# Exploring Pre and Post COVID-19 Educational Practices at Higher Educational Institutions (HEI's) in Kazakhstan

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**Abstract**

This study delves into how the COVID-19 pandemic reshaped educational practices in higher education institutions (HEIs), focusing on the transition from traditional to online learning. Through qualitative interviews with faculty members it examined the readiness of the university for distance learning, changes in teaching methodologies, and technological advancements. While the initial readiness to online learning was limited, the HEI quickly provided support and resources. Teaching methods evolved towards more interactive approaches, despite challenges in assessment and student engagement. Technological advancements facilitated by the pandemic offer opportunities for enhancing teaching and learning. This research offers insights into the transformative impact of COVID-19 on educational practices in HEIs. The findings highlight a swift move to online learning, necessitating the adoption of digital tools by educators. Despite initial limitations in readiness, the university quickly provided the necessary support and resources. This led to an evolution in teaching methods towards more interactive approaches, despite challenges in assessment and student engagement. Recommendations include investing in technological infrastructure, prioritizing faculty training, and promoting alternative assessment methods.

**Keywords:** COVID-19, higher education institutions (HEIs), educational practices, online learning, distance learning

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**Introduction**

According to UNESCO getting education is a fundamental human right, a global common good and a primary driver of progress. Meanwhile, in December 2019, the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (Boccia, Villari, & Ricciardi, 2015) also referred to as simply Covid-19 (Fauci, Lane, & Redfield, 2020) broke out and virtually brought the whole world to a standstill. Governments urged their citizens to stay isolate themselves and avoid interactions with unessential people in hopes that this would halt the spread of the virus. During the pandemic, governments imposed stay-at-home orders, enforced through penalties and arrests for non-compliance. Some instances involved complete building lockdowns due to severe COVID-19 cases confining occupants to rely solely on online communication.

Naturally, this situation caused significant disruption to the education processes around the world, more than at any other time in modern history. Schools, colleges and higher education institutions certainly could not continue operating in their usual format because it would exacerbate the situation instantly, due to a large gathering of students and educators in closed environments. Therefore, the only viable option was to transition to the online format. However, unlike businesses, with a relatively low number of mature self-motivated workers, HEI's provide lectures, seminars and other teacher-led sessions for thousands of students on a daily basis, which meant that performing such task was not just difficult from organizational point of view, but also put a large strain on digital infrastructure of HEI's.

In fact, most reports accessed during the research suggest that only affluent prestigious universities were able to effortlessly facilitate distance learning for all their attendees and associates, while smaller universities had to shut down or experienced considerable disruptions in teaching in the first few months of the pandemic (International Society for Environmental and Life Sciences in Agriculture and Conservation (ISELAC), 2020). According to the Global University Network for Innovation as many as 85% of HEI's in Europe were able to successfully transition to online learning, while in Africa, this number was as little as 29% (Marinoni, 2020)

In addition, in many developing countries, poor infrastructure and lack of access to necessary amenities (i.e. equipment, internet) became an insurmountable barrier for some students to participation in the online classes, widening the inequality gap in term of education accessibility. Furthermore, studies claim that the pandemic increased the divide between genders, as women had more responsibilities due to staying at home, like house chores, looking after children (Salmi, 2020).

Another issue was lack of experience of educators with regards to using relevant technology for online teaching, such as web-conferencing tools (i.e. Zoom, MS Teams, Google Meets etc.) and other platforms. The result of this shortcoming, meant that the education process was inconsistent at best and at worst worthless, as educators were unable to deal with the technical aspects of the process (British Council, 2020)

Finally, most curricula and syllabi were not suitable for online teaching, so adapting them to fit the new framework presented another impossible hurdle, as such venture usually takes several months to complete, whereas in the Covid-19 circumstances this had be performed in the matter of weeks or even as a continual iterative day in - day out process, progressively approaching the desired system. And while universities obviously provided initial training and medium for teaching to their staff, the effectiveness and engagement of students often depended on individual efforts of teachers, such as ingenuity and positive attitude. On top of that, prior experience in using web-conferencing tools and overall experience of distance teaching or studying made an appreciable difference to the quality of teaching. In fact, many teachers reported low levels of support by their respective faculties and actually stated using public sources to obtain various insights into online teaching (British Council, 2020).

