Emergency Remote Learning During the COVID-19 Pandemic: An Experience of a Recently Established Medical College

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ABSTRACT

The continuing COVID-19 pandemic has many severe consequences for human life, including general and higher education. Schools, colleges, and universities closed in response to the international and national recommendations and policies to prevent the spread. Medical schools were facing the risk of an immediate shift to online teaching and learning versus the risk of no learning. Closure of educational institutions has an immediate and long-term impact on the learning process. This impact can be direct or indirect as well it could be negative or positive. In addition, the COVID-19 pandemic and closure of educational institutions highlighted many important aspects and issues related to the teaching and learning process, including preparedness for critical situations, digital learning, and others, so the next few years surely will be different. This paper aims to share the experience of the authors in the shift to fully emergency online teaching and learning. The shift to emergency online instruction was realized through a developed plan based on identified priorities, setting realistic goals, creating principles, close monitoring of implementation, collection, and analysis of data, and immediate intervention, remediation, and improvement. This experience shows that a shift to emergency remote learning is possible and successful if it is well-planned.

Keywords: COVID-19, emergency remote learning, online teaching, online learning, social distancing

INTRODUCTION

The current coronavirus (COVID-19) pandemic is growing and affecting almost all countries. The virus is spreading very rapidly, affecting all age groups, and there are many fatalities. Almost all affected countries, including KSA, took social distancing as a policy to limit the virus's spread. Social distancing led to the immediate worldwide closure of educational institutions, and according to UNESCO, more than 1.186 billion learners were affected and away from their institutions; this number constitutes about 67.7% of the total enrolled learners worldwide[1]. Educational institutions found themselves facing two options: closure or taking the risk and shifting to emergency remote learning[2]. Although the closure is temporary, it will have an impact on educational institutions and learners.

Medical education has been more affected by the COVID-19 pandemic, particularly hands-on clinical skills teaching. The impact of COVID-19 can be seen as negative and positive, with room to change the negative impact into a positive[3]. The negative impact includes a threat to health, stress, and psychological instability among students, faculty, and staff, disconnection from the learning communities (desocialization of medical schools), creation of new working and financial load, interruption of learning, emergency shift to online learning, and creation of a new educational environment[4].

Although there were possibilities to transform part of the taught curriculum to be delivered online, most of the teaching faculty did not do so. This pandemic has created opportunities for learners, faculty, universities, and the educational system to use the available resources and technology to convert the negative impact of the COVID-19 pandemic into a positive one. The positive impact of COVID-19 includes new experiences for educational leaders, teaching staff, and learners, and a change in online and distance learning that is not a good complement or substitute for face-to-face learning and is inconsistent with medical education.

Although it is necessary, our college, like probably many others, was faced with the college's closure as we are in the last third of the academic year, there are no confirmed cases in our locality, and even the reported cases were very few in the KSA. The first responses of the faculty varied from how to protect themselves to unplanned and disorganized online activities based on individual initiatives, how to fill the school working hours with academic activities, and how to compensate after schools reopening rather than how to overcome the crisis with minimally affected learning experiences, what are the alternatives and how to make it differently. A short meeting of educational leaders including the dean, vice dean of academic affairs, and head of the medical education department was held immediately after announcing

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the school's closure and social distancing as a policy to prevent the spread of COVID-19. This meeting discussed how the college would respond to this new situation. The meeting also discussed the risk of an immediate shift to online teaching and learning versus the risk of no learning and took the risk of an immediate shift to online teaching and learning. Accordingly, a response plan was developed to adapt to the new situation. The response plan defined the following priorities:

1. Safety of our community (students, faculty, staff). 2. Efficient and timely communication. 3. Continuation of teaching and Learning. 4. The building of different teams to deal with different aspects of the situation. 5. Student support. 6. Faculty and staff support. 7. Assessment of existing facilities that enable the shift to online learning and teaching 8. Need assessment and capacity building according to this need. 9. Conversion of negative aspects of the pandemic into positive ones 10. continuous monitoring and evaluation of the teaching and learning process, accompanied by immediate intervention and remediation when necessary. 11. Review of academic rules, regulations, and teaching instructions, including existing assessment systems and regulations to be adapted to the shift to emergency online instruction.

