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Novel Coronavirus (COVID-19) and its impact on Education at Tertiary Level: Challenges and Solutions for Pakistani Universities

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Novel Coronavirus (COVID-19) and its impact on Education at Tertiary Level: Challenges and Solutions for Pakistani Universities

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Abstract: This paper evaluates the anticipated impact of the COVID – 19 pandemic on mainstream higher education in Pakistan as the country's institutions plan an unprecedented shift to digital mode of instruction. The outbreak has forced the institutions to call off face-to-face teaching and move to the online instructional method. The world, struggling to delineate the new normal, moved quickly towards lockdown. This measure was imperative to enforce social distancing to contain the epidemic. In this paper, we argue that the panic has not permitted the academic community to systematically investigate the challenges and offer solutions. Still, it is possible to quickly identify some of the burning issues and provide some recommendations for policymakers, educationists and academics to deal with the crisis.

Keywords: Coronavirus, COVID – 19, higher education, instructional design, online education, Pakistan.

The Emergence and Global Spread of the Pandemic

The novel coronavirus (COVID – 19) pandemic has caused serious upheavals in human lifestyle at a global level . In Wuhan, China, the disease first appeared in December 2019 (Sun & Zhou, 2020), COVID – 19 cases have increased exponentially. “This virus has not and will not be stopped by borders drawn on maps” (Carissa, 2020). With 1,274,747 confirmed cases, 69,451 reported deaths; it has swept across 192 countries (Coronavirus Dashboard, 2020). While the actual mortality rate is low, up to 5.45% at this point, the impact of the pandemic is far-reaching.

China, the largest products supplier to the global market, is currently unable to export, resulting in a price hike in the world market. Mounk reported that China's Hubei

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On February 11, 2020, The Director-General of World Health Organization, Dr Tedros Adhanom Ghebreyesus, stated, “We now have a name for the disease: COVID-19. I'll spell it: C-O-V-I-D hyphen one nine – COVID-19”. Retrieved from <https://www.who.int/dg/speeches/detail/who-director-general-s-remarks-at-the-media-briefing-on-2019-ncov-on-11-february-2020>

province, on January 23, 2020, had 444 COVID-19 confirmed cases. By January 30, it had 4,903 cases, and by February 6, it had 22,112 cases (2020). By April 5, 2020, China's total number of confirmed COVID-19 patients was 83,423 ([Coronavirus Dashboard, 2020](#)). Italy, on February 22, 2020, had 62 COVID-19 confirmed cases. It had 888 confirmed cases by February 29 and 4,636 by March 6, 21,157 by March 15, 105,792 by March 31, and 128,948 by April 5 ([Coronavirus Dashboard, 2020](#)). The most severely hit countries by April 5, 2020, are the United States with 336,673 confirmed cases, Spain 131,646, Germany 100,123, Iran 58,226, France 92,839, and the UK 47,806 ([Coronavirus Dashboard, 2020](#)). Pakistan had 3,059 confirmed cases by April 5, 2020.

The primary identified measure against the coronavirus that has been successful so far is extreme social distancing ([Wilder-Smith & Freedman, 2020](#)). Healthcare systems are reeling with a high influx of cases. Doctors and nurses are exhausted and at high risk of exposure. Church services and Purim festivities at synagogues have been cancelled ([S. P. Bailey, 2020](#)). Islamic religious activities have also been adversely affected, with the mosques closed down in most parts of the world. Gatherings at all levels are being cancelled, the governments are requesting self-isolation, and the closure of educational institutions is in effect in many countries.

The complicated circumstances have altogether caused education disruption at a global level. The pandemic has forced educational institutions worldwide to move to the remote or online mode of instruction. This measure was crucial to implement social distancing to contain the disease ([Coronavirus Disease 2019, 2020](#)). As per UNESCO figures, "188 countries have implemented nationwide closures, impacting 1.55 billion learners, over 89.5% of world's total enrolled students' population" (2020). Institutions worldwide have also cancelled conferences, sports events, and various other extracurricular activities. Scheduled mid-terminal and annual examinations have also been cancelled in many parts of the world. The world has moved speedily to lockdown and is grappling to characterize the new normal. The panic has not allowed educationists to explore the current challenges methodically and look for solutions anon.

