

Teaching and Learning Approaches in Clinical Education during COVID-19 Pandemic: Time to Take-on Assessment as Learning

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1. Introduction

Medical education is facing unprecedented challenges due to COVID-19 pandemic. Mitigating the effect of this challenge while relying on pedagogical strategies more than the application of technology may be a way forward in minimising the emerging uncertainty of current times. Imperative to exploring solutions to the current challenges is the dire need of innovation both in teaching and learning strategies. However, to ensure all innovative ideas serve the sole purpose of alleviating the problems posed by the current pandemic. Any proposed variations in teaching and learning should be based on educational principles and standards, and good practice while meeting the institutional resources. This will also help warrant the generation of ideas that do not pose problems for the institutions to follow in the future and can be implemented smoothly. In devising the solution to the current challenges, the most important consideration should be student's safety and well-being in patient centred care [1]. Currently, medical students report feelings of uncertainty and anxiety around the time of their graduation [2] and have voiced concerns of financial liabilities besides, personal safety from exposure and continuity of curriculum delivery and learning experience.

In a state of panic where a variety of steps have been taken globally in medical education transition during the COVID-19 pandemic, a lesson learnt is that curricular adaptation should be flexible and based on pedagogical design aligned with accreditation standards. Transition of traditional curriculum to remote emergency or online delivery with a blind over emphasis on technology should be something that involves caution and be approached with relevant and proper guidance. However, the fear is that in panic and a state of emergency one may give in to haste and end up implementing and delivering an ill-prepared e-learning curriculum, which may not follow the best practices in online instructions [3]. Continuing Quality Control (CQI) with psychometric evidences [4] using preferably one's own data analysis rather than relying completely on literature research should give us incentives and reason to research in teaching and learning during the current pandemic.

Author's informed decision in this scenario will be mindful of the following words, "assessment as learning". We have been practicing assessment of learning (summative assessment) and assessment for learning (formative assessment) in most of our curriculum practice.

Based on the notion, if assessment is used as a learning tool it provides an ongoing diagnostic approach to learning in Covid-19. Faculty can work to develop their teaching strategies with a formal structure at topic level to design as a lesson plan to incorporate relevant assessments that reflect the progress of the students in a programme. Lesson plan can subsequently be utilized to design and develop a module [5] providing more leverage to students adapting to a self-directed personalised learning environment. Adapting to a remote emergency learning of one hour lecture can be expanded to many hours learning activities with a self-directed approach. The COVID19 pandemic has immensely changed clinical teaching both from students' as well as teachers' point of view. We must now think of curriculum implementation, strategized in a way that encompasses both, clinical teaching and assessment, else a valid reliable and fair assessment online will always be in question in medical education.

An important key to success here will be how we support and develop the faculty ready to adopt a new normal to achieve the outcome set for a change during the COVID-19 pandemic. We must understand, like students' learning styles, faculty also possesses individual teaching styles and better aspects of these teaching styles must be allowed to continue, provided it is based on authentic educational pedagogies. Faculty development activities such as workshops and courses in online learning should be allowed exactly the way it is practiced in teaching and learning round the year in many institutions. In this respect online, open access resources [6] with time provided for personal development plan (PDP) as in Malaysian Quality Framework (MQF) should be encouraged for faculty development in online teaching. Author's suggestion in this context will be to expand the scope of education to encompass e-learning basic licence training by appointing exclusive e-learning staff under its jurisdiction of medical education department/unit/centre or creating a new cell for this purpose. This cell can be given a mandate and named as the, "Medical and Health Profession Education COVID-19 Task Force" lead by a team of vigilant educators, statisticians, psychologist, e-learning experts and data analysts.

In a COVID like crisis a substantial change in course design is required for continuing clinical teaching in reverting from face-to-face (F2F) to a remote emergency teaching. However, a full remotely delivered course is different from an online or blended/hybrid course. In a typical crisis like COVID-19, clinical education is highly

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uncertain for faculty and students to predict when they will be allowed to have F2F session or to switch over to online session. A solution to become online from F2F session due to circumstances like COVID pandemic and reverting back to physical classroom teaching, when emergency is abated is best defined as remote emergency teaching. All that we must learn and be prepared to adopt a strategy for building a vibrant course/module out of a micro-teaching at topic or lesson level. There is a major difference in online or e-learning versus quickly transferable F2F teaching to online teaching and this is called emergency remote teaching. Author proposes a practical model for clinical teaching, with emergency remote delivery for clinical phases of curricular teaching as under.

A. Early Clinical Immersion Phase:

A lesson plan applied to a module to develop a course is the solution that might require time, hard work pedagogy and technology for faculty to create such a learning model. This model will have the option of quick transformation from online to F2F learning experience with a self-directed student's centred approach in clinical education. Emphasis will be given to both, curate what has been taught in preclinical years (20-30%) providing learning material online using e-learning approach as well as create (70-80%) learning material for a F2F learning to a completely transferable to remote emergency delivery in crisis like COVID pandemic. Now every topic in module or clinical posting should be developed as lesson plan to chunk-in the lesson with a micro-credential approach in learning process. This will help obviate students' frustration about sudden lack of self-direction and adaptive personalized learning burdened with off-campus online assessment. 20-30% curative e-learning process should base on recall of students' prior knowledge and remaining 60-70% as face-to-face delivery readily available to 100% (if needed) online synchronous and asynchronous new learning experience.