The meeting also identified the following principles to guide the online teaching and learning plan: 1. Alleviation of students' and faculty's stress. 2. Empowerment of students. 3. Flexibility in the timetable and schedule of the teaching and learning activities, including assessment. 4. Teach more; assess less. 5. Partnership with all stakeholders, including learners. 6. Educational prioritization. 7. Selecting suitable content and suitable instructional methods. 8. Feedback, evaluation, and immediate intervention and remediation. 9. Creation of an efficient communication system.

Although the college was receiving support and directing instructions from different levels of the educational system hierarchy, during this shift to emergency online instruction, we found that there is no alternative for close, hour-by-hour monitoring of the teaching and learning process; therefore, the following practical aspects were created to be followed and monitored: 1. They are ensuring that all learners are connected 2. Absenteeism among learners and teachers 3. Lessons are delivered and received 4. Students' engagement 5. Working hours for students and faculty (not to be too much for individual students and individual faculty members as part of support for them) 6. The efficiency of LMS (Blackboard and other learning platforms). 7. Quality of the delivered lessons. 8. Students' achievements 9. Students concern. 10. Feedback from students and faculty is regularly available across disciplines.

Communications Planning and establishment of communication system: communication plays an essential role in the success of the shift to emergency online learning and teaching as it creates opportunities ensuring timely information broadcasting, immediate feedback and responses to it, staff and students' connection, prevention of sense of isolation and development of learning communities[5]. Establishing an efficient communication system started with the development of a team, led by the vice dean for academic affairs, to ensure timely communication with different deanships of the university, particularly academic affairs and E-Learning. This was followed by assigning a task to each team member and determining this communication system's functions, which include: 1. Identification of media of communication-based on the assessment of the available facilities (Blackboard, official and personal email, WhatsApp as individual and group, Learning Call Center and personal phones (for immediate contact). 2. Monitoring of communication technology (e.g., Blackboard) to ensure that it is well supported and working efficiently, and establishing alternatives when needed. 3. Identify faculty members to receive and respond to students' inquiries. 4. Establishment of timely and efficient, unified information outlets for faculty and students. 5. Collaborate; work closely and synergistically with a university communication system to ensure timely and efficient communication. 6. Disseminate communication plans with the definition of responsibilities and assigned personnel among faculty and students, including those who need social connectedness during the time of isolation. 7. Create a mechanism for academic communication with the university, program leaders, faculty, and students, including information about cancellations or rescheduling academic activities. 8. Answer students' questions concerning the COVID-19 pandemic or academic and health issues.

Teachers, as instructors, course coordinators, and mentors, play a central role in keeping learners connected. They communicate with their students daily. Students were instructed to contact their course instructors and course coordinators for academic issues and their mentors for academic, health, and social issues.

Continuation of Learning was the main purpose of the shift to emergency online teaching and learning. The first two days were used for discussion, planning, development of teams, need assessment, distribution of tasks, establishing a communication system, and others. During these two days, some tutors, based on their initiative, started asynchronous activities utilizing the university LMS (Blackboard) and Zoom.

After assessing the existing facilities and ensuring that the university LMS is working satisfactorily, all students and faculty have a safe space for active participation in online activities, suitable devices, and access to an internet connection without breaking the social distancing policy. learning platforms were identified. Based on teachers' and students' local internet connectivity and digital skills, high-technology and low-technology solutions were used. So, both the university LMS (Blackboard) and Zoom were used as a platform for online teaching and learning, in addition to Email, WhatsApp groups, telegram channels, and YouTube. A flexible daily timetable agreed upon between learners and faculty was created for each academic level and each course, recognizing the new learning environment's characteristics and times when the quality of the internet connectivity is expected to be better and the LMS is less overloaded. Both synchronous and asynchronous delivery methods to support learner autonomy were used[6,7]. As some learning content was sent to the learners through different communication media as an asynchronous modality of instruction, a two-hour, twice-a-week panel discussion was introduced to respond to the learners' inquiries, explain difficult concepts, and test learner understanding. The curriculum committee and course committees were concerned about which College would be flexible, so a consensus was built that learning should be focused on the core contents, at least maintain the current skills, and build knowledge around a prioritized and agreed-upon content. Therefore, they agreed on what content to deliver now, how and when to be delivered, what to post bond, and what needs to be reinforced after resuming in-class academic activities. Hence, all hands-on laboratory sessions, which are difficult to replace with the virtual laboratory, performance classes, hospital, and community-based activities, were postponed, although online demonstration in some courses was applied.