The Pakistani Context

The highest number of COVID 19 confirmed cases in South Asia were reported in Pakistan ([Madiha Afzal, 2020](#)). On April 5, 2020, the number of confirmed cases was 3,059, with a death toll of 45 in the country of nearly 210 million. The country reported its first two cases on February 26; both had recently returned from Iran. They were immediately isolated, and their contacts were traced and tested. Until March 12, Pakistan had only 21 confirmed cases. On March 13, 2020, the first locally transmitted COVID-19 case was reported in Sindh, and this was the day that the government took a number of initiatives to contain the spread of the virus. The western border (with Iran and Afghanistan) was closed. All international flights except those originating from and landing at Islamabad, Karachi, and Lahore airports were cancelled. All public and private educational institu-

COVID-19 Health Advisory Platform by Ministry of National Health Services Regulations and Coordination, April 5, 2020. Retrieved from <http://covid.gov.pk/stats/pakistan>

tions were closed, and the Pakistan Day parade (set for March 23) was cancelled. Steps to respond effectively to the impending challenge included setting up a National Command and Control Center and empowering the National Disaster Management Authority . As is claimed by the government, the country has so far managed the crisis well mainly because the WHO advisory regarding COVID – 19 was implemented by Pakistan very early on.

However, the threat is still in the air, now along with the closure of the educational institutions, all international and domestic flights have been suspended, public transport services have been stopped, and the country is under a complete lockdown. On April 3, 2020, the Prime Minister of Pakistan announced that the construction industry would reopen on April 14, 2020, to help the 30 percent of the population living under the poverty line to survive hunger, as it was not possible for the government to provide food to all of them . On March 24, 2020, the government also announced ‘an economic relief and stimulus package’ worth 1.2 trillion rupees to help the daily wagedworkers and other vulnerable citizens from the lower socioeconomic groups .

Pakistan’s Response to the Pandemic’s Impact on Education

Keeping in view the COVID-19 outbreak, on March 13, 2020, the Ministry of Federal Education and Professional Training (MOFEPT) advised all educational institutions including schools, colleges, universities and madrasahs (religious institutions) to “suspend academic activities, and close down until April 5, 2020” .

The universities were directed to undertake necessary actions as per the guidelines shared by the Higher Education Commission (HEC) in the policy they announced for COVID-19.

On March 17, 2020, MOFEPT issued another notification stating that the government has postponed all assessments and scheduled examinations in Pakistan until May 31, 2020 . In light of the fast-spreading pandemic, the ministry issued another notification on March 27, 2020, advising that all educational institutes including schools, colleges, universities and madrasahs will remain closed until May 31, 2020. The closure will be considered as early summer break .

The Government of Pakistan established the National Disaster Management Authority on August 17, 2007. Retrieved from <http://www.ndma.gov.pk/>

PM Imran Khan Discussion with Senior Journalists, April 3, 2020. Retrieved from <https://www.youtube.com/watch?v=VYnBU7w4gg>

Prime Minister Imran Khan declared economic aid package to alleviate financial fallout from COVID-19 pandemic. March 24, 2020. Retrieved from <https://www.dawn.com/news/1543411>

Retrieved from MOFEPT website <http://mofept.gov.pk/SiteImage/Misc/files/Notice%20COVID-19-1.73135.pdf>

Retrieved from MOFEPT website <http://mofept.gov.pk/SiteImage/Misc/files/Notification.jpg>

Retrieved from MOFEPT website <http://mofept.gov.pk/SiteImage/Misc/files/New%20Doc%2003-27-2020%2013.30.15.pdf>

Guidelines issued by the HEC to Universities and other Degree-awarding Institutions

According to HEC COVID-19 policy, the universities and other degree-awarding institutions (DAIs) agreed to develop systems for online instruction as an alternative for regular classes. The primary purpose was to make sure that education continues without disruption. The effect of the interruption on the learning of the students would be minimized, and the quality of online instruction be improved (2020).

The HEC set up a Technology Support Committee (TSC) to facilitate universities in building up effective online teaching systems to meet the targets. The committee comprises eminent academicians and HEC executives who would ensure the quality of online instruction.

