

A proposed model for postgraduate entrance evaluation amidst the COVID-19 pandemic

Mawaddah Azman, Ms, Aneza Khairiyah Wan Hamizan, PhD, Salina Husain, MD

Department of Otorhinolaryngology – Head and Neck Surgery, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

SUMMARY

The COVID-19 pandemic has affected the entrance evaluation for postgraduate studies (PGS) in various medical specialties. The PGS in otorhinolaryngology (ORL) continue to be relevant amidst the pandemic, with more than 150 applicants this year. We share here our recent experiences in managing ORL entrance examinations during the height of the COVID-19 pandemic. It is possible to conduct virtually the multi-institutional, multi-faceted evaluation for PGS entrance during pandemic situations whilst conforming to the already established format and standards.

INTRODUCTION

In the first months of 2021, the rapid community spread of the COVID-19 infection has forced many cities into the third wave and lock down with implementation of safe distancing. Following the cancellation of student enrolment and professional examination of high-stakes in the first half of 2020, the national health system in Malaysia is currently feeling the pinch to provide manpower to cope with the health of Malaysians during the pandemic. The situation in Malaysia is better compared to other badly hit countries such as Italy and the United Kingdom where medical students are fast-tracked into their workforce without sitting for the mandatory practical examinations.^{1,2}

DISCUSSION

As teachers become familiar with managing the virtual environment and evaluation methods, adapting to the strengths, weaknesses, opportunities and threat analysis ease decision making in whether or not to conduct the post graduate entrance examination in a virtual environment. An example of such an analysis, as in our case is illustrated in Figure 1.

The onus in ensuring fidelity

Among the many challenges for conducting postgraduate entrance evaluations in a virtual environment is maintaining the usual format and standards. Even in detailed formats such as the clinical examination, this task has been shown to be achievable, though difficult and laborious.³ In prior exercises outside of the pandemic, postgraduate candidates are expected to pass a multifaceted entrance evaluation conducted physically, which consist of: 1) thirty multiple-choice questions (MCQ) answered in an

examination hall in the presence of a panel of invigilators; and a 2) viva-voce evaluating candidates clinical experience and breadth of service in the national health system, conducted by a panel of expert examiners comprised of consultants and lecturers from both the health system and universities. Cumulative marks from these two components determines whether a candidate is eligible to enrol into a postgraduate study (PGS) in otorhinolaryngology (ORL).

Translating the multifaceted evaluation into a virtual environment comparable to the previous physical environment became the priority for the organizing committee from the Department of ORL, UKM Medical Centre. The team members consisted of a consultant and three specialists experienced in conducting entrance interviews. They deliberated on the feasibility of each virtual platform to conduct the PGS entrance evaluation. The team listed important determinants on the feasibility of such platforms. These determinants include confidentiality, content sharing across different institutions, assessment reliability, ease of use and technical support required. The team then gave a score between 0 to 5 (0: least favourable, 5: most favourable) based on their experience using each platform. The virtual platform with scores of less than five in any of the determinant was eliminated (Figure 2).

Risk assessment and management

Electronic evaluation has inherent problems and risks associated with integrity and equipment reliability.⁴ Other risks identified included candidate and interviewer benightments with platforms used and internet connectivity issues.⁴ Risk associated with integrity was addressed by utilising a virtual proctoring application, Quilgo® (Native Platform Ltd, London) which was embedded into Google Forms (Google LLC, USA). Virtual proctoring has been shown to avoid adjustments, keeping to the same format of prior evaluation and reduces dissatisfaction among candidates.⁵ Equipment reliability, user benightments with platforms used and internet connectivity issues are mitigated by series of trial runs targeted to specific user profiles involved in the evaluation process.

Our experiences in conducting a high-stakes otorhinolaryngology postgraduate entrance evaluation during the COVID-19 pandemic.

We have described the SWOT analysis framework and we decided to proceed with the ORL postgraduate entrance

Corresponding Author: Assoc Prof Dr Mawaddah Azman
Email: mawaddah1504@yahoo.com

	Helpful	Harmful
Internal factors	Strengths (S) <ul style="list-style-type: none"> Breadth of knowledge on various virtual applications Sufficient experience and confidence using various virtual applications Understands advantages and limitations of various virtual applications Able to appraise the risks involved and mitigate them Able to collaboratively work in the virtual environment Adhering to safe distancing: candidates and examiners stay at their places 	Weaknesses (W) <ul style="list-style-type: none"> Inadequate equipment to resource a large number of users Inadequate financial resources Lack of trained personnel to handle technical issues (may be mitigated by prior training and exposure)
External factors	Opportunities (O) <ul style="list-style-type: none"> Segregating virtual platforms according to ease of handling Easy to handle platforms for majority of users (examiners and candidates), can potentially be familiarised via trial runs Difficult to handle platforms for select minority of users, familiar with the platform. Utilize virtual proctoring to ensure integrity of evaluation 	Threats (T) <ul style="list-style-type: none"> Poor internet connectivity (may be mitigated or identified during trial runs) Insufficient equipment or device Virtual cheating

Fig. 1: SWOT analysis on conducting a postgraduate entrance examination in a virtual environment.

