



E-LEARNING DEVELOPMENT GRANT

Final Report Structure

TITLE OF PROJECT

Establishing the first academic collection of simulated surgical procedures videos: training the digital generation via self directed learning with the aim of improving patients' safety.

DEPARTMENT

Departments: Medicine / Obstetrics & Gynaecology / Centre for Screen Based Medical Simulation

Overall aims and objectives

What were the aims and objectives of the project? Why was this project considered to be worthwhile?

The aim of the project was to build an academic video collection of simulated gynaecological procedures. To our knowledge this is the first initiative of its kind allowing medical students and healthcare professionals to access such educational resource.

Medical students and healthcare professionals regularly attend the Royal Free Medical Simulation Centre (<http://www.rfh-simulator-centre.co.uk/>) to learn how to perform minimally invasive procedures. It has appeared evident, since its early conception, that a collection of videos of simulated procedures was needed in order to provide them with an important reference point when they initially familiarise with the procedures on the simulator. As a result, our long-term plan is to establish a complete collection of simulated surgical procedures videos to be uploaded on You Tube, Moodle and our website in order to allow students and healthcare professionals to learn the basic steps of the procedures before practicing on the high fidelity simulators.

In addition we wanted to evaluate whether a medical student was able to acquire via self directed learning, with minimal supervision, the skills necessary to understand and perform four common gynaecological laparoscopic procedures.

We believe we have been very successful so far since our screen based simulation initiative and our medical student were selected for the Royal Free short film concerning the application for Foundation Trust status (01:56 – 02:26)

(http://www.royalfree.nhs.uk/ftconsultation.aspx?top_nav_id=1&tab_id=1085).

Methodology

Explain what was done.

An enthusiastic and highly skilled medical student (Miss Neda Taghinejadi) was employed to create the simulated laparoscopic procedures videos, recording them and subsequently made them available to the scientific community via Moodle, You Tube and our website.

Initially, the student spent several sessions to become proficient with the use of the laparoscopic simulator by practicing the nine basic laparoscopic skills modules essential to familiarise with the highly sophisticated technicality of the laparoscopic simulators. Subsequently, she watched a few videos of the selected surgical procedure by accessing webcasts based online educational resources, such as Medline Plus, (<http://www.nlm.nih.gov/medlineplus/surgeryvideos.html>) or less conventional resources using Adobe Flash Video technology, such as "You Tube", which display the audiovisual content of laparoscopic surgical procedures. This approach provided the student with the opportunity to practically visualise several times the stages of the surgical procedure.

In order to verify the audiovisual content, the student reinforced her learning of the selected surgical procedure stages by accessing traditional educational resources such as surgical and anatomical textbooks. After that, the student performed in her own time the selected gynaecological modules in order to become proficient with the procedure by establishing a learning curve. After watching a live procedure in an operating theatre at the Royal Free Hospital, the student performed the operation on the simulator in front of an accredited gynaecologist to ascertain that all the surgical steps have been understood and covered appropriately.

After the validation process occurred, the student performed again the final operation on the simulator; during this time the operation was recorded by a real time video capture software (Fraps: <http://www.fraps.com/>) which was already installed on the laparoscopic simulator. The recorded performance was watched, assessed and validated by an accredited gynaecologist. The videos were finally uploaded on Moodle and You Tube to be made available to the scientific community and particularly to those undergraduate students and healthcare professionals who want to learn the procedure by practicing on the high fidelity simulators.

Project outcomes

What did the project achieve? What was produced at the completion of the project?

We were able to create a Moodle page (<http://moodle.ucl.ac.uk/course/view.php?id=12649>) on simulation procedures containing the following four gynaecological modules:

- Laparoscopic tubal sterilization
- Laparoscopic salpingectomy for ectopic pregnancy
- Laparoscopic salpingostomy for ectopic pregnancy
- Bilateral salpingo-oophorectomy

In addition, we immediately took the opportunity to upload and display two other simulated procedures (Laparoscopic gastric by-pass and Laparoscopic sigmoid colectomy)

How did the project:

- enhance student learning?
- contribute to more effective or efficient teaching and/or assessment?
- make innovative uses of technology?