In 2024 most institutions have returned to their normal teaching formats as the state of emergency relating to Covid-19 was alleviated as was announced by World Health Organization (WHO) and the United Nations (UN) in May 2023, which was achieved through common effort of the countries. However, the former organization also notes that this did not end, simply has been sustained. All in all, as per figures given by United Nations to date more than ¾ of a billion people have been affected by the virus while around 7 million mortal cases were attributed to people sustaining the disease. Hence, there are strong concerns that the virus might return with renewed strength as scientists are detecting new strains of the virus, which might lead to a new spark in sickness and death. And although various NGOs and governments are working closely to prevent such complications, the society, including the education sector, should prepare for the potential recurrence of the pandemic and use the acquired knowledge and experience (both positive and negative) to ensure that universities are prepared for a new wave. This involves, investments in the IT infrastructure, staff training as well as development of dedicated curricula for various courses.

This paper explores the practices for online teaching, providing distinction between emergency remote teaching, hybrid teaching models and specialized online courses as well as new practices of distance learning that emerged during the recent pandemic. The literature review provides detailed scenario of Covid-19 and educational practices that emerged due to the pandemic-induced shift to online learning. Finally, the paper argues for the need of a systematic universal criteria to be developed to ensure better credibility of online education diplomas, thus, making its holders more appealing to prospective employers, which will not only improve student satisfaction, but also increase profitability of such courses for the universities.

Purpose of the Study

The purpose of this study is to examine the evolution of educational practices in higher education institutions, specifically focusing on the period before and after the COVID-19 pandemic. To explore and understand the effects of the COVID-19 pandemic on teaching methods in higher education institutions and, thus, identifying the best practices associated with online teaching, their potential and limitations, while also highlighting the key issues that emerged during this period.

Research Questions

1. How has the COVID-19 pandemic affected educational practices in HEI's?

1a. To what extent the HEI's educational system was ready for distance learning?

2. How COVID-19 pandemic has changed the teaching practices and methodologies in HEI's?

## 2. Literature Review

2.1 Impact of COVID-19 on Teaching Methods in Higher Education

The COVID-19 pandemic has brought about unprecedented disruptions to educational practices worldwide, prompting higher education institutions (HEI's) to swiftly adapt to remote learning environments. This section reviews existing literature on the impact of the pandemic on educational practices, focusing on key themes such as the transition to online learning, technological upgrades, and changes in teaching methodologies.

2.1.1. Transition to Online Learning

The rapid shift to online learning has been a defining feature of the pandemic's impact on educational practices. Researchers have highlighted both the opportunities and challenges associated with this transition. Hodges et al. (2020) discusses the need for flexibility and innovation in online teaching methods to maintain engagement and ensure learning outcomes. Similarly, Lily et al. (2020) emphasize the importance of inclusive online education practices to address disparities in access to technology and internet connectivity among students.

2.1.2. Technological Upgrades

The pandemic has underscored the critical role of technology in facilitating remote learning and communication within HEI's. Scholars have explored the adoption of various digital tools and platforms to support online teaching and learning. Haleem et al. (2022) examined the use of video conferencing software, learning management systems, and collaborative tools in higher education settings. They highlight the importance of institutional support and faculty training in leveraging technology effectively for educational purposes.

2.1.3. Changes in Teaching Methodologies

The shift to online learning has necessitated adjustments in teaching methodologies and assessment practices. Researchers have explored innovative approaches to engage students in virtual classrooms and promote active learning. Alzahrani (2022) discusses the use of project-based learning and online discussions to enhance student engagement and collaboration. Additionally, scholars have examined the challenges of conducting assessments remotely and proposed strategies to ensure academic integrity and fairness in online exams (Barbour, 2009).

2.2. Economic Impact

Researchers have explored the financial impact of the pandemic on universities, including revenue losses, budget cuts, and increased financial strain. Studies by Salmi (2020) highlight the vulnerability of universities to sudden disruptions in revenue streams, such as declines in tuition fees, reductions in state funding, and losses from auxiliary services like housing and dining. These financial pressures have forced institutions to make difficult decisions regarding staff layoffs, program cuts, and operational restructuring.

2.2.1. Shifts in Funding Models

The economic fallout from the pandemic has prompted universities to reassess their funding models and explore alternative revenue sources. Marginson (2020) discusses the need for greater diversification in university funding to mitigate the impact of future crises. This includes strategies such as expanding philanthropic support, cultivating industry partnerships, and leveraging online education initiatives for revenue generation. Additionally, scholars emphasize the importance of government intervention and stimulus packages to support higher education institutions during times of economic uncertainty.

2.2.2. Digital Transformation and Cost Considerations:

The pandemic has accelerated the digital transformation of higher education, leading to increased investments in online infrastructure and technology-enabled learning platforms. While these investments are essential for ensuring educational continuity, researchers raise concerns about the long-term cost implications for universities. Agbaglo and Bonsu (2022) examined the financial sustainability of online education models and the potential for cost savings or efficiencies in the delivery of digital learning. However, scholars also caution against the commodification of education and the erosion of academic quality in pursuit of cost-cutting measures.

