

The production and deployment of an on-line video learning bank in a skills training environment

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Abstract. Context and Background:

BSc (Hons.) Nursing students are taught many skills in the School of Nursing, DCU to prepare them for their practical experience in the clinical environment. To date these skills have been taught to small groups of students using a demonstration and practice technique. This teaching method has a number of disadvantages:

- it is highly resource intensive
- learning experiences vary depending on the mix of demonstration and practice in each session
- it can be difficult for students to absorb all of the information presented in a single demonstration.

It was decided that video technology incorporating a large scale deployment of skills videos over a video web server, in conjunction with a shift in emphasis in the teaching contact sessions could offer a useful tool to aid the teaching process.

This paper will discuss the production process, the implementation of the project in the teaching environment and the findings to date.

Keywords: Video, Clinical Skills, Practical Skills, Nursing, Streaming video, Mixed Mode Delivery

1 Background

The School of Nursing in Dublin City University runs a BSc in Nursing with a major skills component. There is an annual approximate intake of 240 students per year into the course. This group was taught the skills component by a demonstration and practice technique whereby a lecturer gave a small group a demonstration that was then practiced by the group. There were a number of disadvantages to this method:

- It was highly resource intensive as a large student body had to be broken up into small groups for the demonstration and practice.
- Learning experiences varied depending on the mix of demonstration and practice in each session.
- It could be difficult for students to absorb all of the information presented in a single demonstration and there was little chance for repeat demonstrations afterwards.

1.1 Addressing these disadvantages

A core team was established consisting of the first year skills module co-ordinator, the Clinical Education Centre manager, two clinical skills nurses and an audio visual technical officer to address these disadvantages. Following on from research looking at video in education¹² and the work carried out by EU funded VideoAktiv³ it was decided that video technology incorporating a large scale deployment of skills videos over a video web server, in conjunction with a shift in emphasis in the teaching contact sessions could offer a useful tool to aid the teaching process. This was funded by the Learning Innovation Fund at Dublin City University.

2 Pilot Video

The first stage of the project involved producing a pilot video focusing on a single skill, Aseptic Technique. During the planning of this we looked at the work of a nursing lecturer who had already produced videos for skills teaching⁴. This part of the project was completed over the summer of 2005. It was introduced into the academic year 2005/2006. The plan was that the video would be viewed by the students before the teaching session. This would be facilitated by means of a video web server that the students could access whenever they wanted. The server could give the student access to an instant on-line MPEG-4 video feed or they could alternatively choose to download a high quality MPEG-2 version for playing on a local computer. The project was evaluated very positively by the lecturer and students⁵.

3 Full scale project – the production process

Based on the lessons learnt and success of this pilot we then developed a plan for a full scale project that would involve making videos for almost all the skills taught in the first year module. Topics covered include patient hygiene, admission, nutrition, respiratory therapy, and positioning and temperature measurement. 16 videos have been completed which are now available online to students

3.1 Scriptwriting

The first stage of video production is writing a very exact and detailed script. This took many rounds of writing, circulation, feedback and revision. The most essential aspect of this process, other than the accuracy of the practice demonstrated, was what exactly should be included and what should be taught somewhere other than a video (e.g. giving background information for a skill in lectures). After much debate we felt that these decisions could be best made by recourse to two old sayings – “less is more” and “show, don’t tell”. There were also technical issues such as making sure the script was not bullet-pointed. Bullet-pointing is generally the way lecturers store such information but video narration demands a more naturalistic linguistic approach.

3.2 Resource Management

When the scripts were completed the next stage was assessing what resources were available and how best to utilise these resources. As the location, our clinical skills area, and to a large extent staff time was only available during the summer period we decided to shoot then. We also took the decision to use our funding to get paid participants and a voice-over artist as this would give us more control than depending on enthusiastic volunteers to commit a substantial amount of time to the project.

