Online Peer Teaching in Medical School during a Pandemic Period: A Reflection

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Abstract: Peer-teaching has been rapidly adopted throughout higher education institutions, including medical schools, to provide students with a diverse learning environment and to enhance academic development. Peer assisted study session (PASS) is a peer-teaching program implemented in Monash University Malaysia and was conducted virtually during the COVID-19 pandemic. Perspectives from the viewpoint of peer tutors during the pandemic period are presented in this paper. Throughout the year, peer tutors were confronted with the unique challenges of teaching virtually. Various factors which contribute to changes in the dynamics of group-based discussions in online classes are discussed. On online platforms, students are graced with more privacy and freedom, a double-edged sword that can translate into reduced student engagement. Nonetheless, the practical skills acquired by adapting to the abrupt switch from on-campus to online peer-teaching can be employed in our future practice as health professionals.

1 INTRODUCTION

Learning is a never-ending process. This is especially relevant in the medical field where many ground-breaking discoveries are made annually. Medical practitioners are hence tasked with not only maintaining updated knowledge but also communicating it to patients and junior colleagues with clarity. The essence of a successful doctor-patient relationship lies in how well the doctor ensures a patient understands their health condition and management. This is reflected in the numerous studies published on the significance of effective doctor-patient communication in achieving positive patient health outcomes (Stewart, 1995). As future healthcare workers, honing our communication skills is an integral part of our learning process. Peer teaching is one method by which medical students can acquire these relevant professional skills.

Peer teaching involves students teaching other students in small groups regarding a subject or discipline of interest (Mohd Shafiaai et al., 2020). Usually, the peer tutor has prior knowledge or experience on the subject whereas the tutee is a novice in the field (Harrison et al., 2019). Peer teaching is often provided by senior students to relatively junior students in university settings. The peer teaching sessions complement formal classes by providing students with an additional opportunity to receive clarification on complex topics with seniors who have recently overcome similar hurdles.

In medical school, new knowledge is built upon previously laid foundations and students are expected to absorb and digest an extensive amount of new information each day. Peer teaching is an efficient way to assist students with their learning in different and friendly contexts.

Peer Assisted Study Sessions (PASS) in Monash University Malaysia is an academic mentoring program of guided study groups. The sessions are facilitated by senior/experienced students who are carefully selected by faculty members. PASS sessions are conducted weekly for a minimum of one hour where Year 1 medical students are allocated into ten groups, each led by two Year 2 peer tutors.

Prior to the COVID-19 pandemic, the PASS program was conducted face-to-face in designated classrooms. In 2020, the program was delivered via an online platform as the country went into lockdown and the physical classroom environment was not accessible. Online delivery allowed students to continue their learning unhindered by their location. The online sessions were conducted using Zoom.

2 PEER-TEACHING: PHYSICAL VS. VIRTUAL ENVIRONMENTS

Apart from the mode of delivery of the PASS session, the framework of the PASS program was generally unaffected by the pandemic situation. In Monash University Malaysia, the selection of peer tutors is made based on enthusiasm to teach, communication skills and academic excellence. The selected students then undergo training prior to the initiation of the PASS sessions.

Each week, the PASS leaders generate practice questions and scenarios to be discussed with the tutees during the session. The questions are specifically designed to facilitate discussions and understanding of core concepts. The topics are selected based on tutees' requests and are typically on the content covered during the week or specific challenging domains. This allows the Year 1 students to consolidate the scope of learning in recent lectures whilst assessing their knowledge. The tutees receive said questions several days before each session to allow for their attempt and reflection on areas they are struggling with.

During the PASS session, the peer tutors impart study skills and how to approach challenging topics or concepts. Some tutees also utilise the PASS sessions to seek advice on other aspects of medical school. For example, peer tutors can relay their experiences of managing the transition from college to medical school, coping with the demanding workload, and juggling extracurricular activities.