2.3. Social effects

The pandemic has aggravated the inequality in terms of access to education due to non-uniform distribution of infrastructure and technology around the world and within each individual state, which puts some students at a disadvantage in terms of participation in online classes. Using data from a Global Survey Ukraine, the adaptation level of a fixed broadband was only 11% in the capital of the eastern European state, Kiev. Whereas, 60% of the villages in the country did not have any internet connectivity at the start of the pandemic. In addition, there are some arguments that women suffer from added inequality, due to more responsibilities within a household.

Krista and Heather (2023) explores the differential impact of the pandemic on low-income students, first-generation learners, and underrepresented minorities. These scholars highlight the challenges faced by disadvantaged student populations, including limited access to technology, financial barriers, and disruptions to academic progress. Addressing these equity concerns requires targeted interventions and support services to ensure all students have equal opportunities for success in the digital learning environment.

2.4. Psychological Effects

The COVID-19 pandemic has had profound psychological impacts on students and educators, exacerbating stress, anxiety, and mental health concerns. Study by Zarowski et al. (2024) explores the psychological toll of the pandemic on university students, highlighting increased levels of anxiety, depression, and social isolation. These researchers identify various stressors contributing to students' mental health challenges, including academic disruptions, financial uncertainties, and concerns about personal health and safety.

Educators have also faced significant psychological strain due to the demands of remote teaching, adapting to new technologies, and navigating uncertainties surrounding the pandemic. Zhang et al. (2020) examined the stressors experienced by faculty members, including increased workload, job insecurity, and challenges with work-life balance. These scholars underscore the importance of addressing educators' mental health needs to ensure their well-being and effectiveness in supporting students during this challenging time. Despite the psychological challenges posed by the pandemic, researchers have identified various coping strategies and resilience-building techniques to support students and educators. Loades et al. (2020) explored the effectiveness of coping mechanisms such as social support, mindfulness, and self-care practices in mitigating stress and promoting well-being among university students. These researchers emphasized the importance of fostering a sense of community and connectedness to combat feelings of isolation and loneliness. Educators have utilized various coping strategies to navigate the challenges of remote teaching and maintain their psychological well-being.

The psychological effects of the pandemic have implications for teaching and learning in higher education settings.  Elmer et al. (2020) examines the impact of stress and anxiety on students' cognitive functioning and academic performance, highlighting the need for trauma-informed pedagogical approaches and supportive learning environments. Similarly, scholars emphasize the importance of creating inclusive and compassionate learning environments that prioritize students' mental health and well-being.

Actually, educators' psychological well-being directly impacts their ability to effectively support student learning and engagement. Riva et al. (2020) explores the relationship between educators' mental health and teaching effectiveness, highlighting the need for institutional support and professional development opportunities to enhance educators' resilience and capacity to meet students' diverse needs.

2.5. Technological Effects

The COVID-19 pandemic has accelerated the adoption and integration of digital technologies in higher education, transforming the way teaching and learning are conducted. Researchers have explored various technological effects, including the rapid transition to online learning, the emergence of new digital tools and platforms, and the impact on pedagogical practices.

One of the most significant technological effects of the pandemic has been the rapid transition to online learning modalities Due to the closure of campuses and the need for social distancing, universities were compelled to shift traditional face-to-face instruction to virtual formats. Means et al. (2013) examines the prevalence of online learning during the pandemic, highlighting the

widespread adoption of video conferencing software, learning management systems (LMS), and other digital tools to facilitate remote instruction.

The pandemic has also led to the emergence of new digital tools and platforms designed to support online teaching and learning. Scholars such as Hodge et al. (2020) discuss the proliferation of virtual classrooms, interactive whiteboards, and collaborative software solutions aimed at enhancing student engagement and interaction in the virtual environment. Additionally, researchers explore the use of artificial intelligence (AI), machine learning, and data analytics to personalize learning experiences and provide real-time feedback to students.

The technological effects of the pandemic have influenced pedagogical practices in higher education, prompting educators to explore innovative teaching methods and instructional design strategies. Picciano (2018) examines the shift from traditional lecture-based instruction to more student-centered and active learning approaches in the online environment. These scholars emphasize the importance of incorporating multimedia resources, interactive activities, and asynchronous learning opportunities to promote student engagement and motivation.

