A focus group study of the use of video-recorded simulated objective structured clinical examinations in nurse practitioner education

Julian Barratt *
London South Bank University, 103 Borough Road, Southwark, London SE1 0AA, United Kingdom

Summary
The objective structured clinical examination (OSCE) is a common method of clinical skills assessment used for advanced nurse practitioner students across the United Kingdom. The purpose of an advanced nursing OSCE is to assess a nurse practitioner student's competence and safety in the performance of commonly used advanced clinical practice skills. Students often feel nervous when preparing for and participating in an OSCE. Consideration of these identified anxieties led to the development of an alternative method of meeting students' OSCE learning and preparation needs; namely video-recorded simulated OSCEs. Video-recording was appealing for the following reasons: it provides a flexible usage of staff resources and time; OSCE performance mistakes can be rectified; it is possible to use the same video-recordings with multiple cohorts of students, and the recordings can be made conveniently available for students with video streaming on internet-based video-sharing sites or virtual learning environments. The aim of the study was to explore the value of using such recordings amongst nurse practitioner students, via online and face-to-face focus groups, to see if they are a suitable OSCE educational preparation technique. The study findings indicate that simulated OSCE video-recordings are an effective method for supporting nurse practitioner educational development.

Introduction
This paper presents a focus group study of a new piece of learning material, which has been used for nurse practitioner students' clinical skills preparation at a London university. This university, in common with other universities across the United Kingdom, teaches registered nurses wishing to practise nursing at a level beyond which their initial training has prepared them for, via a well-defined undergraduate or postgraduate degree-level programme of post-registration advanced nursing education. These programmes usually comprise units pertaining to advanced clinical practice, which are assessed from a traditional academic perspective. However, it is not sufficient to assess students' attainment in these clinical units solely on an academic basis, as these units are specifically designed to help students develop practically-orientated advanced nursing skills, which are required for competent clinical practice as a nurse practitioner. Consequently, in addition to academic assessment of units, advanced nursing degree courses also use practical assessments of students' acquisition of advanced clinical practice skills, and subsequent development of advanced practice competence, most often using university-based practical examinations. This practical method of clinical skills assessment for advanced nurse practitioner students is called the objective structured clinical examination (OSCE). An advanced nursing OSCE comprises a simulated clinical situation that assesses a student's proficiency in the performance of the commonly used advanced clinical practice skills such as history taking and physical examination (Ward and Barratt, 2005).

I have noted in my role as a nurse practitioner-lecturer that students often feel anxious about their prospective performance in an impending OSCE, and accordingly my advanced nursing clinical academic team offers exam support for both first-year and final-year students, in the form of 'OSCE Preparation Workshops', where students can practise mock OSCEs under clinical academic staff supervision. A common student request at these workshops is for the lecturing team to perform a 'live' mock OSCE in class so the students can see how they can practically complete and successfully pass an OSCE. On face value this request would seem appropriate, however it is resource intensive to stage a mock OSCE as it requires at least two members of staff, and it can also be difficult to give a coherent 'live' OSCE performance in front of a typical group size of up to 30 students.

These difficulties led me to consider alternative methods of meeting students' OSCE learning needs. Previously my advanced nursing clinical academic team had participated in video-recorded simulated clinical consultations for M.Sc. Nurse Practitioner students, which had been favourably evaluated. Given this success
the use of simulated video-recordings as an OSCE educational preparation method was considered. Video-recording was appealing for the following reasons: video-recording providing a flexible usage of staff resources and time; OSCE performance mistakes can be rectified; it is possible to use the same video-recordings with multiple cohorts of students, and the recordings can be made available via video streaming on internet-based platforms such as a university’s virtual learning environment (VLE) or publicly available video-sharing sites such as ‘You Tube’, which means students are able to access the recordings at any convenient time (Reisslein et al., 2005). As these simulated OSCE video-recordings were a new educational method I decided to explore the value of using such recordings amongst nurse practitioner students to see if they are a suitable OSCE educational preparation technique. Accordingly this research question was posed: what is the value of using video-recorded simulated OSCEs for nurse practitioner students’ clinical skills exam preparation? A secondary aim of this research project was to compare the usage of an online focus group versus a traditional face-to-face focus group; this secondary aim is discussed later.