In keeping with the advisory, the universities decided to launch online classes. Most of the public universities, however, do not have a well-established and functional Learning Management System (LMS) in place. They struggled with finding the right platform to deliver instruction. According to the data collected by the HEC in 2019, as many as, 70 public sector universities have no LMS, 40 public sector universities have LMS but whether or not this includes video conferencing is not clear. Only a few universities, including Virtual University and IBA Karachi, use a blend of their own LMS and third party video conferencing tools like Zoom, WebEx (Khan, 2020). Instructors unfamiliar with online pedagogy found it challenging to switch to the new system. Students complained about the new online system, and some even boycotted classes.

HEC reevaluated the ensuing situation and came up with the guidelines to allow the 'Advanced Universities' with already functional LMS to continue offering online classes during the Spring Semester provided they could ensure the quality of instruction. They were asked to provide access to the taught content, course outlines, learning materials including PowerPoint and video lectures, and various assessments, so as to validate courses' details being uploaded and instructed online. However, the universities that were not yet prepared for remote instruction due to numerous limitations were given a choice to cease academic operations and declare this period as an early summer break. These institutions of higher education were advised to use this time for capacity building and acquiring functional LMS with the goal that they can be prepared to resume classes, through online instruction, in case of extended closure in the wake of COVID – 19 (HEC COVID-19 Policy Guideline, 2020).

The minimum required features of a functional LMS identified for efficient virtual instruction were that it should be fully functional and should support content management system, offer collaboration tools, and include a video conferencing solution. This system must have the capability to upload varied instructional materials such as presentations, video links, including links to external resources, handouts, course packs, and digital textbooks. The system must also have assessment and feedback tools such as offline discussion boards and chatbox. Another required feature is offline access to downloadable course material and recorded live lectures to address poor connectivity issues and of-

The Higher Education Commission (HEC), Pakistan announced COVID-19 Policy Guidelines no. 4 on March 28, 2020. Retrieved from <https://hec.gov.pk/english/HECAnnouncements/Documents/nCoVirus/Government-Directive.pdf>

fer revision options. A proper video conferencing solution is integral to effective remote teaching (Rehn, Maor, & McConney, 2016). This solution should be able to support a class size of up to 100 students, have the ability to present slides through screen sharing during remote sessions, and include a whiteboard where the instructor can add content in real-time. This tool should also have classroom management options such as making the students attendees so that they cannot control the slides being presented, the instructor being able to mute the participants' microphones to ensure good sound quality. The LMS must be compatible with computers as well as be available as a mobile LMS for learners (Han & Shin, 2016; Viberg & Grönlund, 2017).

Pakistan's tertiary level institutions are anticipating the following scenarios:

- a. Resumption of the face-to-face mode of instruction from June 1, 2020
- b. Extension of restrictions into the summer months, which will result in all instruction to continue in the online mode, and will result in a change in admission policy which is due in Summer for the Fall intake
- c. Extension of restrictions even beyond August, which will result in significant additional changes

The final verdict from HEC for the universities with existing sufficient digital resources is to continue functioning, and for the rest is to make preparations to offer quality online instruction in case of the closure extending post May 31, 2020, in order to minimize the disruption to teaching/learning.

As a quality assurance measure, functioning universities have been asked to make available to HEC for audit, their course contents, monitoring measures, assessment plans, policies, and details of capacity building endeavors to enhance the skills of the faculty members. Furthermore, HEC established National Knowledge Bank (NKB) in order to collect, develop and give access to a wide variety of online instructional material. Likewise, the tasks of conducting a need analysis to formulate directive on modules for urgently required skills and organizing or suggesting web instructional tutorials have been allocated to the National Academy for Higher Education (NAHE) to ensure quality instruction (HEC COVID-19 Policy Guideline, 2020). In order to make sure the safety of all workforce as per COVID-19 guidelines, HEC has advised the universities to use their discretion concerning faculty attendance for content development and training purposes, to maintain social distance during any face-to-face meetings and training.

Challenges for Pakistani Universities

Most of the Pakistani universities, like the universities of many other countries, did not have any solid plans to provide online instruction effectively in this unprecedented situation but also did not want this semester to linger on. Some of these abruptly moved to online teaching and even directed their faculty to conduct midterm and final exams through online portals. Key challenges identified are access to and training on LMS, developing

an effective localized instructional design, keeping students motivated and ensuring their active participation throughout the learning process.