2.1 What Works Well in Online Environments

During on-campus learning, the PASS sessions were timetabled each week and designated classrooms allowed for conducive delivery and achievement of objectives of the sessions. However, finding one hour in a busy timetable weekly and booking venues for 10 groups was a major challenge for the management staff and students as they needed to accommodate the varying arrangements each week. Since the PASS sessions were normally tightly scheduled between normal lessons, students needed to rush to arrive at the designated classrooms on time. Students were often late and resulted in a notable portion of the one-hour sessions being wasted. In contrast, online PASS sessions permit flexible scheduling. The sessions on Zoom are a mere click away and require no prior booking of venues. Moreover, with online platforms, attendance can be taken immediately and requires little effort from tutors and tutees alike. This is more efficient than physical classes, where tutees are required to take turns signing an attendance sheet. Thus, online learning environments can make administrative tasks simpler and more organised.

At times, tutees may be unprepared or unable to attend the PASS sessions. Zoom has the advantage of a built-in screen recording functionality, enabling tutees to watch the sessions at a more suitable time and pace. Similarly, students who may struggle to grasp certain topics will benefit from this as they can re-watch their tutor's explanations (Kemp & Grieve, 2014). This contrasts with physical classes, where absent students can only rely on their fellow tutee's notes.

Furthermore, online classes can accommodate various students' personality types better than physical sessions. During on-campus learning, extroverted tutees typically dominate the discussions while other students are too shy to openly seek clarification. With online sessions, shy tutees have the option of privately sending questions to their PASS leaders and can remain anonymous. Kemp and Grieve (2014) concur that online sessions create a more private and less socially pressured learning atmosphere. Therefore, a wider range of learners can contribute to these virtual discussions.

2.2 Challenges of Peer Teaching Through On-Screen Interaction

The sense of privacy and anonymity that online platforms offer to tutees can create drawbacks for tutors. Most tutees preferred to disable their microphones and cameras throughout the sessions and remained silent when tutors posed questions. As such, tutors noted an overall less favourable student engagement as compared to face-to-face classes despite the voluntary participation of tutees in the PASS sessions. Such observations were also made in another medical school where online peer teaching was conducted (Roberts et al., 2020).

The freedom that online classes provide, in conjunction with the lack of accountability, invites distractions into tutees' learning environments. The feeling of isolation may also contribute to behaviours such as using social media and playing computer games during classes (Dumford & Miller, 2018). Alternatively, in traditional learning environments, students may endeavour to remain focused as they are constantly under observation.

The absence of visual cues may also induce boredom and discourage interactivity among tutees (Qiu & McDougall, 2013). If tutees are unable to

observe the reactions of their peers, they would be unaware if others are struggling with similar topics. This may then discourage tutees from asking questions to clarify doubts on behalf of their group. Consequently, the online sessions were more one-sided as the PASS leaders were often unable to stimulate discussions and had to resort to only giving explanations as though in a lecture. Additionally, without cameras turned on, tutors were unable to observe body language and facial expressions to gauge whether the sessions were appropriately paced. This is unlike physical classes where tutors can pick up on tutees' non-verbal cues to verify their understanding of answers (Dumford & Miller, 2018).

At times, PASS leaders experienced poor network connectivity, resulting in increased latency or complete disconnections from Zoom meetings. These interruptions impaired efficiency as both parties needed to wait for the tutor's internet to stabilise before resuming the session. Likewise, distortions in audio at unfortunate moments sometimes resulted in misunderstandings and incited confusion among tutees.

3 THE ART OF FEEDBACK

Learning to give and receive constructive feedback is an essential element of personal development. In medical school, students are urged to provide feedback to peers as it encourages reflection and critical thinking (Lerchenfeldt et al., 2019). It can also promote a growth mindset and help the other party improve by giving non-judgemental and clear recommendations.

