coursework online has developed into something of a requirement for children.

Table 4.3 Smartphone, tablet, compute make ease of access to syllabus.

Variance	$s^2 = 1.519465$
Standard Deviation	$s = 1.2326658$
Count	$n = 307$
Mean	$\bar{x} = 2.28$
Median	$x = 2$
Mode	$z = 2$
Sum of Squares	$SS = 767.32$

Result: The statistics presented in Table 4.3 indicate that the average value is 2.28, the standard deviation is 1.23, and the variance is ($s^2 = 1.519465$). The information produced in this table supports the claim that using a Smartphone, tablet, or computer makes it simpler to obtain the syllabus.

Table 4.4 which online learning platform is the most effective for students?

SUMMARY				
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Google classroom	306	1156	3.777778	0.966849
Zoom	306	1223	3.996732	1.832776
Microsoft team	306	1076	3.51634	1.365306
Google meet	306	1155	3.77451	1.414561

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	35.4281	3	11.80937	8.466267	1.44E-05	2.612197
Within Groups	1701.745	1220	1.394873			
Total	1737.173	1223				

Average score of zoom is 3.99 which are highest so according to respondents zoom is most efficient online learning platform. F value is 8.46 which are greater than f critical value, which are 2.61. The F-value in this case is obviously larger than the F-critical value required by the chosen alpha level (0.05). There is enough evidence to suggest that one of the four samples has substantially different means and hence comes from a distinct population than the other four, and thus rejected the null hypothesis.

5. Conclusion

The pandemic has created serious obstacles to regular classroom operations. School and university lockdowns have become commonplace over the past year as a direct result. In order to better serve their students, several schools have adapted their methods of instruction to be more adaptable and user-friendly. While online instruction is an integral part of the blended learning model, other models, such as the hybrid model, combine online instruction with face-to-face sessions, with the caveat that all students are required to visit both mediums. Of fact, e-learning had already been a part of the school experience for a while, but never before had it been so pervasive. Many educators around the world have had to quickly learn how to use a variety of online tools in order to instruct entire classes without ever meeting their students face-to-face. Social learning platforms and other educational technology simplify group formation and management for educators. The transition to digital learning can simulate tutoring's advantages while freeing up lecturers' time to focus on students' specific requirements in small classes. The ability to personalise lesson plans for each student will improve educational outcomes by allowing teachers to identify and address students' individual learning needs and then speed up the process of addressing those needs.

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