CONDUCTING ORAL EXAMINATIONS OVER THE INTERNET

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Abstract

Oral examinations are usually conducted face-to-face between examiners and candidates. This works well for a small country like Singapore where almost all examiners and candidates do not have to travel more than half an hour from their home to the examination centres. However, for international examinations offered by the Singapore Examinations and Assessment Board (SEAB)[1], having examiners travel to overseas examination centres is not only costly, but poses logistical challenges. To overcome these difficulties, SEAB is conducting a pilot project to explore an alternative approach to conduct the oral examinations using internet technology. This paper reports on the findings of this pilot project and shares some good practices and challenges.

Introduction

The Singapore Examinations and Assessment Board (SEAB)[1] conducts the Primary School Leaving Examination (PSLE)[2] yearly. The increasing recognition of the PSLE certification internationally was an impetus for the launch of an international version of the PSLE – the International Primary School Examination (iPSLE) in 2005. Since then, SEAB has been conducting the iPSLE for countries in the region, such as Indonesia, and Vietnam. The iPSLE has the same rigour as the PSLE and candidates may seek admission to schools in Singapore based on their iPSLE results.

In the iPSLE English Language examination, there are four papers examining reading, writing, speaking and listening skills. Speaking skills are assessed in an oral examination which comprises these components: *Reading Aloud* and *Conversation*.

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[1] The Singapore Examinations and Assessment Board (SEAB) is a statutory board under the Ministry of Education, Singapore. SEAB's core business is developing quality assessment services, including national examinations. SEAB also provides educational assessments, research and other assessment related services both locally as well as overseas. It aims to be a regional centre for testing and assessment services.

[2] The Primary School Leaving Examination (PSLE) is a national examination compulsory for all Primary Six students (Grade 6) in Singapore and students sit the examination at the end of their primary school education. The purpose of the PSLE is to assess students' suitability for secondary education. Based on their PSLE results, students are posted to various secondary schools and placed in one of the appropriate courses, which match their learning pace, ability and inclination.

Rationale For Conducting Oral Examinations Via Video Conference Over The Internet

Currently, two local examiners from the overseas examination centre examine each candidate face-to-face. An examiner from SEAB is also deployed to the centre to supervise the oral examinations.

With more overseas examination centres offering the iPSLE, it is envisaged that SEAB would face manpower constraints in deploying examiners overseas. The solution – harness internet technology and conduct the oral examinations via video conference. This synchronous communication will allow an external examiner, who is stationed in Singapore, to:

(i)   conduct a standardisation briefing to all local examiners in the overseas examination centres, and

(ii)   monitor the conduct of the oral examinations in these centres.

Conduct Of The Standardisation Briefing

To ensure that local examiners have a good understanding of the standards to apply when assessing candidates, the external examiner stationed in Singapore, will conduct a standardisation briefing via video conference a day before the oral examinations start. Details of the standard operational procedures are at Appendix A.

As mentioned above, *Reading Aloud* and *Conversation* are the two components to the oral examination. To standardise grading for *Reading Aloud*, the external examiner will play pre-recorded audio tracks of students reading an oral passage. After playing each *Reading Aloud* track, he will refer the local examiners to the mark scheme and analyse the performance of each student. Based on the mark scheme, the external examiner will award marks to the student. Should the local examiners be unclear as to why a certain mark is awarded, the external examiner will clarify and explain. Discussion between the external examiner and the two local examiners is to be expected during the standardisation briefing. The same procedures will be carried out for the *Conversation* component.

Conduct Of The Oral Examination

On the day of the oral examination, the two local examiners at the overseas examination centre will examine candidates and award them the appropriate marks. The external examiner monitors the entire examination via video conference over the internet. Where necessary, he will discuss the performance of the candidates (after they have left the examination room) with the local examiners.

Pilot Project To Determine Feasibility

The preceding discussion explicates the ideal, which needs to be tested for feasibility. Thus, a pilot project was conducted with an overseas examination centre.