Multiple Choice Questions		Viva-voce			
		Asynchronous experience evaluation		Synchronous clinical evaluation	
Google Forms		Microsoft Teams		Zoom with breakout rooms (locked)	
Confidentiality	0	Confidentiality	5	Confidentiality	5
Content sharing across institution	5	Content sharing across institution	0	Content sharing across institution	5
Assessment reliability	0	Assessment reliability	5	Assessment reliability	5
Ease of use	5	Ease of use	2	Ease of use	5
Technical support required	0	Technical support required	0	Technical support required	5
Google Forms with Quilgo		E-mail		Microsoft Teams	
Confidentiality	5	Confidentiality	3	Confidentiality	5
Content sharing across institution	5	Content sharing across institution	5	Content sharing across institution	0
Assessment reliability	5	Assessment reliability	5	Assessment reliability	5
Ease of use	5	Ease of use	0	Ease of use	0
Technical support required	5	Technical support required	5	Technical support required	2
Microsoft Forms		Drive sharing		Google Meet	
Confidentiality	5	Confidentiality	5	Confidentiality	3
Content sharing across institution	2	Content sharing across institution	5	Content sharing across institution	5
Assessment reliability	3	Assessment reliability	5	Assessment reliability	5
Ease of use	5	Ease of use	5	Ease of use	3
Technical support required	2	Technical support required	5	Technical support required	5
Moodle					
Confidentiality	5				
Content sharing across institution	2				
Assessment reliability	2				
Ease of use	4				
Technical support required	3				

Legends: 5: Most favourable; 4: More favourable; 3: Favourable; 2: Neutral; 1: Not favourable; 0: Least favourable
 Fig. 2: The elimination method based on specific determinants used to decide on the best virtual platform.

evaluation during the COVID-19 pandemic. The evaluation comprised MCQ and viva voce examination. The MCQs were done using Google Forms (Google LLC, USA) incorporated with Quilgo® (Native Platform Ltd, London). Personalised test links were emailed to the devices of a total of 158 candidates five minutes prior to the time of the examination. Quilgo® (Native Platform Ltd, London) injects a timer and behaviour tracking tools into the created Google Forms (Google LLC, USA). The personalised test link, strict individual timing and camera tracking enabled us to ensure high levels of fidelity and integrity in this component of the virtual evaluation. In this virtual proctoring, the Quilgo® (Native Platform Ltd, London) algorithm detects multiple faces and multiple windows opened on candidate's device and a report is generated after the Google Forms (Google LLC, USA) expires. It is made known to all candidates that marks will be discredited if this report shows such deviations. This prevents cheating during the evaluation and creates fear. Technical difficulties were encountered among candidates who sat for the MCQs in certain hospitals where personal devices were not used. This problem was easily countered by asking the candidate to use mobile phones to attempt the MCQs.

The viva-voce component was further compartmentalised into two sections: 1) asynchronous evaluation of breadth of experience in national health system; and 2) synchronous evaluation of clinical experience by panel of examiners. Candidates were instructed to provide the necessary supporting documents, filed unanimously into a dedicated Google Drive (Google LLC, USA) account. A select panel of examiners, would then appraise the supporting documents and give marks according to a standardised evaluation sheet. This evaluation sheet is then signed, dated and uploaded into the candidate's file on Google Drive (Google LLC, USA). The asynchronous evaluation of the candidates experience profile was completed one week prior to the synchronous evaluation. The synchronous evaluation of clinical experience by panel of examiners took place within half an hour after the MCQ examination ends. A total of 158 candidates and 42 examiners were gathered on Zoom platform, when the viva voce took place. Three examiners examined each candidate

and gave individual marks using a standardised marking sheet on Google forms. Average mark was then used to ensure a high level of fidelity and integrity. The MCQ and the viva voce evaluation for a total of 158 candidates from various states from all over Malaysia was successfully completed in six hours. All 42 examiners agreed that this evaluation was reliable to select the ORL PGS candidates.

CONCLUSION

The virtual postgraduate entrance evaluation integrates desirable advantages including cost⁶ and effectiveness of time,⁷ whilst maintaining fidelity to established formats and standards,^{3,8} as well as respecting safe distancing.^{6,9}

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