## 3. Methodology

The research is qualitative in nature, focusing on an in-depth exploration of changes in educational practices at SDU University, Kazakhstan before and after the COVID-19 pandemic. The aim was to gather rich and detailed data that provide insights into the experiences and perspectives of educators who have navigated these changes. The qualitative approach is well-suited for this study as it allows for a comprehensive understanding of complex phenomena through the collection and analysis of non-numerical data (Patton, 2015).

3.1 Data Collection

Semi-structured interviews were conducted with the teachers, staff and students at SDU University to explore the pre- and post-COVID educational practices at the University, the semi-structured interview emerges as the ideal method for data collection. This approach offers unparalleled access to participants' thoughts, experiences, and perspectives, allowing us to delve into intricate details and uncover subtle nuances. Through open-ended questioning and active listening, we can foster trust, essential for eliciting authentic responses in both pre- and post-COVID contexts.

Historically, face-to-face interviews have been the preferred method of gathering qualitative data (Creswell, 2013). This is because in-person interviews allow researchers to observe non-verbal cues, such as body language and facial expressions, which enrich the data with additional layers of meaning. These cues are particularly valuable when exploring changes in educational practices, as they can reveal shifts in attitudes, emotions, and cultural nuances that verbal responses alone may not capture.

3.2 Instruments

In crafting our interview questions tailored to the exploration of past experiences in the educational context of SDU, we have drawn question from literature review while also customizing them to fit the specific nuances of our research focus. Drawing on open-ended questioning techniques, interviews afford participants the opportunity to articulate their viewpoints and insights, thereby enriching the depth and breadth of the data collected. Understanding the profound impact of past experiences on current educational practices, we aim to delve deep into the lived experiences of participants, capturing their perspectives, insights, and reflections.

3.3 Sampling

In the pursuit of robust qualitative research on the exploration of past educational experiences at SDU, meticulous attention had to be paid to the sampling strategy. The selection of participants played a pivotal role in ensuring the representativeness, depth, and richness of the data collected. Employing purposive sampling, characterized by the deliberate selection of participants based on their relevance to the research topic and the richness of their experiences, offers a nuanced understanding of the phenomena under investigation (Patton, 2015).

The sample for this study comprised teachers who are an expert and had been a teacher before, during, and after Covid-19.  To ensure the integrity and validity of the findings, efforts were made to achieve maximum variation within the sample, encompassing individuals from different academic disciplines, levels of seniority, and demographic backgrounds.  This approach not only enhances the richness and depth of the data but also promotes the generalizability of the findings to broader contexts within the educational domain.

Furthermore, the sample size was to be determined iteratively, guided by the principles of data saturation whereby data collection continues until thematic saturation was achieved, ensuring that no new insights or perspectives emerged from subsequent interviews (Saunders et al., 2018). This

iterative process allows for a judicious allocation of resources while maximizing the depth and breadth of the data collected.
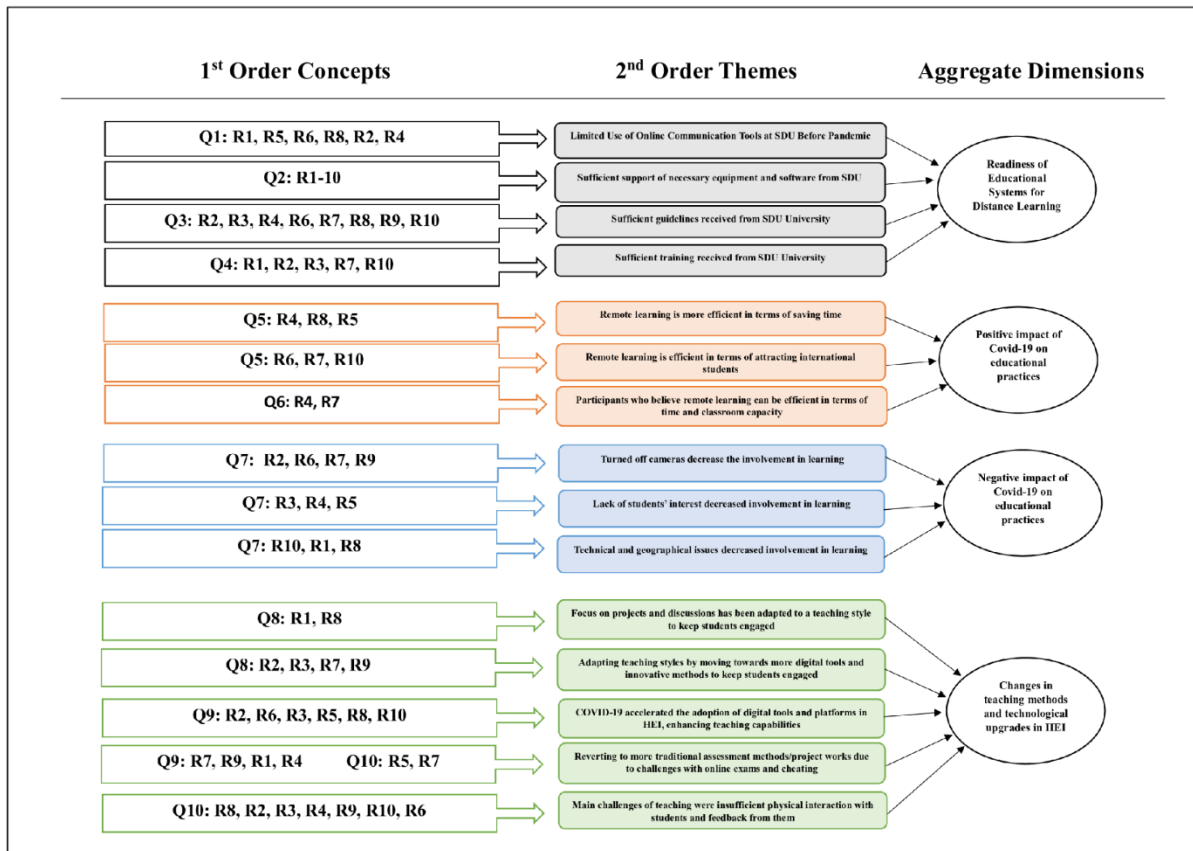
3.4 Data analysis