Literature

The advanced nursing OSCE can be viewed as a practical assessment of clearly defined clinical skills, whereby students complete a set of individual OSCE stations (individual OSCEs are normally called ‘stations’), which are designed to test a range of clinical skills that are used in patient consultations, with an examiner using a previously determined, objective marking scheme (Ward and Barratt, 2009). OSCEs were first developed for use with medical students (Harden and Gleeson, 1979). Whilst the literature suggests that the OSCE is a well-established method of clinical assessment within the pre-registration medicine and nursing, it is a relatively new method of practical assessment within advanced nursing, having only been integrated in nurse practitioner courses over the past 10 years (Morton et al., 2007; Rushforth, 2007). The advanced nursing OSCE has gained this recent popularity with the contemporary primary health care policy emphasis upon nurses utilizing advanced clinical practice skills (Barratt, 2005). However, whilst literature is available related to using OSCEs in pre-registration healthcare education (Alinier, 2003; Dornan and O’Neill, 2006), and a limited amount of studies exist in relation to the use of the OSCE as an assessment of the attainment of advanced clinical practice competence amongst nurse practitioner students, there is minimal research regarding OSCE education development methods for supporting advanced nurses’ clinical learning. Much of the available literature on advanced nursing OSCEs most often uses a case study approach to describe the process of OSCE assessment in a respective university, with minimal empirical validation of the reliability of OSCEs as an assessment process for advanced nursing (Khattab and Rawlings, 2001; Ward and Willis, 2006; Rushforth, 2007).

OSCEs are most often used during the clinical examination units of advanced nursing courses and also at the end of nurse practitioner degree programmes, for the assessment of a students’ clinical competence, prior to the conferment of the professional award component of an undergraduate or postgraduate advanced nursing degree. Within this professional context it must be noted that advanced nursing OSCEs assess the clinical performance of post-registration nurses as opposed to novice pre-registration nurses, and therefore do not include assessments of basic clinical skills such as recording vital signs, because pre-validated attainment of these skills is implicit in a student’s professional registration as a qualified nurse; instead assessment of the combined experiential, practical and theoretical clinical skills which equate with the competent or proficient level of advanced nursing practice are required (Benner, 1984). As such, advanced nursing OSCEs are assessing a level of clinical complexity beyond that required of an initial registrant in nursing, and therefore carefully planned, consistent, and sustained OSCE preparation is required throughout a nurse practitioner degree programme.

Nurse practitioner students are helped to prepare for their OSCEs in a number of different ways. Typical methods include: classroom workshop sessions where mock OSCE stations are practised in small groups with lecturer supervision; lecturer demonstration of OSCE station components; independent learning with student colleagues, and practice based learning with their clinical facilitators (Ward and Barratt, 2005; Ward and Willis, 2006). Students appear to find all of these long-established methods useful, though some increasingly report their preference for videos of clinical skills demonstrations to aid their performance in OSCEs (Minardi and Ritter, 1999; Winters et al., 2003). Videos of consultation skills have recently been utilized, covering areas such as assessing the communication performance of advanced nurses (Bond et al., 1999; Hastings et al., 2003), and for formative review of physical assessment skills prior to a summative examination using the same skills (Winters et al., 2003). This type of video usage involves students being video-recorded and then receiving feedback on their videoed performance from their student colleagues and lecturers. Videos of clinical nursing practice have also been used to successfully demonstrate basic nursing skills such as blood pressure measurement and venepuncture (Hill et al., 2000; Corbally, 2005). In this type of video presentation students are watching the video recording for an example of a role-model performing best practice. Both of these types of video usage can also be used as a stimulus for group-based post-video discussion.

As an alternative to clinical skills-based video-recordings, universities have also successfully used either whole films or clips of films as dramaturgical teaching tools to create a shared active learning experience amongst groups of nursing students in order to enhance their education (Herrman, 2006; Carpenter et al., 2008). Using video-recordings of simulated clinical skills or presenting film clips in lectures can be conceptualised as an attempt to enhance visual learning; usage of such visual imagery has been shown to expedite students’ learning (Hardy, 2008).

