

REVIEW ARTICLE

CHALLENGES IN EFFECTIVE CURRICULAR DELIVERY, WHILE NAVIGATING THE UNCERTAINTIES OF THE PANDEMIC YEAR 2020-'21 – AN AUTOETHNOGRAPHIC REPORT.

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Abstract

The pandemic of 2020 disrupted the traditional medical education, which was based predominantly on face-to-face teaching. The deanery of medical schools had to quickly adapt to the disruption and plan innovative online solutions to continue the instructional processes. This article summarises these experiences as an autoethnographic record of a deanery of a medical school in Malaysia, highlighting fusion teaching, hybrid simulation, simulated clinical clerkship and the move from linear model to jig-saw puzzle model of curricular delivery.

Keywords: Pandemic-2020, Fusion teaching, Hybrid simulation, Jig-saw model of curricular delivery, Innovative medical education.

Introduction

The first report of ‘Pneumonia of unknown cause’ was reported by WHO (China Office) on 31 December 2019, which was declared as a global COVID-19 pandemic by the World Health Organisation (WHO) on 11 March 2020.¹ In Malaysia, on 16th March 2020, the prime minister announced a nationwide ‘lockdown’ with these words: *“The Government takes this current trend very seriously, especially the rise of the second wave of new infections. The current scenario requires drastic measures to be taken to resolve the situation as soon as possible. To that end, the Government has decided to implement a nationwide Restriction of Movement Order beginning 18th of March until 31st of March...”*²

All activities including higher education in the face-to-face mode came to a grinding halt from 18th March 2020. I feel that the first anniversary of the “Covid-19 era” and the major changes it has brought about in the way the curriculum is delivered and assessed during the year, are best recorded as an autoethnographic report from a medical educator, who heads a deanery for the tenth year, and is held accountable for curricular delivery by all the stakeholders, viz., the regulatory bodies, the senior management of the institution, the academic staff, the students and their parents. During the past one year, the members of my team in the deanery used to share this thought quite often: *“this is an academic equivalent of white water rafting in the dark and in a rapid stream full of twists, turns and whirlpools and not knowing what is coming next!”* From the messages and narratives shared with me by the medical deans of the other private institutions, all the deaneries have had similar experiences. The rest of the reflective narrative aims to record the pedagogic and technologic innovations we had to do in the past year to endure this perilous academic journey.

How We Navigated the Pandemic Year *Planning Ahead Proactively*

Even around middle of February 2020, given the rapid spread of the corona virus, it was obvious that the arrival of a full blown Covid-19 pandemic was only a matter of time. We had started planning ahead for various alternatives to the usual face-to-face teaching-learning and assessment methods. We had realised early that the methods and techniques we adopted would have to stand the scrutiny of regulatory agencies, and that the best way to go about it was to get our choices approved by the quality assurance cell of the faculty and the University. If our choices were based on sound educational principles, it would be easier to justify our stance and the choice to the quality assurance, the senate and the regulatory agencies.

Options for Curricular Delivery based on Educational Principles

Bloom’s taxonomy is a time tested and sound basis for decisions on appropriate instructional and assessment options.³ The stand taken by the deanery is summarised in table-1. Though the guidance from the regulatory bodies in early 2020 did not explicitly recommend some of our options for skill learning, the recent guidance of 2021 clearly permits all these options.⁴ As explained later, the dean’s council of private medical schools of Malaysia has played an important role in getting these approved in early 2021.

By April 2020, we anticipated that the student learning would keep shifting off-campus and on-campus depending on the pandemic disruptions and the movement control status. Since our students are from all the states of the nation plus a few from abroad, we decided to keep most at home, except for the final year students, who would have to return for face-to-face clinical clerkship. Under these uncertainties, “fusion teaching” using a multimodal approach seemed to us as the most appropriate option. Fusion teaching adopts multimodal instruction using course

management technology (CMT) for effective curricular delivery.⁵ Table-2 shows a summary of our approach to fusion teaching, which is a concept that subsumes hybrid or blended learning.