Interactive lectures using PowerPoint presentations, seminars, assignments, and learning menus through self-directed learning and directed learning, in addition to enrichment activities such as panel discussions to enhance learning, were used to deliver the curriculum content. Case-based learning was implemented in almost all courses using authentic clinical scenarios to engage medical students with real clinical problems[8,9] and improve their critical thinking, problem-

solving, and decision-making skills. Problem-based Learning, team-based Learning, and small group discussion were not used, fearing the instability of internet connectivity in remote areas, although they were regularly used in the college. Prepared packets of learning materials and a compiled list of resources were sent to students to be used at home.

Close hour-by-hour monitoring and evaluation of the delivered classes was practiced daily, and accordingly, intervention, correction, and modification of the implementation plan during this emergency shift to online instruction were applied as immediately as possible. So, the plan was dynamic and changes were applied whenever the situation dictated and immediately communicated to learners, faculty, and college administration.

Criteria for the quality of students' learning to be monitored were defined as attendance, active students' engagement, depth of understanding of the delivered content, quality of the delivered classes, quality of scientific inquiry during the panel discussion, and assessment results. The degree of instructor control over the remote online teaching and learning environment was an essential parameter that affected the perceived Learning[10].

Student participation, responses, and inquiries during the panel discussion, reports from teaching staff, and pre- and post-test activity results were used as tools to evaluate the teaching and learning experiences. Also, students' feedback as individuals or groups to the teaching staff, course coordinators, medical education department, and vice dean of academic affairs, students' complaints, and students' surveys were applied.

Remedial actions were taken for the students who could not attend some activities because of poor internet connectivity or other reasons (alternative learning opportunities). Also, to ensure an appropriate and timely response to absenteeism among faculty, teachers were trained to teach different modules and take on different functions and roles.

Faculty support: Faculty are the main pillars for emergency remote instruction; hence, their support is vital, in addition to the fact that the supported faculty will support students. Faculty were encouraged to protect themselves and their families, keep on social distancing, and apply all protective measures. Faculty received timely and accurate information about the pandemic locally, nationally, and internationally. Medical advice and consultation, including psychological, were provided. They were also encouraged to engage in financially and technically supported research activities related to COVID-19.

Faculty training took place from the first day parallel to the start of online teaching and learning, and includes creating online teaching and assessment activities, learning pedagogy, E-portfolio, and others. A flexible timetable of learning experiences and assessment tasks was ensured and agreed upon between learners and faculty. Technical support was guaranteed throughout the day. Keeping social distancing was the immediate response to coping with the situation urgently, followed by online faculty training and capacity building, using our faculty to teach basic online teaching skills. Therefore, opportunities were created for faculty to share digital knowledge and skills, and were proved to be a very effective strategy. After that, a series of online workshops and lectures were conducted according to the result of the needs assessment and in collaboration with the university deanship of E-Learning and the vice presidency of academic affairs. The training was accompanied by monitoring of the quality of delivered lessons, surveys, feedback, and immediate modification of the content and schedules of training activities. Staff disconnections were prevented with an efficient communication system, online meetings, as well as the use of online social communities, aiming to cultivate a sense of community and prevent feelings of loneliness.

Students` support: During such a situation, students are remarkably vulnerable and under stress because of the COVID-19 pandemic and the rapidly growing numbers of affected people and deaths, social distancing, emergency remote learning, and many related factors[11]. This necessitates students' support to ensure the alleviation of stress, their connectedness, and the continuation of learning. To fulfill this task, a team headed by the head of the student affairs committee was developed. After that, in collaboration with the university deanship of student affairs, the team developed a students' support plan, which includes other students' training and empowerment with the needed digital skills.