Education videos were until recently, usually only available to students for use either as classroom media, on loan via an institution’s library, or as part of a distance learning package. However, the modern innovation of video streaming technology has meant that videos, including education videos, can be made available for student usage via the Internet. Bennett and Glover (2008) have presented a questionnaire evaluation of nursing students’ and lecturers’ opinions of video streaming usage in an undergraduate pre-registration degree programme in South Australia. This study presented a questionnaire evaluation of nursing students’ and lecturers’ opinions of video streaming usage in an undergraduate pre-registration degree programme in South Australia. This study found significant support from both students and staff for video streaming, which was reflected in high levels of teaching and learning usage for this technological innovation. The nursing students cited the convenience of online video access as a strong preferential factor, whilst staff said using video streaming reduced the need to repeat lectures, and also allowed them to review and improve their teaching methods. In Bennett and Glover’s (2008) study classroom presentations of physiology lectures were presented as video streamed material, with students primarily using the videos as a review aid for lectures or as a lecture substitute if a student was unable to attend university. However, because of the large size of digital video files it must be remembered that access to off-campus video streaming is reliant on users having a high-speed broadband internet connection as opposed to a slower dial-up connection, which could cause problems of equality of online accessibility for students; particularly for those who may not be able to either afford or else access in their local area a high-speed internet connection (Haga, 2002). Bennett and Glover’s (2008) re-
search only covers undergraduate nursing courses at one Australian university, and accordingly further evaluation of video streaming technology is required in both other nursing programmes such as postgraduate (post-registration) degrees, and also at other universities in other countries.

Considering the limiting factors of a lack of research regarding both student educational support for nurse practitioner OSCEs, and the use of video streaming technology in post-registration nursing education, this paper seeks to address these issues by exploring how online video-recordings of simulated OSCEs can be used as visual learning material for aiding the accomplishment of advanced clinical practice competence and related OSCE success amongst nurse practitioner students.

**Methods**

A qualitative education research study utilizing the strategy of a focus group evaluation of advanced nursing students’ post-OSCE completion opinions of a new type of learning material; namely video-recorded simulated OSCEs, specifically designed for student nurse practitioner OSCE revision and support. The research was undertaken in the first semester of the academic year 2007-2008. A focus group data collection method was chosen as they have previously been successfully used in education research (Cohen et al., 2007), as they offer a convenient way of collecting data from a group of people sharing the same experience, such as occurs in a cohort of students sharing the same learning and teaching for a course of study.

**Research setting**

The research was undertaken in a post-1992 London university, which offers professional and vocationally based degree courses to mainly non-traditional higher education entrants. This university provides a Royal College of Nursing (RCN) (2008) approved nurse practitioner programme, with approximately 20–30 students graduating as qualified nurse practitioners each year, all of whom have had their advanced nursing clinical competence successfully assessed, just prior to graduation, via completion of a 10-station OSCE, encompassing the requisite depth and breadth of advanced nurse practitioner practice as specified by the RCN (2008) educational approval standards.

**Sampling**

Two convenience samples of B.Sc. Nurse Practitioner (Primary Health Care) students were selected: a group of 8 first-year nurse practitioner students, and a further group of 8 final-year nurse practitioner students. In the semester the research took place 24 first-year students undertook a 2-station summative OSCE consisting of history-taking and clinical examination, whilst 21 final-year students undertook the previously mentioned 10-station OSCE. All of these types of OSCE stations are normally part of the students’ clinical curricula; no stations were specially created or modified as part of the research process. All of the students assessed by OSCE had the opportunity to watch the videos.

**Simulated OSCE video-recordings**

The video-recordings simulated 6 different OSCE stations: cough history-taking, ear, nose and throat examination, abdominal examination and history-taking, knee examination, and paediatric fever assessment, all of which used actual OSCE papers as the basis for their content. In the recording I played the part of the student, whilst a colleague was the patient. Due to the time constraints of other staff a mannequin from the skills lab was substituted for the examiner role, as this person does not speak much in an actual OSCE, and instead focuses on observing the student and completing the exam checklist. All of the videos can be seen as demonstrations of role-model OSCE practice with the person playing the role of the student providing a commentary during a simulated OSCE recording. These simulated OSCE video-recordings were shown to students in lectures and workshops, with opportunities for post-video viewing class-based discussion. They were also made available online via the university’s VLE, by uploading the videos to the You Tube video-sharing site and adding hyperlinks to You Tube on the nurse practitioner course VLE. On this occasion You Tube was used as the video-sharing platform as it was quick and simple to upload the videos, with no technical expertise required, which was of benefit due to the time constraints of the research period. Furthermore, it must be noted that being an Internet-based free access resource You Tube is available globally and that similar video-recordings of simulated advanced clinical skills are often submitted to You Tube and regularly accessed by healthcare students worldwide.

