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Online Video Assessment of Clinical Phonetic Transcription Skills in Speech and Language Pathology

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ABSTRACT

An online clinical phonetic transcription exam was designed as part of a redeveloped second year exam of clinical skills within a Speech and Language Pathology degree. This paper describes the design, implementation and evaluation of this pilot phonetic assessment.

Results show that students responded well to this method of assessment, indicating high levels of preference for the individually viewed video, and also high levels of enjoyment. These findings suggest that institutional Moodle-supported VLEs are appropriate for hosting and providing appropriate assessments to replicate clinical settings.

Keywords: Clinical phonetics, transcription, online, video.

1. INTRODUCTION

Online teaching and assessment is an increasingly desirable method for enhancing student learning within Higher Education [12]. The online learning environment can provide content such as: learning activities, resources, supports and assessment [13]. Of the activities delivered via online learning platforms, assessment has been a large focus of development and investigation. The main assessment types delivered via this medium include: written assignments, online discussions, fieldwork and tests [6]. A less frequent online assessment type is the web-based video assessment of practical skills.

Within health sciences the assessment of practical skills is often delivered under the term OSCE (Objective structured clinical examination). OSCEs have become widespread in the field of undergraduate medical education since the late 1970s [4]. They are considered highly reliable and provide equity in assessment of practical clinical skills [11]. Clinical tasks for Speech and Language Pathology (SLP) students can include taking case notes, discussing client's needs with a parent, scoring and performing standardised assessments. These assessments have many benefits but have also been noted to require a lot of preparation, large numbers of staff and different venues [16]. In response to these criticisms, tasks have been delivered using online methods [5]. It is argued that online practical assessment engages

students with high quality and consistent material which is both independent and individual [5], whilst addressing previous criticisms.

2. ONLINE PHONETICS ASSESSMENT

Competency in live phonetic transcription of speech is a core skill for Speech and Language Therapists (SLTs) [14]. Teaching of phonetic theory and transcription skills are increasingly being delivered online [9, 10, 15, 18]. However, assessment of transcription skills within SLP programmes in the UK are traditionally assessed in a face-to-face environment with students transcribing, on paper, single words (often nonsense segments) produced by their tutor. This technique is far removed from the face-to-face speech assessments experienced by SLTs in a clinical context but individual face-to-face sessions would add unnecessary strain on staff resources.

To address this problem, it is suggested that students could be assessed on their skills of transcribing clinical data from a real case of a child with an unspecified speech disorder via video presented through a VLE [7] as part of a set of OSCE tasks.

3. AIMS & METHODOLOGY

The first aim of this project was to devise a robust, reliable, timed video assessment using a Moodle lesson tool via the institutional VLE. The second aim was to evaluate the feasibility of an online examination replacing the more traditional face-to-face examination.

3.1 Context and subjects

The project was devised as part of the newly implemented OSCE within the Personal Development and Professional Practice Module in second year of a BSc Speech and Language Pathology course. The author was asked to advise on a method for assessing students' ability to analyse a speech sample in real-time with each student viewing the same subject. This paper will initially present on the pilot run of this method but will also reflect on the subsequent examination.

The subjects involved in this project included 22 second year students. All students completed the same tasks, as this pilot was to be preparation for their final exam. No comparison groups (e.g. one group using the online examination and another using an off-line version) could be used as all students required the practice. Each student completed the online examination and a follow-up evaluation survey. In addition, 4 staff members completed the same pilot examination and the same follow-up survey.

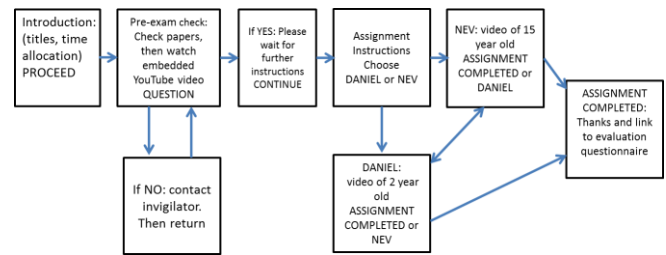
3.2 Designing and implementing the pilot assessment

Of the many tools available via Moodle, the lesson tool offered the ability to present a progression of steps that would allow students to do the following:

- Read through instructions
- Check example audio/video
- View embedded sample client video
- Move from one video to another
- Link to Qualtrics survey