It was apparent that some key components of curriculum from year-1 to year-5 needed face to face (F2F) instruction and these could not be completed until the students came to the campus. Therefore, we moved from the rigidly scheduled linear model of curricular delivery to a “jig-saw puzzle” model. The F2F component was the last piece of the puzzle and once it is fitted in, the curricular delivery was completed in full (see Fig-1). Even the assessment strategy was designed on this model. The components taught online, were assessed online, while the assessment of F2F components was deferred until the students returned to the campus for F2F learning and assessment.

Planning for the clinical year students

Since 2018, we had adopted the “RIME Framework” to offer a structured clinical teaching from year-2 to year-5 of the MBBS course⁶ and that had to be fused with Miller’s pyramid⁷ and Dale’s cone of experience⁸ to plan the teaching leaning options for those in the clinical years (Table-3, Fig-2 & Fig-3).

Trying to Stay One-step Ahead in Uncertain Times

On 13th March 2020, five days before the ‘lockdown’ began, our tentative plans were presented to the faculty board and the academic staff members were directed to attend crash course on how to teach students online using Zoom and other platforms, in case we were prevented from face-to-face sessions. As soon as the prime minister announced the ‘movement control order’ (MCO) on 16th March, we closed the medical school for face to face learning and advised the students to go home by 17th March, a day before the MCO was implemented. Therefore, most of our students, who live in the mainland and

wished to go home, could do so safely before the great exodus began.

From 17th onwards, we arranged 4 days of intensive training sessions, especially for all the senior staff, on remote teaching-learning using online tools and applications. With these measures, we could resume curricular delivery on 23rd March, and be among the earliest higher education institutions to quickly switch to remote teaching-learning.

To my mind, the most unfortunate group of students were from the cohort of 2014-intake, who had written the supplementary theory and were scheduled to appear in the clinical exams on 20th March 2020. The MCO, implemented just 2 days prior to that, disrupted the conduct of their exit examination. When the first wave of the pandemic had settled down by June 2020, they returned to the campus for 5 weeks of revision postings to be followed by the clinical examination in early July. By late June, there was a major cluster of Covid-19 and the hospital was out of bounds for students and for conduct of any examinations. By this time, we had started planning for only 2 to 4 weeks at a time and keep a few options – at least three or four – to tide over the uncertainties of the pandemic. We did have options B, C & D for this group too. Fortunately, the option B was feasible: they appeared for the one-day clinical examination in another teaching hospital and all were successful in graduating.

Challenges Faced in Remote Instruction

Like most other institutions, we faced several teething problems: many of the staff had difficulty in operating the online tools effectively; bandwidth issues for some of the students, who were in remote rural locations added to the connectivity issues. Despite having one Gigabyte bandwidth in the University, at times there were bottlenecks in online conduct of teaching-learning sessions. “*Oh! The joy and privilege of teaching students face to face!*” was the collective lament of the teaching staff. To keep up the team spirit and morale of the academic staff, we conducted a SWOC analysis of the online

instruction, which has been published as a brief report.⁹

Since the younger generation among the teaching staff were more comfortable teaching online, we developed a buddy system, wherein the “online-challenged” staff members were initially assisted by net-savvy youngsters until they gained confidence in operating the myriad controls of the Zoom application. We had our share of “Zoom bombers” in March and April 2020, which taught us to quickly learn how to regulate the controls to prevent such disruptions.¹⁰ I hope to motivate the younger staff to write up and share their expertise in the conduct of online instruction and online assessment in a separate article. The collective expertise of this young academic brigade helped us to conduct examinations online in a secure and robust way for year-1 to year-4; some of the cohorts had to briefly stay in the campus for the face-to-face practical and clinical components to be assessed.