**Focus groups**

Two focus groups were held; a traditional face-to-face focus group with the first-year students and an online focus group with the final-year students. Both focus groups comprised 8 students, which is an optimal size for a focus group discussion (O’Connell and Dymtney, 2006). With the recent inception of internet-based technologies such as discussion boards and chat-rooms, it has been possible for researchers to convene online focus groups, using either synchronous or asynchronous meeting schedules (Monolescu and Schiffer, 2000; Cantrell and Lupinacci, 2007). An online focus group was chosen for the final-year student sample group as they were finishing their advanced nursing studies at the university and would not be reconvening until their graduation. Both of the focus groups took place within 1-month after the students had completed their OSCEs and received their provisional results. Holding the focus groups post-OSCE was planned to allow a more complete picture of the students’ evaluative opinions of the simulated video-recorded OSCEs in relation to their clinical skills exam preparation. The traditional focus group took place in a university classroom and was digitally audio-recorded, and moderated by myself. The online focus group used the discussion board facility of the university’s VLE, with a special discussion board being created for the online group members. This discussion board required participants to log-on to the VLE at a pre-determined time and respond synchronously as a group to discussion questions posted and moderated by myself.

The range of questions used was the same for both focus groups, covering areas such as their perceptions of the video-recorded learning material, the influence of the video-recordings on their OSCE preparation and performances, the presentation of the video-recordings in both classes and online via video streaming, and finally improvements that could be made to production and presentation of the video-recorded simulated OSCEs. Participation in both focus groups was scheduled for one hour. The face-to-face focus group audio-recording was listened to and the main group responses to each question transcribed. The online focus group discussion board electronic comments were copied into a single text file to create a transcript.

Given this usage of both types of focus groups, a sub-area of enquiry in this study was a comparison of the effectiveness of an online discussion board versus a traditional face-to-face focus group. Hence the following methodological research question was posed: how does the methodological use of an online focus group compare with a traditional face-to-face focus group for data collection in education research? Correspondingly both groups of participants were asked reflective questions about their views of both focus group formats.
Ethical issues

A research proposal application was made to a faculty-based university ethics sub-committee in October 2007. The research proposal was accepted by the ethics sub-committee in the same month with no amendments recommended.

Data analysis

The collected data was analysed using thematic content analysis. This data reduction and thematic identification was achieved by reading through twice both focus group transcripts, with memos and text highlighting being made throughout the readings on general themes emerging from the data. The data texts were then coded in categories to describe all aspects of the memos and highlighted content that related to the research questions. Placing coded categories that were similar into a smaller amount of wider categories then generated clustered summaries of these categories. Contrasts and comparisons were then made across these clustered summaries and the research questions to create grouped themes summarily representing the research findings.

Findings

The following grouped themes emerged from analysis of the focus group data:

Visual learning

The videos were seen by both groups of students as being important for visual learning. A majority of students identified themselves as visual learners and felt that using the video-recordings enhanced their learning style preference. Some students felt that they learn by seeing, and given that the OSCEs are a practical skill, they thought the videos were a useful tool for a practical subject. For example one first-year student said:

“They’re [video-recordings] a useful tool, particularly for a practical subject. You can’t teach someone how to do something just by telling them, I think it does need to be visual”.

Final-year students who expressed a preference for visual learning said that the videos gave them a mental picture of a particular OSCE station, and that they were able to retain and use this mental picture in both OSCE preparation and during an actual OSCE performance. For example, one final-year student said:

“When performing the physical examinations, I found my self recalling the video, i.e. the ENT exam (which I hadn’t particularly revised well), so visualising the video really helped”.

In contrast first-year students said that the videos helped in their preparation but that they were too nervous during an actual OSCE to re-visualize the video-recordings. This difference may arise as final-year students have previous experience of successfully completing an advanced nursing OSCE, which may compensate for nervousness; whereas first-year students do not yet have this prior advanced nursing OSCE experience.