Figure 1

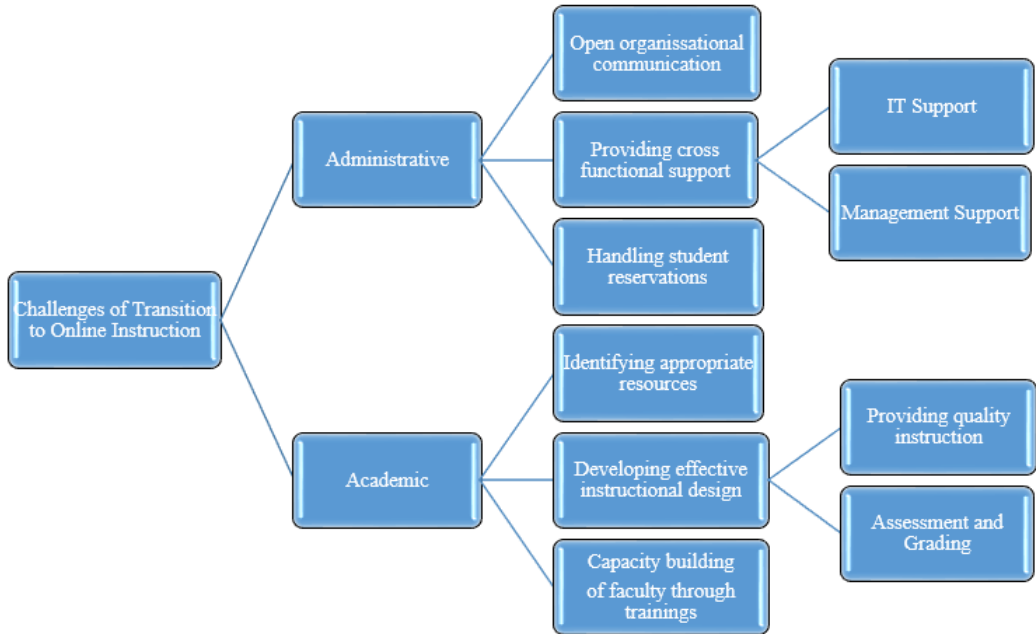


Figure 1 demonstrates the key challenges in providing online instruction. Below we discuss these challenges one by one and offer our recommendations:

Administrative

In order to respond swiftly to the crisis and to minimize disruption to academic activities, universities had to make administrative decisions at various levels. A number of organizational challenges emerged as a result of the almost overnight transition to eLearning and switched to remote classes before the universities were adequately ready for it.

Open Organizational Communication

Open, authentic, corporate communication is required to manage any crisis. Simple language, sensitivity to a specific cultural context, and acknowledgement of the perspectives and difficulties of the others while motivating them with guidelines to proceed are integral to effective communication. In this almost overnight transition, the universities barely had time to provide training for the staff on the LMS adopted for the remote teaching sessions before they started working from home. However, those universities, which

did not immediately switch to the online mode and chose to work on their capacity building, are using this time to provide training to their instructors. The next issue was keeping the staff informed of the changing situation and decisions by the HEC. This was done by constituting new administrative committees, developing, and sharing a university policy for this extraordinary situation keeping in mind that it met all the measures required by the HEC for functioning during the COVID-19 crisis. The next challenge was ensuring the provision of constant IT support to the instructors, administrative staff and management of student attendance on the Content Management System (CMS) Portal. Dealing with student complaints and reassuring them through guidelines and communications was yet another administrative challenge that the universities had to tackle. This was also handled through communication via web meetings, notifications, providing guidelines and the effective use of the institutional web pages. These issues can be addressed by empowering the experts of IT and digital education.

Providing Cross-functional Support

Building robust cross-functional support is also a necessity for surviving any such future crises. Collaboration and communication between teams, such as IT Team, Faculty, Human Resources and all other departments are required to keep all facets of the institution running efficiently.

IT Support

IT support is the backbone of smooth facilitation of online mode of instruction. The first step is to ensure that the online accounts of all students and staff are active and functional. Constant IT support is also required to resolve internet connectivity issues and managing issues such as frequent connection dropouts, voice distortion, and poor quality of video streaming. Regular system checks and maintenance are also required to ensure that the instructors can upload all required material, the students can navigate the instructional material, attendance is being marked and recorded regularly, time-barred assessment being given through and the grades are recorded on the system. Most of our instructors are not familiar with the online mode of instruction and require a lot of technical support. The IT teams could provide instructors' training on the effective use of the LMS. They could develop and upload video tutorials on the use of features like creating and grading quizzes, introducing classroom management tools like making the instructor the organizer of the meeting and the student attendees. They could also create shared folders and upload all tutorials. In short, robust IT support is required round the clock for tackling any operational issues that may arise to ensure smooth functioning of the LMS in order to maintain uninterrupted classroom instruction during sessions.