Other Pandemic-related Challenges

Pandemic related restrictions and personal difficulties made some of the staff members, many students and their parents querulous and cynical. Whatever decisions the deanery (six of us, all academic staff) made, someone or other would oppose or pass derisive comments often in the social media without understanding the context which forced us to take such decisions. This created a collective “constructive paranoia” in the deanery.¹¹ We got every major decision that we took peer reviewed by the quality assurance cell and then I had presented them to the senate to get the University approval for each of the proposed steps. I had published the peer-reviewed proposals in the web portal Research Gate to ensure transparency, get global visibility and reduce misunderstanding of our collective stance.^{12,13,14,15}

Student Resistance to On-campus Learning

Despite all safety precautions in the campus, which remained Covid-19 free during 2020, several students were unwilling to resume on

campus learning and their parents refused to send them. This was strange because schools children were attending schools during those periods in most regions of Malaysia! My earnest plea for the medical students to use this experience to learn now to be “frontline healthcare warriors” in professional career did not find resonance. All we elicited was hostile comments from a few and a demand from some of the misguided final year students that the hospital authorities must give a written guarantee that none of the students would get Covid-19 infection if they resumed hospital based face-to-face learning! The final years did not even respond to an online call for discussions on learning clinical skills in simulation mode and waited in vain for two months for the movement control of August to lift. This has set back the curricular delivery by over three months for all the years of MBBS programme.

The Deanery Exonerated

With repeated cajoling and guaranteeing that the deanery would devise on-campus learning of clinical skills and also conduct of the final year examinations using modified Mini-CEX, the final year students returned to the campus in late October 2020. Meanwhile the deanery undertook capacity building efforts to train the clinical teaching staff on how to use the mix and match method to achieve the learning outcomes of clinical skills, as described earlier and on the principles of hybrid simulation. They were given freedom to use hybrid mode that combined real cases, standardised/simulated cases, role-players, videos depending on feasibility and practicality (see Annexure). Hybrid simulation is documented to create a different learning environment and therefore a more authentic learning experience than working with only an inanimate simulator.¹⁶ After 8 weeks of such training, the cohort was ready to face the final examinations. We got the senate approval for our proposal to use the fusion model of combining OSCE and Mini-CEX stations to evaluate component clinical skills and key-features of long-cases and short-cases. We invited our hospital specialists, who are our part-

time clinical teachers, to join the full-time academic staff in the clinical examination. We secured the service of a senior clinician and respected academician in Malaysia to supervise the whole exam process for the final year cohort. All but one student could complete the examination successfully and graduate. This exonerated the deanery to a large extent, at least with this outgoing cohort!

Pandemic Disruptions are Still Here

In 2021, we continue to face the various challenges of 2020. Hopefully, our track record over the past year from March 2020 onwards would render the students and their parents less resistant to our innovations. Meanwhile, various private medical schools showed exceptional collegiality in sharing their innovations with the other deans. Our model, which was based on sound pedagogic principles, found ready acceptance with the academia. Several of the principles were put forth by the chair-person of the private medical dean's council to the regulatory bodies for consideration. The 2021 guidelines for higher education and for medical education incorporate many of the suggestions.^{3,17}

I earnestly pray and wish that with mass vaccination in full swing, the medical education in Malaysia will recover fully by the middle of the current year. However, we all feel that the shift to online instruction and the effective use of simulation mode for imparting clinical skills would be part of the "new norm" for us the medical teachers and a value addition to effective curricular delivery in future.

Conclusions

During uncertain times, such as the year-long pandemic,

- The deanery has to be proactive and consider effective alternatives based on sound educational principles.
- Fusion Teaching is the feasible alternative to pre-planned fixed teaching-learning schedule.
- It gives the teacher the freedom to mix and match the various T-L options based on the situation prevailing at that time.
- Putting together various components of the stated curriculum is like fitting a jig-saw puzzle, with face-to-face learning being the last piece of the puzzle.
- As the regulatory bodies stress repeatedly, the ultimate proof of success remains the same: have the students have achieved all the learning outcomes?