The analysis of interview data follows the Gioia methodology which emphasizes the importance of systematically organizing and interpreting qualitative data to uncover underlying themes and patterns (Gioia et al. 2013) (Gioia, 2021). This method involves a multi-step process where raw data are initially coded into 1st-order concepts reflecting participants' own terms and perspectives. These concepts are then synthesized into 2nd-order themes that provide a deeper understanding of the phenomena under investigation. Finally, these themes are further distilled into aggregate dimensions that offer a comprehensive overview of the research findings. By employing the Gioia methodology, we ensure a rigorous and transparent analytical process that captures the richness and complexity of participants' experiences and insights.

## 4. Analysis and Findings

In exploring the impact of the COVID-19 pandemic on educational practices in higher education institutions, it is crucial to delve into the key findings and insights derived from the document. The analysis will focus on understanding how the pandemic has influenced teaching methodologies, technological upgrades, and the overall educational environment. By examining the responses from interview participants and the documented research questions, we aim to uncover the implications of the pandemic on educational practices and the readiness of institutions for distance learning.

*Figure        1.        (Data        structure)        (Gioia        et        al.        2013)*



| 1st Order Concepts | 2nd Order Themes | Aggregate Dimensions |
|---|---|---|
| Q1: R1, R5, R6, R8, R2, R4 | Limited Use of Online Communication Tools at SDU Before Pandemic | Readiness of Educational Systems for Distance Learning |
| Q2: R1-10 | Sufficient support of necessary equipment and software from SDU | |
| Q3: R2, R3, R4, R6, R7, R8, R9, R10 | Sufficient guidelines received from SDU University | |
| Q4: R1, R2, R3, R7, R10 | Sufficient training received from SDU University | |
| Q5: R4, R8, R5 | Remote learning is more efficient in terms of saving time | Positive impact of Covid-19 on educational practices |
| Q5: R6, R7, R10 | Remote learning is efficient in terms of attracting international students | |
| Q6: R4, R7 | Participants who believe remote learning can be efficient in terms of time and classroom capacity | |
| Q7: R2, R6, R7, R9 | Turned off cameras decrease the involvement in learning | Negative impact of Covid-19 on educational practices |
| Q7: R3, R4, R5 | Lack of students' interest decreased involvement in learning | |
| Q7: R10, R1, R8 | Technical and geographical issues decreased involvement in learning | |
| Q8: R1, R8 | Focus on projects and discussions has been adapted to a teaching style to keep students engaged | Changes in teaching methods and technological upgrades in HEI |
| Q8: R2, R3, R7, R9 | Adapting teaching styles by moving towards more digital tools and innovative methods to keep students engaged | |
| Q9: R2, R6, R3, R5, R8, R10 | COVID-19 accelerated the adoption of digital tools and platforms in HEI, enhancing teaching capabilities | |
| Q9: R7, R9, R1, R4    Q10: R5, R7 | Reverting to more traditional assessment methods/project works due to challenges with online exams and cheating | |
| Q10: R8, R2, R3, R4, R9, R10, R6 | Main challenges of teaching were insufficient physical interaction with students and feedback from them | |

**S*ource: computed by authors***

Let's discuss each dimension separately in order to analyze Figure 1 in detail. In the first dimension (1st Order Concepts) we have grouped up similar responses of each question in order to figure out findings which can be further examined with the research questions.