Management Support

The management would provide support by devising institutional policies to tackle the situation. These guidelines should be inclusive of the attendance policy, grading and

assessment. The sudden advent of work from home brought in its wake the 'work-life integration' syndrome for the faculty. The existing definition of work-life balance (Annink, 2017) does not seem to work anymore; faculty members are trying to cope with this shift. Administrative guidelines are required to make this process work in a way so that instructors still have room to breathe, and we can avoid staff burnout.

Handling Student Reservations

Students found this sudden transition overwhelming, and some students asked the universities 'to freeze the current semester' until the traditional face-to-face mode of instructions can be resumed (HEC COVID-19 Policy Guideline, 2020). This abrupt move did not allow enough time for the students to accept the new mode of learning. They shared their reservations about the efficacy of the online method of instruction and raised complaints regarding connectivity problems faced by the students in remote areas, difficulties in recharging their SIMs and internet packages due to current restriction on mobility, poor streaming, and missing classes due to power failure in the country. Other issues raised were being unable to ask questions during lectures, voice quality of audio lectures, and not being able to understand the concepts in technical subjects like Mathematics.

A strategy to efficiently address student complaints' was to provide a continuously monitored forum like a dedicated email account to share technical and academic concerns about online learning. Addressing their concerns resulted in higher attendance and broader acceptability of online classes.

Academic Challenges

Several academic challenges were also identified once the remote sessions got underway. Most instructors had never experienced online or remote teaching and found this mode very demanding. The need for training them on the pedagogy side of the transition became inevitable. It led to the internet being flooded with free webinars being offered on various aspects of online instruction.

Identifying Appropriate Resources

Educational institutions are using several platforms to facilitate online instructions. The most common ones are the Learning Management System, Blackboard, Google Classroom, Microsoft Teams, Zoom, and Massive Open Online Course - MOOC (Martin & Betrus, 2019). The top choices in these are Alison, Canvas, Coursera, FutureLearn and EdX. Institutions should work on creating comprehensive lists and links of available resources and organizing them in discipline-specific categories and make them available for their learners along with digital access to libraries.

HEC announced COVID-19 Policy Guidelines no. 5: Online Readiness, which highlighted problems faced by universities due to a sudden transition to the remote or online mode of delivery. Retrieved from <https://www.hec.gov.pk/english/HECAnnouncements/Documents/nCoVirus/Covid-19-Policy-Guidance-No.5-Online%20Readiness.pdf>

Developing Effective Instructional Design

Blended learning has been in practice for a while in tertiary education (Aleksić & Ivanović, 2013; Condie & Livingston, 2007; Crawford & Jenkins, 2017). However, the current scenario has redefined the traditional definition

Figure 2



of blended learning from a mix of face-to-face plus online learning to a blend of online synchronous plus asynchronous learning. It now means to supplement remote teaching with access to offline downloadable material. This also meant the emergence of the need for effective instructional design to make the online classes a success.

Providing Quality Instruction

Student engagement is the key to interactive pedagogy, and this can only be ensured through proper planning. A course calendar, with clearly defined course outlines with dates for submission of assignments, quizzes, exams, and session outlines with a time break up, tasks, and activities, helps students stay focused and on task. One thing to remember is that online classes are different from traditional face-to-face classes, and lecture mode does not work. The instructor cannot simply prepare a lecture and read their notes. An online instructor should facilitate learning in a clear, positive, engaging and pragmatic tone and take on different roles such as facilitators, counsellors and coordinators, and addresses students' 'higher-order cognitive skills' (Boling, Hough, Krinsky, Saleem, & Stevens, 2012). Inclusion of PowerPoint presentations, supplemented by short videos, video links, and varied, concise, logically organized activities and tasks, relevant to the concept, helps keep the interest level high.