The assessment was one of the major difficulties during the shift to emergency online Learning and teaching[12]. The main concerns were about the safety of the exam materials, existing student assessment policy, training of students and faculty, cheating, the timing of tests, stability, and quality of internet connections, particularly in remote areas, and assessment tools suitability be used for e-assessment. The start was the review and modification of the student's assessment policy to suit online assessment, followed by the agreement on timing, types, and assessment tools. A flexible schedule of the exams was discussed and agreed upon with examinees and faculty, then disseminated to all. The exams were conducted during the night hours, as during this time, going outdoors is forbidden, so the students can't meet and work together. In addition, connectivity and the quality of the Internet are expected to be better at this time, and the examinees had already broken their fast (Ramadan). More formative assessment with immediate feedback was highlighted as it shows the extent of digestion of the learning materials and gives opportunities for intervention, remedial actions, and learning improvement[13,14]. Also, feedback helps the learner regulate and adjust their own learning decisions and tasks to meet the expected goals[15]. The summative assessment was planned to be a continuous assessment and final exam, bearing in mind that the summative assessment we need is the one that fosters the motivation of learners and faculty and ensures effective feedback[16]. Tools for e-assessment were decided to be multiple choice questions, short answer questions, modified essay questions, assignments, problem-solving, open-book exams, OSPE, and online OSCE. Online OSCE consists of virtual sign identification, data interpretation, patient education, counseling, history taking (simulation), and videos, although they were not applied as clinical exams were post-bonded. Practically, faculty were empowered to select assessment tools according to the student's level and the nature of each course as what works for one class might not work for another.

The next step was the conduct of a trial exam, which was conducted smoothly, but the results were inflated, and all students got very high marks, indicating that at least there was some degree of cheating. Therefore, a series of measures were taken to reduce the effect of cheating on the tests' quality: 1. The time allowed for each question was reduced to the accepted minimum. 2. The weight given to continuous assessment was increased compared to the final exam for non-graduating students, as there is no guarantee that the final exam can be conducted safely and without cheating. 3. Introduction of assignments as an assessment tool in each module. 4. Creation of many models of the same exam questions by changing the sequence of the questions, so each examinee has the same exam but with a different sequence. 5. Introduction of the structured oral exam to augment the results of the written tests. 6. Stop backtracking. 7. Pass/fail instead of letter grades.

A review of the process of the exam conduction and analysis of test results was done after each exam, and this helped in deciding on the

subsequent exams and gave a picture of the degree of perfection of the whole process to take the needed actions when required. The student's graduation project was planned to be evaluated by in-time submission, evaluation of the submitted project, evaluation of the project report, and online presentation and discussion via video conferencing. Hands-on practical laboratory tests and clinical exams based on real patients and simulation, which are difficult to conduct online, at least during this critical situation, were postponed. Student satisfaction was improved by engaging them in self-assessment and reflection.

Pre- and post-tests were used in almost most academic activities to measure students' baseline knowledge and how their understanding of a concept changes after collaborating with peers and interacting with teachers.

Obstacles and barriers faced during the shift to emergency remote learning were: 1. Exams and test materials security. 2. Cheating. 3. Minimal experience in online assessment. 4. Inflated test mark. 5. Poor internet connectivity. 6. The emotional state of learners. 7. Lack of an adequate supportive educational environment in remote learning. 8. Exams were time-consuming, particularly oral ones.

RECOMMENDATIONS

Medical schools' closure can be due to local causes such as outbreaks of infection, e.g., Ebola or a worldwide pandemic as COVID-19, and a sudden shift to remote learning is something different from online learning as it happens in a situation of emergency; therefore, medical colleges and perhaps other colleges are expected to increase their readiness to adapt to such crises rapidly and this should include the following:

- Dissemination of the culture of increased preparedness and anticipation of a crisis.
- Creation of an efficient academic communication system and enhanced student connectedness.
- Recognition of the unseen personal lives and difficulties of learners and faculty, so introduce compassion during this high-stress situation.
- Planning for the continuation of learning should address equity, the new learning environment, prioritization of learning, and responsiveness to the high-stress situation.
- Use scenario planning strategy and always have a ready, realistic, achievable plan B to ensure the continuation of learning and teaching experiences under any condition.
- Review of academic rules, regulations, and teaching guidelines to suit online instruction.

CONCLUSION

- **The emergency shift to remote learning is possible, but it needs planning, capacity-building, preparedness, and sharing the responsibility between the college and the university's administration, so collaboration is needed.**
- **Shared experiences, opinions, resources, plans, and strategies between educators and colleges supported the immediate move to online instruction.**
- **Flexibility and vigilance in planning during such a crisis are the keys to overcoming the situation.**
- **Mentors can play a big role in alleviating stress among learners and improving their attendance and engagement.**

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