3.3 Recruiting actors

We decided to recruit 4th year students awaiting final results. This was because it would be easier to direct them in performing a skill rather than teaching an actor an entire skills set from scratch. As they were recently trained we hoped the skills sets they possessed would reflect current best practice and we felt these students were at a stage where they were enthusiastic and proud of their nursing skills, and would bring energy to the project. Also because, as 'real' almost-qualified nurses they would be good role models for Year 1 students, who would identify with them more readily than with staff.

3.2 Filming

Filming was conducted in a single, intensive one week block. We attempted to keep as many subject experts on set during filming – with at least one subject expert present at all times. Reviewing of the material was also carried out on a daily basis to facilitate subject experts who may have missed some recording during the day. It is vital to remember how unforgiving a medium video is when filming. If there is any doubt over a particular shot or sequence always re-shoot immediately as it is very difficult to organize a re-shoot later that will look exactly like the original. As well as technical difficulties there are also the logistical issues of organizing schedules, locations, etc.

3.3 Review, editing and re-shooting of footage

The next stage was to edit the footage and review early drafts to prepare a re-shooting plan (our timetable had included accommodation for several days re-shooting). We were very lucky at this stage of the process that we had a video server. Daily cuts of videos were placed on-line for instant viewing by subject experts therefore producing a far more efficient and useful feedback mechanism than that used in traditional media production allowing for a far superior final product.

3.4 Voice-over recording

The voice over recording process was quite straightforward. We employed a voice-over artist for 2 days recording and another half day re-shoot. The re-shoots were mainly to ease transitions on the video that may have appeared clumsy with the original voice-over and images.

3.4 Insertion of graphics and final editing

When all members of the team were happy with the draft edits the videos then moved into the final stages of production where graphics resembling PowerPoint-like sections giving textual information such as equipment needed, etc were added and colour and audio correction were completed. After final review they were then placed on the server for student access.

4 Implementation in the teaching environment

The implementation of the videos followed the plan used for the pilot video i.e. the students would be advised to look at the video before the session therefore allowing more time to be spent on actual practice rather than demonstration. A two hour session that would have previously been broken down into 45min demonstration and 1hr 15min practice became 15min demonstration and 1hr 45min practice.

Examination of the video web server statistics indicates very high usage e.g. 'Admission to health care environment' viewed 387 times by 162 people in February 2007.

4.1 Evaluation

Evaluation is currently ongoing and includes:

- Evaluation of learning (via experimental and control groups, Multiple Choice Question exam, Objective Structured Clinical Examination, i.e. the standard nursing skills assessment)
- Evaluation of attitudes to/opinions of the videos (questionnaire)
- Comparison of results with other year groups

4.2 Students views

Informal feedback from students so far has indicated that:

- They feel more in control as they find great benefit in actually knowing what is expected of them before coming to class. Previously, in first semester, they had very little idea of what would happen but now they could go in and start work confidently, immediately.
- For more complex skills they still want to retain some demonstration element in class.
- They find the ability to revise skills very useful (this is backed up by server usage statistics also as 2 days before recent OSCEs (practical exams) saw 2 videos being viewed 147 times by 81 viewers and 116 times by 67 viewers respectively.

4.3 Lecturers views

Informal feedback from lecturers so far indicates:

- Class are more "industrious" and "hands on", which seems to reflect the student satisfaction with increased control
- The teaching is more standardised. As there is now one very definite method of teaching set down it is very easy for everyone to standardize their teaching. This is particularly useful for outside lecturers that may be teaching at different times.

References

¹ “Interactive video instruction increases efficiency in cognitive learning in a baccalaureate nursing education program” Napholz L & McCause R, Computers in Nursing 1994 May-Jun;12(3):149-53

² Moss, R. Video – The Educational Challenge, Croom Helm Ltd (1983).

³ <http://www.videoaktiv.org/>

⁴ “Considering video production? Lessons learned from the production of a blood pressure measurement video” Melissa Corbally 2005 Nurse Education in Practice Volume 5, Issue 6, November 2005, Pages 375-379

⁵ McGrath M., Moran A., Kelly M., Kingston R. and Henry, P., The Value of Technology in the Acquisition of Clinical Nursing Skills, 1st International Clinical Skills Conference, 09-May-2005 - 11-May-2005, Prato, Italy.