Alternative approaches to the course activities should be considered; activities need to be modified and accessible to students working by themselves remotely, e.g., the short end of the session quiz and quick two-sentence response to be written in the chatbox to a comprehension question during the session could be incorporated. Similarly, demonstrations, problem solutions, or examples can be recorded using the web camera or a mobile device to create a quick demonstration video and posted on the course site.

First, appropriate content, along with assessments, is required. The assessment could be done through the end of the class quiz, submission of notes from the class, papers, and video projects. To improve student engagement, a real-time chatbox could be set up (available on Zoom and Skype), ensuring interaction during the remote instruction. Frequent comprehension checks, taking responses through the chatbox and short quiz at the end of the topic and/or session are useful in enhancing participation and formative assessment. Graded LMS discussion boards could be used for extended student-student communication. When setting up a discussion, instructors should give an indication of the topic(s) or leading question(s) relevant to the topic.

Ongoing instructor feedback is crucial to a practical learning experience. Feedback should be provided through discussion boards or email after the session, responding to queries raised through the chatbox in class. For maximum class participation and performance enhancement, it is essential to provide constructive feedback by highlighting the learners' strength(s), identifying the areas for improvement, and offering suggestions. Besides individual feedback, collective feedback could be used to save the instructor's time and provide prompt answers to common issues and problems. The instructor can filter the questions shared in the chatbox and offer solutions to the key issues. Peer feedback should be encouraged. Students should be allowed to collaborate on work, give comments to peers, and peer-edit using the discussion boards.

Assessment and Grading

A higher proportion of student grading should be based on class participation, assignments, quizzes, projects, papers, and the final exams should have a smaller weightage. All quizzes must be time-barred, and options should be shuffled to maintain academic integrity. Clear rubrics should be developed for all assignments and shared with the students beforehand. Assignments can be submitted on the LMS in a variety of files (Docx, ppts, spreadsheets, video files, and PDFs).

Graded discussion boards can lead to higher student engagement. Building in a reward system of points and setting criteria for a number of minimum responses within a specific time limit would make posting and responding mandatory. Time-barred open book exams, projects, or papers could be options for final assessment. All of these will be timed on Canvas, LMS, Zoom, and Twitch (Payne, Keith, Schuetzler, & Giboney, 2017).

Capacity Building of Faculty through Training

Training is required on how to conduct online and remote classes for all instructors (Fein & Logan, 2003; Brinkley-Etzkorn, 2018; C. J. Bailey & Card, 2009). This was an unprecedented situation for Pakistan, and most of the faculty had no experience with online teaching. Training was provided in two dimensions: technical and pedagogical. The IT teams provided training on the use of the features of the LMS. For this purpose, they developed video tutorials and curated relevant content from the internet to share with the faculty. The pedagogical needs were identified through observations by senior team members

and feedback from the faculty. Teacher training on the identified areas was conducted through webinars and online training facilitated by experts.

Recommendations

While we hope that this crisis will soon be over, it is best to learn from this and be prepared for any future emergencies. We should use this time to set up strategies, procedures, frameworks and institutional structures that could secure us later on and lead to a smooth, efficient transition to digital mode of instruction if required. The key challenges, identified above, can be dealt with by developing an effective instructional design, keeping in mind the following elements:

Team Structure

Secure communication and collaboration are essential to successful team management. Faculties should consider using a parallel leadership model; have team leads to support heads of academic departments who in turn report to the Deans/Directors. In this model, the workload would be evenly distributed; both faculty and students would receive support at various levels. This would also promote strong teamwork and lead to speedy resolution of concerns.

Team Meetings

Staying connected is imperative in this age. More frequent meetings with faculty and staff to update them of the latest developments. Regular team meetings should be held to explore and address challenges faced by instructors and students during remote and online classes. These meetings should also include discussions on sharing best practices. The strategies and solutions shared should be promptly collated, written up and disseminated to the team members via email and any other online medium. These should also be shared with the Deans/Provost/Pro-Rector/Vice-chancellors for further guidance. It is also essential to connect to the students, and therefore senior management and Deans should interact with students (when possible) towards the beginning or the end of the class by informing the relevant instructor.