There has not been much documentation in the literature on the conduct of oral examinations over the internet. Web-based testing has, thus far, been mainly restricted to the written component of assessment (Bahr & Bahr, 1997; Bicanich & Slivinski, 1997; Doe, 2005; Roever, 2001). Combining audio, video, and networking technologies, videoconferencing allows people from different locations to engage in real-time synchronous communication. It has been used to facilitate the screening of children who are potentially exceptional in some way, especially in cases where the education specialists could not be onsite physically (Bahr & Bahr, 1997). In a paper by Cochrane (1996), it noted that videoconferencing was mainly used to support distance learning students. Though mention was made of Robert Gordon University (Aberdeen) conducting an oral examination between an examiner in Aberdeen and a student in Singapore via a video conference, no detailed account of the process was reported. Similarly, Fernando (2005) presented the application of audiographic conferencing[3] in distance language learning but mentioned only in a few lines the use of an audiographic Internet-based conferencing tool, Lyceum, which was developed in-house at the Open University (United Kingdom), for oral examination.

Apart from such documentation, there seems to be a general lack of relevant and significant literature, suggesting a paucity of research in this area. Herein lies the two-fold motivation for the pilot project – to determine the feasibility of such an endeavour, and to contribute research to this area. The sections below detail the conceptualisation of the project, its planning and execution, as well as the findings and learning points which arise from the trial. As a pilot project to explore the use of videoconferencing to monitor the conduct of the oral examinations, Skype[TM], which is freely available over the internet, was used in the project.

Technical Considerations

(a) Communication Infrastructure

The internet has been creating a new wave of lifestyle since the 1990s. Just-in-time communication is readily and almost instantaneously available via emails and Internet Relay Chat (IRC) facilities (such as Yahoo! Messenger and MSN Messenger). Nowadays, audio and video conferences have bestowed upon us the convenience of communicating across the globe without having to meet physically. Not only can people talk to one another online, they can also see one another. Many corporate meetings are now conducted via audio or video conference. Indeed, technology has made such modes of communication over the internet even more economical and efficient. In fact, Skype[TM] allows video calls to be made over the internet for free, and it is for this reason that Skype[TM] was used in the pilot project.

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[3] Audiographic conferencing refers to audio conferencing system that has been developed further with the addition of images, whiteboards, text editors, text chat facilities and/or web browsers.

The Skype^{TM} software is available for download at www.skype.com. The latest Skype^{TM} version for Windows is 3.1.0.152.

(b) Equipment Setup

Basically, one would need a webcam and microphone in addition to the broadband internet access connected to the computer to set up a video conference. The set of hardware that is used in the pilot project is presented in Appendix B.

Figure 1 shows the equipment setup in a typical oral examination room in the overseas examination centre. Two webcams are positioned such that one captures the view of the candidate during the oral examination, and another captures the view of both the local examiners and candidate during the oral examination. The microphone cum speaker system is placed close to both the local examiners and candidate to capture their voices.

Figure 1

In the external examiner's room located in Singapore, there are two computer systems to receive the views captured by the two webcams in the oral examination room.

Findings And Learning Points From The Pilot Project

The quality of the internet connection is very important. This connection is usually not a single electronic link but a chain of connections between SEAB and the overseas examination centre. Hence, the success of conducting oral examinations via the internet is also dependent on the performance (in terms of bandwidth) and availability of service provided by the internet service providers (ISPs) in both countries.

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As cited by Cochrane (1996), one common issue with the use of video conference in education is that bandwidth problems can create jerky images and inexact lip synchronization with sound. The project encountered the problem of poor internet connections resulting in fuzzy video streaming and unclear audio streaming. As clarity in sound is critical since the external examiner stationed in Singapore needs to be able to hear the candidates clearly, this issue needs to be resolved. Poor audio quality could pose a major problem when conducting such an examination via video conference. The assessment of a candidate may become unreliable due to the inconsistent performance of the videoconferencing infrastructure.

During the trial, there were also occasions where there was a loss in transmission altogether. Should this happen during an actual oral examination, the external examiner would not be able to monitor the examination in its entirety via video conference. One solution was to have an exclusive line with sufficient broad bandwidth.

Another problem encountered during the trial was that the connection line at our overseas centre was asymmetric, i.e. the ADSL (Asymmetric Subscriber Digital Line) provided by the vendor were of different speed for uplink and downlink with a bigger bandwidth for downloading. The result was that the overseas examination centre received much clearer sound quality than Singapore did.