For this pilot examination, two videos were recorded of typically developing children (aged 2 years and 15 years) by members of the SLT teaching team. In each video, the children completed the 10 word Diagnostic Screening Test from the DEAP assessment [3]. In this task, clients view and name a series of pictures representing mono- and multi-syllabic target words (e.g. ‘watch’, ‘fishing’, ‘helicopter’, ‘bridge’) and the facilitating SLT completes a phonetic transcription. The time taken for the SLT to complete the transcription provides a realistic pause during which the student can complete their own transcriptions. In the final examination, a video of the same picture-naming task will be provided of a real clinical paediatric case (supplied by colleagues within the NHS) of a child displaying speech errors considered to be atypical, allowing for assessment of student skills at identifying speech errors both developmental and atypical.

The Moodle Lesson tool was used to lead students through a series of steps. These are presented in Figure 1 below. The pre-exam check video was embedded from YouTube, the assessment videos were integrated using the institutional EStream system.



3.3 The evaluation questionnaire

Qualtrics was used to create an evaluation questionnaire to be presented to students and staff at the end of the pilot examination. Adding it to the end of the task would ensure completion, particularly important as online questionnaires often tend to be low [2]. This would ensure feedback from the intended audience (the students) and staff (who could comment on the suitability for the learning outcomes).

The questionnaire included questions to reflect three areas: the nature of the task, the instructions, and the environment (question details can be found in section 4.1). The questions were presented on a Likert scale with 7 responses (from strongly agree to strongly disagree) in order to achieve optimum reliability and validity [13].

3.4 Implementation of pilot online assessment

During March (in advance of the May examination period) students attended a booked computer lab. Each student was provided with a set of headphones, an IPA and ExtIPA chart, and asked to log into their individual PC. They were then informed that they were to view two videos and complete a broad phonetic transcription [17] (completed on an offline form) for each video in real-time. Once finished the students were asked to complete the feedback survey about their examination experience. Students were also strongly advised that they couldn't pause or rewind the videos, in order to replicate a real-life clinical experience. Invigilators monitored the students' behaviour during the pilot examination.

4. RESULTS

The aim of this project was to pilot an online video clinical transcriptions examination with BSc Speech and Language Pathology students. The specific aims were:

1. Design a timed, online video exam as part of OSCE exam in order to remove need for

Figure 1: Flowchart of the Moodle lesson pathway

- individual examinations, and provide a clinical task to all students at the same time.
- Evaluate the use of the Moodle lesson tool for online video exams

The project achieved both of these aims. A direct outcome of this pilot study was that the online video OSCE exam was used for summative assessment during the May exam period and worked very well as a result of issues raised in this pilot. The second aim was addressed by the use of both formative and summative evaluation. Through discussion with colleagues and feedback from questionnaire data, the overall suggestion is that the Moodle Lesson tool was an appropriate choice for the online video examination, with the main benefits being: can be a timed activity, allows for a pathway, and can be password protected. The immediate problems noted from the pilot examination were: some headphones not working, and video not playing.

4.1 Evaluation results

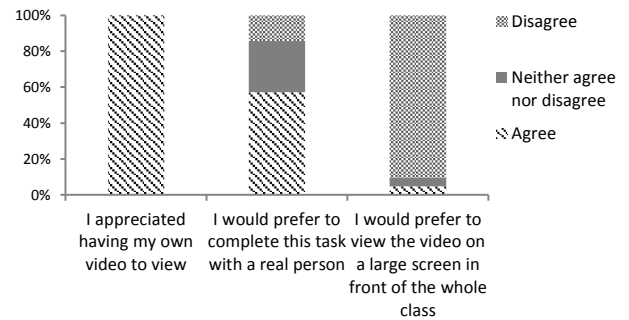
Evaluation of the project was both qualitative and quantitative. Qualitative formative feedback [2] was provided by the Learning Technology team at Strathclyde (regarding the IT support and accommodation). Beebe, Vonderwell and Boboc [1] found that time management was an influence on the use of assessment within an online platform. Their participants particularly highlighted the student demand for quick feedback. This didn't apply to this project, but time management was certainly an issue with regard to IT services and planning.

Quantitative feedback was gathered via an online questionnaire. 21 students completed the online questionnaire and 4 members of staff. The results from the questionnaire are presented below.