Clarification and reinforcement

A further emergent theme was a sense of the simulated OSCE video-recordings providing clarification of points that students were unclear about after a lecture or reading a textbook; this uncertainty was often resolved after viewing the related video. For example a final-year student said:

“It [a video-recording] helps with clarification if there is a point which is not clear”.

The students also felt that the videos reinforced their class-based learning and also gave them reassurance that what they were learning independently was correct. There was also a sense that the videos helped students to understand what to expect in an OSCE in terms of detailed practical content. Some students were also happy to see specifically designed nurse practitioner OSCE videos as they had previously watched medical student OSCE videos, and found these less useful as they had not directly addressed their learning needs as a nurse practitioner student.

Online convenience

All of the students cited the convenience of the online video streaming; students felt that they could revisit the learning materials in their own time and also use the materials at their own speed. Many students said that they accessed the video-recordings more than once during their OSCE preparation. For example a final-year student said:

“I think they [the video-recordings] are very useful to have as a resource and allow students to refer to them in their own time, and as often as they feel they need outside of the classroom”.

These comments are supported by a review of the statistical tracking data of usage of the VLE You Tube video hyperlinks, which shows that they were accessed on multiple occasions by students, most often in the evening, 7-days per week. However, a minority of students reported technical difficulties with accessing the video streaming via You Tube, such as volume problems and slow download speeds; though it is not clear if these were either video streaming or computer-based problems. Another feature identified was students watching the videos in their workplace, often with their clinical facilitators, so these mentors could see the standards required and assist their students accordingly. Students also found the online video availability useful for practising OSCEs at home. Some students felt uncomfortable with the public availability of the video streaming via You Tube and felt that a sole use of the video streaming via the university VLE would have been better, as a wider range of potentially sensitive issues could be addressed. An obvious example of this could be an OSCE station for eliciting a sexual health history.

Class-based discussion of videos were not useful

To my surprise a majority of students in both groups felt that the post-video viewing class-based discussions about the video content were not useful for their learning. It was generally felt that not much value was added to videos by discussing them in class. Indeed some students said that they could not even remember the post-video viewing discussion, as noted by this final-year student:

“I’m sorry I can’t recall the conversation following the video [in class]”.

Reflecting on my classroom presentations of the videos, some student comments were made in response to my question-asking, though these were limited; perhaps demonstrating the students’ evident preference for actually practising the clinical skills observed in the videos over abstractly discussing the skills.

Improvements need to be made to the simulated OSCE video-recordings

Many students said that some improvements could be made to the production quality of the video-recordings in conjunction with an increase in the available range of simulated clinical examina-
tions. It was perceived that using a mannequin to represent the examiner was disconcerting and that either a mannequin should not be used or else a third person should play the role of the examiner. It was also felt that during a video-recording, being able to see the background of a clinical skills lab containing lots of equipment, was distracting and that screens should be used to cover the background. Further it was noted both video participants sometimes seemed overly conscious of the camcorder, and this was reflected in self-conscious body language, which was found to be perturbing for some students, as indicated by this first-year student:

“Role-play is very difficult for people who are not trained actors; actors are trained not to display certain body language, such as scratching… which can otherwise be very off-putting [when watching an OSCE video].”

Online versus face-to-face focus group

A technical problem arose with the online focus group, when the university’s VLE crashed on the scheduled meeting day for the group, which meant that a synchronous discussion could not occur. Once the VLE had been restored this problem was negotiated by making the online focus group discussion board available for a full week with the discussion being asynchronous; I noted that despite this the participants still responded to each others comments, much as would normally occur in a ‘live’ synchronous discussion. Students in both groups expressed a preference for face-to-face verbal and non-verbal interactions in a focus group, as it was felt that this would elicit more of a group response. However it was also noted in both groups that posting comments in an online focus group allows everybody to have a say, and hence is more equitable. It was also thought that the writing of online comments facilitates a more considered response, as stated by this first-year student:

“You might be more constructive [with electronic comments] as it is written”.

Finally it was remarked by some online group participants that feeling comfortable with internet technology is required to make a contribution.