There is a fine line between constructive feedback and criticism. During the PASS training program, tutors were taught strategies to provide constructive feedback, such as choosing the right words and using the appropriate tone. When tutees navigate in a different direction, PASS leaders give feedback and guide them towards analysing the concept effectively. Compared to simply providing them with the correct answer, this feedback method additionally equips tutees with the ability to arrive at the correct solutions themselves. When especially difficult concepts arise, tutors must attempt alternative ways of giving feedback. In this case, having multiple tutors in each group is useful as others may offer better approaches towards understanding the subject.

In face-to-face sessions, the feedback provided is mostly general. Immediate, personalised feedback is hindered by time constraints and the physical classroom environment among other students. The

online platform allowed for giving individual feedback during the sessions using the Zoom private chat box function.

At the end of each semester, the tutees were prompted to provide feedback to their tutors regarding possible improvements and the favourable aspects of the PASS sessions. Generally, the Year 1 students were hesitant to provide feedback when asked directly by the PASS leaders. Collecting or receiving feedback was easier through an online platform, as the tutees were more forthcoming when responses were made anonymous through Google Forms.

4 LESSONS LEARNT AS FUTURE DOCTORS

While the primary purpose of the PASS program in our university is to assist juniors to succeed in challenging units, the peer tutors were also rewarded with practical lessons learnt from the mentoring experience. As medical students, certain skills acquired from conducting these sessions can be applied to our future practice as doctors.

4.1 Professionalism

To provide a respectful and safe learning environment, it is paramount to establish and maintain a professional relationship with fellow tutors and junior students. Peer leaders communicated using the university email address and provided learning material through the university's learning management system. Consequently, the tutors became familiar with formal communication and were able to build rapport despite maintaining professional boundaries. Since doctors often see patients in their most vulnerable moments, it is important to learn to provide support and guidance without sacrificing these boundaries.

During the year, professionalism was also evident in tutors when their relationship evolved from being batchmates to colleagues. Teamwork was broadly developed among tutors through their collective efforts to produce practice questions for each session. Due to the long list of topics that are covered each week, the tutors delegated duties and cooperated to ensure preparations were done efficiently. This is not unlike working in a healthcare team, where collaboration is required to successfully manage each patient. As such, when disagreements arise, they were

settled diplomatically and without undermining fellow tutors.

4.2 Life-long Learning

Medical school is where students are taught to develop the thinking process and clinical reasoning of a doctor. It is not where aspiring physicians learn everything there is to know about practicing medicine, seeing that advances in diagnostics or management plans are shared in the community every day. Accordingly, medicine is a career that demands a life-long commitment to learning from its pursuers. From studying to specialise further, to needing to keep up with the latest clinical practice guidelines, there is a ceaseless torrent of knowledge to be acquired.

Before each PASS session, revision and further reading must be done on the topics to be discussed that week. This often requires employing resources beyond lecture notes and textbooks, as tutors must anticipate questions the tutees may ask and ensure they are well-versed enough to provide clear explanations. It may include topics tutors personally dislike or may struggle in. To rehearse conveying knowledge on such topics to tutees effectively, tutors may need to think metacognitively to reconstruct their comprehension of the material. One strategy is by generating self-explanations, which is believed can facilitate learning by prompting the identification of defective mental models and their subsequent self-repair (Chi, 2000). This departure from passive learning will consequently make tutors better learners themselves. Additionally, simply listening to the explanations of fellow tutors may reveal alternative means of understanding a topic.

Despite extensive preparations, tutees may occasionally pose questions beyond their tutors' knowledge or point out errors in explanations. Humbling experiences as such are evidence that learning opportunities are present at every moment. Like most other careers, healthcare has a workplace hierarchy. This serves as a reminder that even those at the top of the hierarchy should be open to learning from their subordinates; having inflated egos and refusing to acknowledge one's limits will only harm patients down the line and can impede the establishment of healthy doctor-patient relationships (Huynh & Dicke-Bohmann, 2020). Likewise, when tutees gain the ability and confidence to tactfully point out mistakes that their tutors have made, they begin to overcome the barrier that hierarchical division can pose towards achieving honest interprofessional communication (Thomson et al.,

2015). This positive trait is essential in the workplace where doctors of varying seniority, nurses, pharmacists, and mid-level practitioners are required to collaborate to provide holistic patient care.