We were very proud to see that a highly driven student via self directed learning, and minimal input from the supervisor, was able to safely practice on a highly fidelity simulator several surgical procedures. Students who want to familiarise with these procedures have now the opportunity to come to the simulation centre and use the videos as main supporting learning tool. As we mentioned before, to our knowledge, this innovative approach is the first of its kind.

How did this compare with the original aims?

We believe we have achieved our aims; however, it is worth mentioning that the main limitation of the project was represented by the difficulty in recruiting a live surgical case for ectopic pregnancy since this is an emergency and our medical student was not based at the Royal Free; as a result, it took slightly more than expected. We are now planning to deploy the videos on our website too.

How was the project evaluated? How did you ensure that you achieved what you set out to achieve?

As explained in the methodology section, the project was mainly assessed and validated by an accredited gynaecologist. We are satisfied to have achieved our aim and we are planning to submit a report to an international conference and a peer reviewed journal.

Other benefits

How has the project developed your awareness, understanding, knowledge, or expertise in e-learning?

Following the successful contribution to e-learning resources such as the Virtual Consulting Room, the Virtual Consultant, the Map of Medicine and BMJ Point of Care -Epocrates Online, I feel I have already established a deep understanding on how to create and evaluate online educational resources. However, this project has given me a better understanding on the potential offered by highly motivated students and their ability in contributing via self directed learning to the success of a high quality e-learning initiative.

Scalability and sustainability

How will the project continue after the ELDG funding has discontinued? Is it possible that this project can be expanded to other areas of UCL?

We have established ourself as the only Screen Based Medical Simulation Centre among UCL Partners and, to our knowledge, in all the United Kingdom. We are planning to develop a unique collection of simulated surgical procedures videos of all the modules available within the field of Gynaecology, Gastroenterology, General Surgery, Interventional Radiology, Cardiology and Respiratory Medicine.

At present we are planning to develop modular curricula tailored to enhancing adult and self directed learning. In order to achieve curriculum completion, every user, after having had an induction on the high fidelity simulator, is invited to follow the computer generated metrics, used as benchmarks, previously set by the experts. The benchmarks are usually deployed in a "stepping stone approach", in order to motivate the learner to establish a learning curve by matching the expert's metrics. We are therefore strongly believe in the importance of providing healthcare professionals and medical students with an academic collection of simulated procedures. As a result we have applied to UCL

Teaching Innovations Grant Scheme for an extension grant to continue the employment of Miss Neda Taghinejadi to consolidate the initial phase of our project.

Dissemination

Guidance: How will your project outputs or results be disseminated? Are there other departments which would find value in your project outputs or results? Please note: TLN grant holders are invited to contribute to the UCL Learning and Teaching Conference held bi-annually and/or to the Teaching and Learning Network (www.ucl.ac.uk/tln)

We are planning to finalise the project and subsequently send an abstract to international conferences on medical education, medical simulation and gynaecology. In addition we will be more than delighted to present our results at the UCL Learning and Teaching Conference and at the Teaching and Learning Network.

Appendixes and Video report

For the video report, please use UCL Dropbox (<http://www.ucl.ac.uk/dropbox/>) sending to ltss@ucl.ac.uk or, if you have already put it online- send us a link. Please also attach/link to any other pertinent materials that you wish to share with UCL colleagues.

We have enclosed the following documents:

1. Moodle page (<http://moodle.ucl.ac.uk/course/view.php?id=12649>)
2. My portfolio (<http://myportfolio.ucl.ac.uk/user/view.php?id=1191>)
3. A list of videos on You Tube
4. Miss Neda Taghinejadi report

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