*...Before the pandemic I did not use some WEBEX, platforms, or classrooms as a teacher. I was only providing my lessons (offline).*

*After the Covid-19 pandemic university provided us free Webex platform to conduct the classes online which was untraditional for us.*

*.. Also, the university prepared a short 2-days workshops (offline) at the university. They had prepared us quickly in the use of Webex, Google Classrooms and Zoom as an extra.*

*.. Yes, we did have some training, I also used some outside resources to better do my job, like to increase my capabilities.*

(conversation between researcher and respondents)

Before the pandemic, educational practices at SDU were traditional, involving face-to-face interactions and physical classroom attendance. The use of online tools and platforms was minimal, with few educators having experience with online communication tools like Zoom or Google Classroom. Digital infrastructure was limited, and most courses were designed for in-person delivery with little integration of online resources. As Covid-19 hit the Kazakhstan too then SDU University provided necessary equipment's and software's for online classes and work, such as paid accounts in Google Meets, and Webex etc. participants mentioned receiving support from their institutions in setting up accounts and using tools like Webex for recording lectures. Additionally, the university offered workshops and training sessions to improve faculty's digital literacy and help them to adapt to online teaching.

*...In offline setup we used to take the written exam and quizzes but in online setup we were mostly relying on assignments and projects as an assessment tool.*

*...Video-lectures were uploaded too and students were able to revise the lecture at any time.*

*...COVID-19 has brought kind of advantage for everyone. We have learned many digital tools and many digital programs that we can use in our classes now. It was good, yes. Now thanks to COVID I can conduct classes both online and offline...*

*...But now I am going to be more traditional, taking exams. So that I can check what is written, what is concerned. So, from that perspective we again invade AI. I come back to something more traditional…*

*...offline classes are easier when you get the feedback from students, when they are physically present so you can easily understand if they understanding or not what you are trying to explain. But during online classes, it was difficult to get feedback and it was difficult also to know whether they are understanding or not...*

(conversation between researcher and respondents)

The pandemic forced instructors to adapt their teaching practices to an online environment. This included using more digital tools and software, focusing on projects and discussions, and creating new assessment methods. However, some instructors reported reverting to traditional methods due to challenges with online exams. The educational environment has shifted to a more online-focused mode of delivery, with increased use of technology in teaching and learning. This has led to changes in teaching methods, with a focus on projects and discussions to keep students engaged.

The pandemic accelerated the adoption of digital tools and platforms at the university. Instructors reported improved teaching capabilities due to these digital tools. Overall, the interview responses reflect a significant impact of the COVID-19 pandemic on educational practices, highlighting the rapid adoption of online communication tools and the need for technological upgrades and development in online courses to enhance the educational environment in higher education institutions. The transition brought both challenges and opportunities, prompting significant adaptations in teaching methodologies and technological integration.

The university's readiness for distance learning before the pandemic was limited. Most teachers were not prepared for a complete shift to online education, with minimal infrastructure and limited experience with online teaching. The availability of digital tools and resources varied significantly among educators, with some having prior exposure to tools like Zoom, Microsoft Teams but many lacking such experience. In response to the pandemic, the university swiftly provided the necessary tools and resources to facilitate the transition to online learning. This included granting access to software, supplying equipment, and ensuring connectivity. Short workshops and training sessions were organized to help faculty become proficient in online teaching, and ongoing technical support was provided to address issues related to online teaching and learning, ensuring a smoother transition. The rapid response and the establishment of support systems were crucial in overcoming initial unpreparedness and facilitating the adaptation to distance learning.

*.. It was easier to teach offline before because nowadays students prefer online classes which are not suitable as teacher's point of view for assessments and exams specially.*

*We developed many new methods of assessment and teaching during Covid.*

*Online learning is difficult but it save a lot of energy for both students and teachers.*

*.. It is impossible to replace traditional teaching methods with online teaching.*

*.. The todays students whom we called Covid generation are less attentive and active in the class.*

(conversation between researcher and respondents)

Participants believed that online teaching offered several benefits: increased flexibility and accessibility for students who can attend from anywhere with an internet connection and revisit recordings, improved efficiency for instructors who can save time using online platforms for communication and sharing materials. Before COVID-19, teaching was primarily conducted through in-person lectures, discussions, and physical exams. Digital tools were rarely integrated into the curriculum, and teaching methods were largely traditional. In contrast, the post-pandemic period saw a substantial increase in the use of digital tools for teaching. Platforms like Zoom and Webex were utilized for live classes, while Google Classroom was employed for managing assignments and resources. This digital integration allowed for more interactive and flexible

learning experiences, enhancing student engagement through features like breakout rooms and online discussions. Educators also developed new assessment methods suitable for the online environment, including online quizzes, open-book exams, and digital projects. The shift to online education highlighted the importance of creating a supportive and interactive learning environment, as maintaining student engagement and a sense of community proved challenging.