Support Mechanism

Online learning is uncharted territory for the majority of our instructors as well as students and requires much support at all levels. Administratively, weekly meetings should be scheduled with the team members, heads of the departments, deans, and directors. Classroom observations, meant for constructive feedback, should be conducted through tools pre-shared with instructors. Another strategy would be to have layers of support, e.g., for technical issues, there should be an assigned IT support person for each department, as well as identified team members within the department, with strong IT skills available to provide support to groups of instructors.

Quality Instruction

To ensure quality instruction, instructional material should be streamlined. It must be ensured that instructors upload all relevant course material, including course packs, PowerPoint presentations, video links, and worksheet on the LMS. Clear course outlines and session structure, along with the assessment criteria, should be developed and shared with the students. To make the sessions interactive and engaging, instructors should employ different strategies such as address students by name, frequent comprehension checks, quick timed responses, and most importantly encouraging the students throughout.

Monitoring Classes

Head of departments and coordinators should monitor classes every day to ensure smooth regular facilitation of sessions. Consistent monitoring would also be useful in promptly resolving any technical issues.

Tackling Student Issues

It is essential for instructors and administration to remain accessible to the students. Sharing the identified issues and voiced concerns promptly with the relevant teams for action, e.g., Provost Office, Registrar Office, Student Services, Controller of Examination Office, and Quality Enhancement Cell (QEC) is imperative. Besides, the students must be reassured that their concerns are being heard and addressed in the best possible way. Connecting with parents can also contribute significantly.

A survey could be circulated to understand the student access to the internet. So as to offer an inclusive atmosphere for everyone, a policy must be devised, allowing students with low bandwidth and connectivity issues to continue their education without comprising the quality of their learning. Such students could reach out to their Deans/Directors to notify them of their situations. Instructors should record their lectures and place all instructional material online for them to access at their convenience. Course outlines and learning outcomes should be redefined. The length of the semester could have also been lengthened or shortened accordingly. The minimum requirement for work submitting could be lowered. A provision for those who are unable to meet even the minimum should be asked to freeze their semesters.

Session Observation and Mentoring

Classroom observations and mentoring is the way forward to providing ongoing support to team members and improving the quality of teaching/learning practices. A tool should be developed by the institutes to measure quality and quantitative efficacy of transition to online learning. Observation teams should be constituted of members selected based on strong pedagogy and IT Skills. These members should observe the sessions and provide feedback with constructive criticism. Forms should be submitted online to the QEC, and

constructive feedback should be shared with the observed team member for performance improvement. These observations would also serve the dual purpose of conducting a need analysis and identifying the areas for instructor training.

Continuous Professional Learning and Development

Relevant readings on improving online pedagogy should be identified and shared, along with opportunities for online learning through webinars, video sessions to provide effective learning. To ensure instructor interaction, Evidence of Learning (EoL) forms should be shared, which should then be submitted for the collation of learning and application by other team members.

Administrative Way Forward

Some administrative realities have also emerged as a result of this crisis. The focus of the guidelines being developed has primarily been academic. There is a need to develop expansive guidelines for remote work, especially for staff members, including coordinators, as well as tools to measure its effectiveness, and assessment of the IT support required.

Quick decision-making power involving far less bureaucracy is a need at such times and is possible, was visible during this period. There has been little or no time for endless meetings, white papers, and task forces, and yet decisions have been made and enforced at not only institutional but also provincial, national, and global levels.

It is hoped that the worst of COVID-19 crisis will pass in a few months, but it will leave its long-term impact behind. In recognition of this, the HEC has provided guidelines of best practices like disseminating COVID-19 awareness material through visual alerts, and information videos, encouraging hand and respiratory hygiene practices, relief from work or work from home for employees showing even mild symptoms, providing help desks, and avoiding stigma for anyone who tests positive by explaining it is just like any other respiratory virus. It also advised the universities to post FAQs, helpline numbers on the websites as well as daily situation reports and National Institute of Health Pakistan dashboard numbers on COVID-19 to keep everyone apprised. While there are numerous challenges in online instruction in Pakistan at the moment, they can be overcome with the support of the 'Digital Pakistan' initiative taken by the government and guidance and commitment to capacity building endeavors started by the HEC. The online mode of instruction will play an integral part in future pedagogy. There will be an increase in online learning activities even after this crisis is over. It is the future direction of education and can be adopted by universities as a time, and a cost-effective solution for providing make up classes. It will offer instructors the option to facilitate remote sessions from their destination, to minimize disruption to the academic calendar.

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