Discussion

All of the participants in this focus group study were supportive of the use of video-recorded simulated OSCEs and felt that the videos had added value to their clinical skills exam preparation; particularly so their online availability via video streaming. Many of the students expressed a strong preference for visual learning, and felt that they were able to recall the visual input of the videos to use as output in exam preparation, and in the case of final-year students, as a focused output in their actual OSCEs. Of the students who were participated, 2 of them were referred in the OSCEs, but both still gave favourable evaluations of the videos. These positive evaluations concur with previous education research noting that nursing students find viewing video-recordings of clinical simulations assists their learning (Minardi and Ritter, 1999; Corbally, 2005). In regard to assessment of learning and achievement of related learning outcomes, video-recordings of student nurses performing essential nursing skills, such as blood pressure measurement, in conjunction with students’ self-critiques of their recorded clinical skills performance, have been successfully used as an innovative assessment strategy in pre-registration nurse education, providing a unique video-based alternative to traditional methods of assessment (Joy and Nickless, 2008). It is possible that such video-based assessments of students could be similarly used in nurse practitioner education, particularly so for the formative verification of advanced clinical skills development in the introductory clinical examination components of advanced nursing programmes, which in turn could help allay students’ anxieties about their performance in future OSCEs assessing similar practical clinical skills.

A question arises as to what underlying educational processes such video-recorded simulated learning material addresses. Two learning processes that have been identified are students’ critical thinking and experiential capabilities. Whilst critical thinking is most often associated with learning in relation to theoretical knowledge (Cottrell, 2005), critical thinking is also required for acquisition of practical knowledge, such as is used in an OSCE; research of the effects of using video-recorded clinical simulations has noted nursing students’ critical thinking abilities are increased after viewing and reflecting on using such recordings (Chau et al., 2001). As regards experiential reasoning, it has been postulated that the use of simulation in nursing education allows students to make a learning experience, such as observing role-model practice, meaningful as they then have time to reflect on the simulated experience and integrate it within their developing clinical knowledge, prior to the application of the observed simulated skill in their own practice (Waldner and Olson, 2007). In this regard the online availability of the simulated OSCE video-recordings can be seen to be giving students their own pace and time to reflect on their experiential application of the observed skills in practice, as exemplified by the participants’ comments regarding online convenience.

It must be noted this study was limited to a non-probability sample of one group of nurse practitioner students in one university so it is not possible to say that the research findings are representative of other nurse practitioner students or universities. Also the credibility of the analysis could have been enhanced through employing either member checks of the transcribed data or secondary coding of the data by an independent researcher; the constraints of the available research time prevented these methods being used. It must also be noted that this study has relied on student self-reported data of their subjective experiences of using video-recorded simulated OSCEs, and that the objectivity of the data collection could have been improved through using a structured framework, such as that presented by Prion (2008) for evaluating the impact of the video-recorded clinical simulations on students’ learning experiences.

Conclusions

A qualitative education research study of nurse practitioner students’ evaluative opinions of using simulated OSCE video-recordings and of participating in an online focus versus a face-to-face focus group has been presented. This study’s findings indicate that video-recordings of simulated OSCEs can be successfully used to support nurse practitioner OSCE educational development. I recommend that their use should be trialed with a wider range of video-recorded OSCE simulations using actors as patients, and also with other groups of advanced nursing students in other universities, to further evaluate and optimize their usefulness. Online video streaming has been shown to be particularly popular due to its convenience, and the application of such technology could be extended further by using university server-based VLE video streaming, which would remove the need to use publicly available video-sharing sites and allow the development of simulated OSCE video-recordings dealing with sensitive subjects. Lastly, using an online focus group has been shown to be an effective data collection method, which could be used in future education research, without
being bound by the time and place constraints of a face-to-face focus group.

Acknowledgement

The digital video camcorder used in this study was funded via a novice researcher bursary awarded to Mr. Julian Barratt by the Faculty of Health & Social Care at London South Bank University. Mr. Julian Barratt would like to thank the Postgraduate Learning and Teaching in Higher Education team at London South Bank University who assisted in the development of this education research project.

References


Hardy, J., 2008. Developing visual learning skills. Available at: <http://www.teachingexpertise.com/articles/developing-visual-learning-skills-4072> (accessed 03.03.09).