However, these responses simply verify that online teaching also presents challenges. These include decreased student engagement and motivation due to difficulties with determining student understanding and participation. Before the pandemic, students were accustomed to attending classes in person, participating in face-to-face discussions, and taking physical exams. Their use of technology for learning was limited, primarily involving research and communication rather than attending classes or completing coursework. Post-pandemic, students became more adept at using various online platforms for learning, improving their technological proficiency with tools like Zoom, Google Classroom, and Microsoft Teams and some AI tools additionally. Also there were many participants who believed that Covid-19 has impacted the teaching practices negatively like nowadays students are not serious as they were before. Students expect lenient assessment or online classes which are easier for them and also they are unable to pay attention in the class due to addiction to the electronic gadgets like phone, tablets etc.

## 5. Discussion

### R1: How has the Covid-19 pandemic affected educational practices

The most prominent shift was the rapid transition to online learning, prompting a fundamental change in how educators deliver instruction. This moves away from traditional in-person classes necessitated the adoption of a wider range of online tools. Video lectures and collaborative platforms became ordinary, with project-based learning gaining power as a way to stimulate student engagement in the virtual environment. Technology assumed an even greater significance, as educators rapidly upskilled themselves in applying various digital tools for communication, resource sharing, and, of course, teaching itself. Assessment strategies also progressed, as the challenges of administering traditional exams online urged the exploration of alternative methods for evaluating student learning. While online exams arisen as a potential solution, further development is needed to address concerns about cheating. The educational environment itself undertook significant transformations. The most striking change is the increased focus on online learning platforms and tools. This shift has led to a more combined learning environment, even in situations where in-person classes have continued. However, challenges remain. Ensuring equitable access to education in this online environment is dominant. Universities need to address disparities in student access to technology and reliable internet connections. Additionally, promoting a sense of community and maintaining student engagement can be more challenging

online. Educators need to develop strategies to create a more interactive learning experience that addresses these concerns. The pandemic served as a catalyst for technological advancements in HEIs. Universities invested in and provided access to various digital tools, including video conferencing platforms, online learning management systems, and collaborative software. This has prepared educators with a wider range of resources to enhance teaching and learning. Instructors who comprised these new tools reported improved teaching capabilities, particularly in areas like content delivery, communication, and student feedback. However, the findings suggest that there's still room for improvement. Ongoing development in online course design, faculty training on using these tools effectively, and guaranteeing technical support for both educators and students are all areas that require continuous attention.

### R1B: To what extent was the university's educational system ready for distance learning?

The level of readiness for distance learning varied significantly across institutions. Some educators entered the online world with prior experience using tools like Zoom or Webex. Others, however, required substantial training and support to adapt to the "new normal." University played a crucial role in this adaptation by providing resources like software licenses and workshops. However, the findings suggest a need for continued investment. Robust online courses and improved faculty training in online education are essential for ensuring effective online learning experiences.

### R2: How has the Covid 19 pandemic changed the teaching practices and methodologies in HEI?

The pandemic also forced educators to adapt their teaching practices and methodologies. Interactive activities like projects and online discussions became more prominent to enhance student engagement and participation in the virtual classroom. Educators explored alternative assessment methods to evaluate student learning effectively. However, challenges emerged related to difficulty evaluating student understanding online and a preference for traditional methods in specific areas like exams. These require further investigation and adaptation to ensure a smooth transition to a more technology-driven educational landscape.

### 6. Conclusion

The research conducted at SDU University has shed light on the profound impact of the COVID-19 pandemic on educational practices in higher education institutions. The rapid transition to online learning has fundamentally altered the delivery of instruction, prompting educators to adopt a wide array of online tools and platforms. This shift towards virtual classrooms has necessitated

the upskilling of educators in utilizing digital resources for effective teaching and communication. Furthermore, the educational environment has experienced significant transformations, with a heightened focus on online learning platforms and tools, leading to a more blended learning approach even post-pandemic.