4.3 Virtual Communication Skills

Shifting the PASS program to an online platform added dimension to the peer-teaching experience. Learning communication skills is an essential aspect of medical education. This is reflected by the significant portion of clinical skills classes dedicated to instilling appropriate and professional communication skills. This relies on both verbal and non-verbal cues, the latter of which may be distorted with virtual meetings. For instance, after having broken bad news, doctors may use physical touch to comfort patients when words offer little solace. Online interactions remove this crucial portion of communication and require medical practitioners to develop alternative methods to bridge this gap.

Online peer teaching highlights this issue. The lack of visual cues from tutees demands more advanced communication skills from tutors and regular check-ins to ensure if the pacing of lessons is appropriate. These virtual communication skills may prove useful when interacting with patients in areas with internet bandwidths that can only support audio calls.

Explanations during PASS sessions in previous years were mostly done verbally or by drawing on whiteboards. These methods are nearly effortless and require little, if any, preparations before the sessions. However, online peer teaching requires different implementations, as disruptions in internet connections mid-explanation can lead to confusion and frustration. Tutors needed to depart from the norm of PASS sessions to minimise the impact of minor connection issues, and explored the use of videos, diagrams, and games (e.g., Kahoot!) to maintain the efficiency of the sessions. Using more engaging teaching methods can also help alleviate boredom and rekindle the enthusiasm of tutees, hence mitigating the negative impact virtual sessions have on student participation.

5 CONCLUSIONS

The abrupt transition to online classes during the COVID-19 pandemic necessitated flexibility from educators and students alike. As peer tutors, we strove to incorporate the positive examples our lecturers displayed with virtual teaching with our own

experiences as online learners to ensure the standard of the PASS program was maintained or elevated. The shift to an online platform certainly did not provide tutors with a discounted peer-teaching experience. Apart from the typical qualities required from peer tutors such as confidence, time management and pedagogical skills, the online version of the PASS program also demanded adaptability, digital literacy, and an open mind. Consequently, peer teaching conducted in both online and physical environments can equip medical students with insights that reinforce the lessons learnt in classrooms and enrich their journey in becoming reliable, future-proof medical practitioners.

5.1 Limitations

This paper offers solely the viewpoints of the Year 2 PASS tutors who are comparing their experiences as online tutors with their experiences as on-campus tutees the previous year. The discussions also revolve around the context of medical education during preclinical years (Years 1 and 2), which involves theoretical content and knowledge that can largely be explained verbally. This contrasts with the clinical years of medical school where learning is primarily done in hospital settings and requires hands-on approaches. Thus, the effectiveness of online peer-teaching for medical students in their clinical years is unclear.

5.2 Future Work

This paper presents collective experiences and thoughts from the perspective of peer tutors. Collecting feedback from tutees on their online peer-led teaching experience would provide additional information on the effectiveness of online peer-teaching and their learning.

To obtain the quantitative evidence required to make objective assessments regarding the benefits of PASS, the results of the entire 2020 Year 1 cohort can be analysed to evaluate the differences in academic performance between those who attended the sessions and those who did not. To ensure that the influence of PASS on the tutees' scores is being studied independently from the effects of official lectures and tutorials, the cohort's results can be followed up to Year 2, where there is no senior-led peer teaching conducted. Additionally, to compare the effectiveness of the online version of PASS with the traditional on-campus sessions, the results of the Year 1 batch in 2020 can be compared with previous batches.

These findings can be used to provide convincing recommendations for the mode of delivery of PASS sessions in medical school once the COVID-19 pandemic is over.

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