Table 1. Choice of instructional mode based on Bloom’s taxonomic domains and cognitive levels.

Bloom’s Domain / Level	T-L Options	Remarks
Factual knowledge (Lower Cognition)	SDL / DSL / Online /Face to Face (F2F)	SDL = SELF DIRECTED Learning DSL = DIRECTED SELF Learning F2F = FACE TO FACE Learning
Apply knowledge (Higher Cognition)	DSL / Online /F2F	
Communication skill (Affective domain)	Online /F2F	
Perceptual skill (sensory part of psychomotor domain)	Auditory/Visual: Online/F2F Haptic (touch): F2F using simulation or reality	Needs supervision & error correction
Performance skill (motor part of psychomotor domain)	F2F (simulate/reality)	Needs supervision & error correction

Table 2. Contextual choice of instructional methods (Fusion Teaching)

Focus	Options	Remarks
Student CONTACT	Online – F2F – Hybrid	Domain and skill guide it (see table-1 on domains)
STUDENT numbers	1 ; (4–10) ; Small group <30 ; Large group >30	Learning site (bedside-lab) & lesson plan guide it
Site of Learning/study	Lecture-hall; seminar hall; Lab; clinical settings (OP-OT-Ward); library; simulation lab; online	In Normalcy, scheduled activities take place; In uncertain times, it varies
Learning Mode	Theory – Practical – Clinical – Field work – Project etc	- Ditto -
Learning Method	Lecture – Tutorial – Lab work – Bedside – Team-based etc	- Ditto -

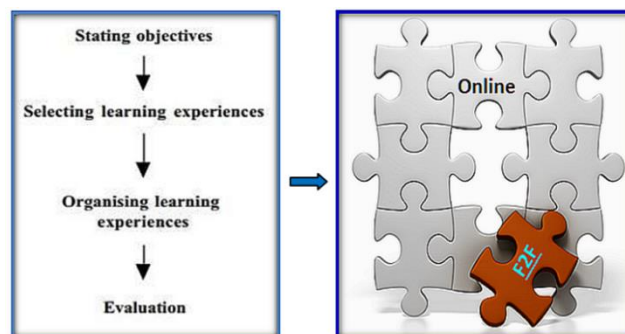


Figure 1. Move from the linear model to “Jig-saw puzzle” model of curricular delivery. F2F = face=to-face

Table 3. AIMST Model of Structured Clinical Skills Teaching-Learning

	Focus	Actions
1	Goal	<u>RIME framework</u> (for years 2 to 5): Yr-2 = Record Physical Exam findings in Normal state Yr-3 = Record History & Physical Exam findings in Cases Yr-4 = Interpret Case details and relevant lab reports Yr-5 = Management plan for cases Intern = Educate Patients/Relatives & Update-self
2	Choice of Teaching Methods	<u>Miller's Pyramid</u> : “Know & Know-how”: Theory teaching F2F/Online “Show-how & Do”: Depending on the skill component, Only F2F (whenever feasible) OR ‘blended mode’ (Online parts now + F2F parts later)
3	Choice of cases/models For clinical skills	<u>Dale's Cone of Experience Hierarchy</u> : -Real-life experience is the best; if not, then – -Simulated experience; if not, then – -Manikin based learning; if not, then – -Video based learning; if not, then – -Lecture-demo online; if not, then – -Text with Pictures (Hand-outs)