Strategies to Implement Early Clinical Phase Teaching:

- 1) Expand an hour or two teaching to many hours learning process provided with the links of curative e-learning materials from their earlier 5 semesters that is relevant to the topic.
- 2) Focus on clinical teaching to strengthen students' clerking skills with emphasis on cognitive skills, psychomotor skills and investigative skills delivered as voice over recorded (VOR) Video lecture. Emphasis should be on differential diagnosis in all clinical attributes of interviewing and communication skills, physical examination skills and investigative skills.
- 3) Create videos-based learning on students' e-training portal to help them learn history taking and examination skills and investigative procedures. These videos preferably should have been developed by the faculty using own

archives or borrowed from online resources, such as AMBOSS, YouTube, mobile apps and previously recorded dedicated sessions.

- 4) Create engaging learning environment for student's online learning, and frequently talk to them to know their personal and social wellbeing, safety, interests and issues related to internet availability, time zone and financial support etc. to reassure them of institutional support in this challenging situation.
- 5) Avoid overloading students with undue assignment and expectation during the COVID pandemic however, encouraging them to do reflective practice and give them prompt feedback.
- 6) Provide students with as much learning resources as needed with easy access, preferably created by the faculty with well elaborated learning outline, students guide, learning activities and learning material on a click distance.
- 7) Provide synchronous and asynchronous learning aligned with students' pace and style of learning.
- 8) Develop synchronous teaching with interactive sessions as anilecture, flip-classroom, online TBL (team based learning), BeST (online bed side teaching) and CBL (case based learning) sessions with interesting authentic scenarios as paper patients.

B. Later Clinical Teaching(Discipline-based Clinical Posting):

Moving forward to later clinical teaching, another adoptive learning environment of "online clinical posting" during the COVID-19 pandemic might be needed with a well-planned strategy. This should include one of following teaching and learning methods as under.

- 1) BeST (Bedside teaching online)[7] This has been created by author and practiced with students reflective writing. The feedbacks from the students have been very encouraging. BeST (Beside or anyways teaching) innovative model is based on, "hypthetico deductive and speak aloud approach" designed and developed using Gagne's 9 instructional events.
- 2) Task-based Learning as well as Team-based Learning (TBL)[8] online with well-prepared sessions that must look into good clinical learning practice. Task-based Learning can be more easily practiced with online selected cases by the students with well-prepared lesson plan and learning outcomes for each team allocated task under supervision.

Strategies to Implement TBL (Team-based Learning):

TBL however, can be practiced with following well defined protocols of TBL features.

- a) Managing a properly formed group (team) on long term (for entire one semester at least) basis with well shuffled students from diverse ethnicity, nationality and competency background.
 - b) Ensuring students familiarity with course content by utilizing a readiness assurance process as IRAT (Individual Readiness Assurance Test) on individual basis.
 - c) Motivating students to work as a team to delineate their frustration of inability to perform on individual basis and rather seeking to have collaborative team learning environment during the COVID-19 pandemic. This is much more desirable than the F2F learning environment.
 - d) Developing student's critical thinking skills by using carefully designed in-class activities and assignments.
 - e) Providing frequent and immediate feedback which is vital for team based learning and content retention. This can take place at several stages such as GRAT or TRAT (Group/Team Readiness Assurance Test)[9], peer evaluation and in-classroom application of assignment from the theme of clinical problems identified by each discipline in basic surgical posting.
 - f) Giving students to do assignments that practice both learning and team development. This can be achieved by designing activities and assignments that require team interaction. In-class application activities or outside-class assignment as teamwork are useful.
- 3) Case Based learning (CBL) forum as synchronous activities with carefully chosen clinical scenarios and learning materials that follows reflective practice. That reflective practice must be provided with immediate feedback to each student.

All those TBL [8, 9], BeST [7] and CDL methods with above mentioned principle will not only enable students to understand and communicate the new concepts but also be capable to apply them in different context, useful for their future practice.

- 4) CSSL (Clinical Skills Simulated Learning) can be produced as asynchronous learning using technology with e-Learning tool such as video recorded procedures provided with links and other e-learning tools, which may create learning environment and assessment of students' cognitive skills, psychomotor skills and some values driven professional skills. For these sessions, faculty may create demonstration videos on different psychomotor skills with well-defined learning outcome. Students can attempt role-

play in their own in-house environment guided by teachers 'created models of relevant skills procedures.

- 5) Lesson plan practiced with well design and develop structured models using pedagogy such as Gagne's 9 instructional events, keeping with an online learning option transferred from traditional F2F teaching content. The model must be provided with a well-defined and measurable learning outcome and learning materials with options of online self-assessment. Incentives for lifelong learning can be created and evaluated with optional activities like interesting quizzes and problem solving virtually created clinical patients using e-learning tools such as virtual medical clinic (VMC). These lesson plans can also be applied to create module for online learning in case COVID-19 or other similar crisis may happen in future.

2. Conclusion

All the proposed changes are aligned with challenges faced by teaching and learning environment due to COVID-19 Pandemic. Major onus of curriculum delivery has been on assessment. These assessments are often discussed being online with or without proctoring, closed or open book exam and e-portfolio associated logistics and high cost issues. In short, the concepts of assessment as learning" in a changed learning and teaching practice is achievable. For practical implementation, faculty development for its advantages and disadvantages should be discussed for a major change in concepts of teaching and learning culture from F2F or hybrid/blended curriculum to an emergency remote course delivered online with quick transformation to F2F mode of delivery as the crisis is abated. Readily available models like TBL can be developed as "TBL online" with faculty development activities and hands-on workshops. Special feature of these TBL workshops training should include video demonstration and hands-on GRAT (TRAT) practice and conversion of a PowerPoint lecture to a TBL format. For GRAT practice using immediate feedback assessment technique (IF-AT) system can be replaced by a digital version for online TBL. This can be developed by E-learning experts, who can provide training to selected resource persons in each school/department, who can further train faculty engaged as TBL supervisors.

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