The first series of questions related to the nature of the task (Figure 2, below). 95% of respondents strongly agreed that they appreciated having their own video to view (via the PC). There was overall disagreement that one video for all students would be preferred (though 5% agreed) which is a current method of assessing this task in the UK.

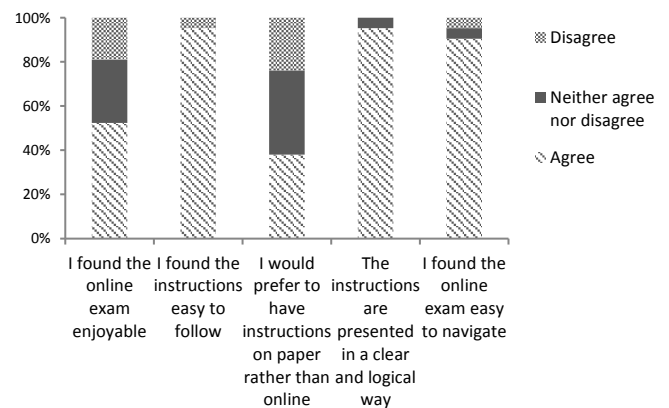
Traditionally an OSCE would provide a real person for practice. The students were asked if this would be preferred, and reported a high level of uncertainty (29%) but mostly agreed that a real person would have been their preference. A similar pattern of response was noted from the staff members.

Figure 2: Results from survey regarding nature of the task: % of students responding agree, neither agree nor disagree, disagree



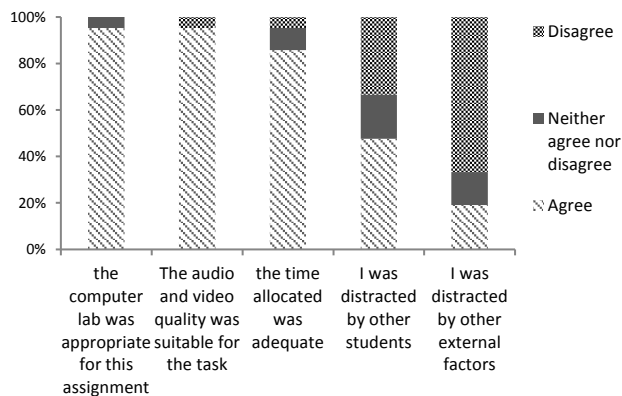
Students and staff were then asked to comment on the navigation and structure of the online exam (Figure 3, below). The navigation and instructions were well received with the majority of respondents agreeing that the exam was easy to navigate and instructions were clear and logical. There was no real preference for either online instructions or paper-based (38% reported to neither agree nor disagree). Although this was a difficult assessment regardless of the medium used, 53% of the students agreed that the online exam was enjoyable.

Figure 3: Results from survey regarding navigation and structure of online exam: % of students responding agree, neither agree nor disagree, disagree



Environmental factors evaluated related to the lab setting, timing and audio-visual quality (see Figure 4 below). Nearly 50% of students noted levels of distractions from other students but all other measures were regarded positively (timing, audio-visual quality and lab setting). The results from the staff evaluations presented a similar pattern.

Figure 4: Results from survey regarding environment: % of students responding agree, neither agree nor disagree, disagree



The overall student experience was positive and both the evaluation results and discussions with students helped inform the design of the final May examination.

5. CONCLUSION

The use of an online video examination in place of a traditional face-to-face/group task was well-received by the students and staff. The institutional VLE provides a variety of tools which can support this form of assessment, and should be explored further.

The pilot examination informed further implementation and allowed for student practice in this new structure. Benefits from the implementation of this assessment included the following:

1. Students experiencing clinical case at the same time (reducing student collusion)
2. Saving staff time (ultimately) while replicating real-life scenarios

Additionally, this process has encouraged the design and use of online transcription practice and formative assessment (as in [10, 15, 18]).

Although the online clinical transcription exam was implemented and completed successfully, in some ways this assignment does not align with most online assessments. While the materials were presented online (using Moodle) the completion of the assessment and the marking/feedback was completed offline. However, in clinical contexts, transcription is usually completed on paper forms.

Although the implementation was not without its problems, this method of assignment was a successful method of assessing practical clinical phonetic skills within a Speech and Language Pathology programme.

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