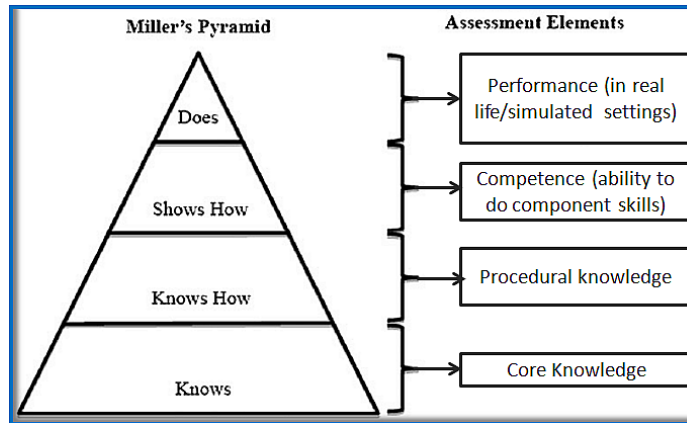


Figure 2. Miller' Pyramid applied to clinical knowledge and skills

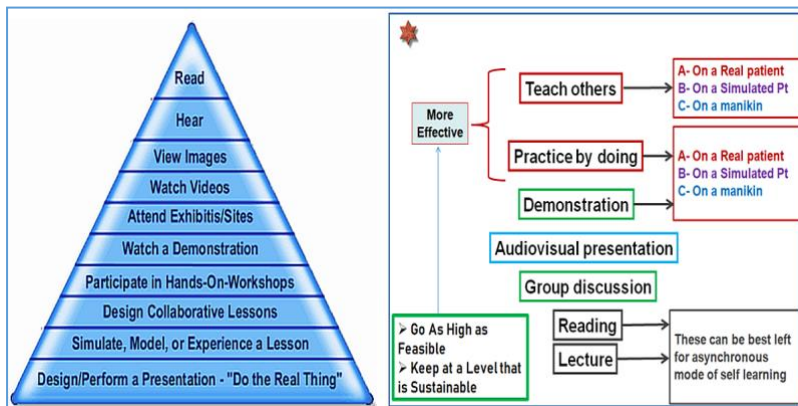


Figure 3. Dale's Cone of Experience and its application in Medical Education (*n.b. the apex of the pyramid (Read-Hear) is at the bottom of the chart of effectiveness*)

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Annexure

An Easy Guide to Planning Clinical Clerkship Simulation Scenario for Year-5

1. Choose a common case scenario in your specialty that is “Must Know” for undergraduates

Case Scenario: _____

2. Is it an OP case or IP case? **Out-patient / In-patient / Both OP & IP (combined)**

3. Is it a one-time consult or a longitudinal consultation? **Single Consult / Multiple consult**

■ If Multiple, the Length of Case-follow up to be simulated? _____ Days / Weeks /

■ How many doctor-patient consultations do you plan? **2 / 3 / 4 / 5 /**

4. Who will play the role of the patient? **Student-volunteer / Standardised Pt / Instructor** (note: it could be in hybrid mode, with instructor giving history like a patient and using a standardised patient or manikin for physical examination)

5. How will the role-player patient get briefed? **Case from the Net – Hand-out – Coaching**

6. For Multiple Consult: Have you planned for “patient-briefing” for subsequent consultations?

Organising the Simulation Exercises for the Group:

7. Location: Is a suitable OP / IP simulation area available? (physical realism is not important)

8. How many cases are you planning to do per clinical session?

Only OP setting ____ cases ; only IP setting ____ cases; Both OP ____ + IP ____ cases per session

9. Have you planned the clerking time and time for consultant rounds?

Clerking time for the students = _____ mins + Rounds time = _____ mins

10. Have you made plans for the students to log-in their experiences in simulation ward?

11. Have you made plans to assess the learning outcomes in the simulation mode?

Assess Clinical Knowledge / Clerking Skills / Diagnostic discussions / Professional behaviour

12 Finally, how would you record the clinical instructors impressions of the whole exercise?

Some Tips: Year-3 and Year-5 can be combined if necessary for clerking and for the rounds; RIME framework can be the basis: year-3 will clerk and present the case; near peer supervision by year-5, who will also do the patient roles and be the ‘referee’ to monitor fidelity.