The technological advancements urged by the pandemic, have provided HEIs with a wealth of digital resources to enhance teaching and learning. Investments in video conferencing platforms, online learning management systems, and collaborative software have empowered educators to improve content delivery and student engagement. However, there is still room for improvement in online course design, faculty training, and technical support to ensure a seamless transition to a more technology-driven educational landscape.

Educators have been compelled to adapt their teaching practices and methodologies, with a shift towards more collaborative activities like projects and online discussions to increase student engagement. While alternative assessment methods have been discovered, challenges remain in evaluating student understanding online and the preference for traditional assessment methods in certain areas. These challenges necessitate further exploration and adaptation to ensure a smooth transition to a technology-driven educational environment.

In conclusion, the research underscores the critical need for continuous improvement in technological infrastructure, faculty training, and online course development at SDU University. By addressing these areas, institutions can ensure a quality education for all students in the evolving landscape of higher education, as highlighted in the document's recommendations section.

## 7. Limitations

Size of the Study and Its Scope: The research findings are based on interviews conducted with a group of educators, at SDU University. It's important to note that the views and experiences shared may not fully capture the range of experiences found across all departments, levels of seniority or types of courses offered within the institution. As a result, it may be challenging to apply these findings to universities or educational environments.

Potential Bias in Responses: The feedback collected during interviews is subjective. Reflects the perspectives and interpretations of the educators involved. It's worth considering that there could be biases in how individuals recall and communicate their experiences, which could potentially impact the accuracy and dependability of the gathered data.

Technological Infrastructure Considerations: While recognizing advancements in tools and infrastructure it's crucial to acknowledge that there might still be disparities in technology access among students and educators. Differences in internet connectivity availability of devices and levels of literacy could affect learning experiences differently for various individuals or groups.

**Emphasis on Educator Perspectives:** The study predominantly presents viewpoints from educators than students or administrative staff members. Inclusion of stakeholders like students, IT support personnel and university administrators could offer a holistic view of both challenges faced and successes achieved during the transition to online education.

Qualitative Nature of Data: While qualitative research provides rich insights into individual experiences and perceptions, it may lack the statistical rigor and quantifiable data necessary for making broad generalizations or comparisons across different educational contexts.

Impact of Social and Economic Factors: The study does not extensively explore how socioeconomic factors or external pressures (e.g., economic downturns, political instability) may have influenced the institution's ability to adapt to online education. These factors could play a significant role in shaping the educational landscape during and after the pandemic.

## 8. Recommendations

Before delving into the detailed recommendations for SDU University based on the findings of the research on the impact of the COVID-19 pandemic on educational practices, it is essential to highlight key strategies that can guide the institution towards enhancing its online teaching practices and technological infrastructure. The following recommendations are modified to address the challenges and opportunities identified, aiming to ensure a seamless transition to a more digital educational landscape.

Firstly, AI-powered personalized learning platforms can significantly boost the student involvement. These platforms adapt the content and pace of learning based on individual progress and style, creating a tailored educational journey for each student. Additionally, AI instructors can provide day-and-night support, offering instant feedback and assistance on complex topics, accordingly ensuring continuous learning outside of traditional classroom hours.

Secondly, another transformative approach is the integration of Virtual and Augmented Reality (VR/AR) into the curriculum. By creating immersive learning environments, VR allows students to interact with 3D models, conduct virtual laboratories, and participate in simulations that deepen their understanding of complex concepts. AR can be used to enhance textbooks and course materials, enabling students to visualize intricate ideas through their smartphones or AR glasses.

Thirdly, incorporating gamification and e-sports into the academic framework can greatly increase student engagement and motivation. Game-based learning involves integrating game design elements into the curriculum, rewarding students for reaching learning milestones, and making education more interactive and enjoyable. Establishing e-sports programs can also provide courses on game design, strategy, and management, leveraging the popularity of esports to foster community and engagement among students.

Last but not least, embracing biofeedback and neurotechnology can enhance both learning and well-being. Neurofeedback tools can monitor brain activity during learning sessions, optimizing focus and reducing stress to improve cognitive performance. Personalized stress management tools can help students maintain their mental health, promoting better academic outcomes.

Lastly, global virtual exchange programs can broaden students' perspectives without the need for physical travel. By partnering with international universities, SDU can offer virtual courses, collaborative projects, and cross-cultural discussions. Hosting virtual guest lectures from renowned experts around the world can further enrich students' learning experiences with diverse viewpoints and cutting-edge knowledge.

By implementing these innovative recommendations, SDU University can set a new standard in higher education, creating a resilient, flexible, and inclusive learning environment that adapts to future challenges and fosters student success.

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