Other Possible Issues Of Conducting Oral Examinations Via Video Conference

Apart from technical considerations, the following might arise if an oral examination were to be conducted via video conference.

Firstly, candidates' performance in the oral examination could be affected by the presence of the equipment during the video conference. As some candidates might be curious, and others nervous when they see recording equipment in the examination room, they should be briefed on the purpose of the equipment prior to the oral examination.

Secondly, security could also be an issue. As the standardisation briefings and the conduct of the oral examinations are highly confidential, conducting these over the internet runs the risk of security leakage.

Due to the difference in time zones between Singapore and some countries, logistical coordination has to be made to ensure that both the host and the overseas examination centres are available at their respective locations to start the video conference. The other party must be ready to accept the Skype[TM] call when one party initiates to make the call.

Lastly, to fully engage the local examiners during the standardisation briefing and to ensure an effective communication between the local examiners and the external examiner during the conduct of the oral examinations, there must be rapport built among them. Cochrane (1996) highlighted the need for a certain amount of face-to-face communication to ensure that individuals knew one another as individuals,

rather than as images and voices on the monitor. Hence, prior to the conduct of the oral examinations, it would be good for the local examiners from the overseas examination centres to meet up with the external examiner to establish a certain level of rapport.

Concluding Remarks

That there is yet well-documented literature on the conduct of oral examinations via the internet is both reason and impetus for the further development of this pilot project. It is hoped that with more research and development, technical issues which could compromise the confidentiality and effectiveness of conducting oral examinations over the internet would be reduced to a minimum. To bring this project which is currently in its nascent stage a stride further, there are plans to implement it on a more extensive scale in the near future.

In general, the challenges faced could be grouped into three areas: the technical issues related to the communication technology and infrastructure, the examination administration, and the factors affecting the validity, reliability and fairness of the assessment. As such, it is necessary for the project team to comprise people who have the expertise and experience in these different areas.

References

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SETTING UP FOR STANDARDISATION BRIEFING (BY OVERSEAS CENTRE)

	Before the Day of Standardisation Briefing	*Action by*
1	Set up the required equipment and connections at least one day beforehand.	Technical support
	On the Day of Standardisation Briefing	
2	Ensure all equipment is powered up and cameras and microphone cum speaker system are in their correct positions.	Technical support
3	Ensure Skype^{TM} is started.	Technical support
4	Ensure the microphone is switched on.	Technical support
5	SEAB will initiate its first call via Skype^{TM} approximately **half an hour** before the briefing is to start. This is to ensure the connection is properly set up and both sides are able to see and hear each other clearly. Answer the call by clicking the green telephone icon. Disconnect the call after the connection quality is confirmed. *If the overseas examination centre does not receive a call via Skype^{TM} at or around the prescribed time, then SEAB will contact the centre via the telephone. At least two telephones lines are to be made available at both sides.*	Technical support
6	SEAB will call again at the start of the briefing. Answer the call by clicking the green telephone icon. Technical support team should leave the room after this.	Technical support / Local Examiners
	At the end of the Standardisation Briefing	
7	Disconnect the call. The equipment should be rearranged according to the requirements for oral examinations as laid out in the set up manual.	Technical support

<u>Appendix B</u>

Hardware requirements for monitoring the conduct of the oral examinations via internet:

§   Notebook System Requirements

	o Windows XP or Windows Vista o Intel® Core Duo processor 1.66 Ghz or higher o 1 GB RAM or higher o 5 GB free hard disk space o USB 1.1 or 2.0 USB Port o CD-ROM drive o Windows® compatible sound card and speakers

§   Logitech QuickCam^{TM} IM

	o High quality VGA CMOS webcam o Video capture: true 640x480 pixels o Still image capture: 1.3 million pixels o Frame rate: Up to 30 frames per second (with recommended system) o Ear piece available

§   Polycom Communicator C100S

	o Microphone cum speaker system o Connects and powers through USB o No headset needed o Two high quality microphones provide excellent range for group conversation with up to four participants