

Module: Physiotherapy Science 272

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Blended Learning Coordinator: Mr Alex Keiller avkeiller@sun.ac.za

Learning activity:

Peer-assessed practical techniques

Learning technology:

SUNLearn workshop tool

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Context

Background overview

Practical assessment in Health Sciences is a resource-intensive activity forming part of the curriculum. This resource-intensive activity adds to the stress already placed on staff and students by the time constraints in the environment and by the increase in the numbers of students. The student skills selected for practical assessment are based on the financial and human resources available; in addition, the extensive curriculum content often makes it difficult to create opportunities for students to develop these skills.

Subject area

The module Physiotherapy Science 272 follows a principle-based method of techniques that can be applied to various situations. The aim of the module is to teach students all the evaluation and treatment skills that are needed to treat patients.

Intended learning outcomes

The learning activities discussed in this case study have three objectives, with the outcomes assessing the lower-order thinking skills of remembering, understanding and applying (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956), as follows:

1. Encouraging students to practise the techniques that they are taught during their practical classroom sessions. Giving students the opportunity to practise the techniques before submitting the final product allows them to become more confident and competent in demonstrating the techniques. This method of learning incorporates both practise and production, as described in Ways of Learning (Laurillard, 2012).
2. Ensuring that students remember and understand the theory. Students must have a solid understanding of the theory related to the techniques that are assessed in order to evaluate and give feedback to their peers on their assigned assessments.
3. Establishing a peer learning environment with student-centred assessment.

Established practice and challenge

Throughout each year, techniques are taught to the Physiotherapy Science 272 students, which are assessed during the quarterly objective structured clinical examinations. In the Department of Physiotherapy at Stellenbosch University, these are better known as FUSPEs (Fisioterapie Universiteit Stellenbosch Praktiese Eksamens). Typically, this requires the lecturers to block out a total of five days of the year to evaluate the students' performance of these techniques. The FUSPEs are stressful assessment environments for the students and a time-consuming exercise for the lecturers.

During these practical examinations, lecturers have noticed over time that students may require extra input regarding their practical skills.

The increasing student intake could also result in more time having to be allocated to the FUSPEs to assess the students. This could result in a more stressful examination environment for both the students and the lecturers, as the demand on their limited time would increase.

Advantages associated with the integration of technology

In 2014, the Department of Physiotherapy at Stellenbosch University published the following article on near-peer assessment:

A near-peer tutorial system was introduced and implemented as part of a second-year module to assist physiotherapy students with the practising of manual techniques in order to determine the effect of near-peer teaching on the perceptions undergraduate physiotherapy students have of their own learning. The outcome of this study showed that participating and functioning as near-peer tutors had a positive influence on physiotherapy students' perceptions of their own learning both in terms of own clinical technique competency, but also as teachers and facilitators of learning.

Unger, Keiller, Inglis-Jassiem & Hanekom, 2014

Building on this study, the lecturer decided to introduce peer assessment video FUSPE trials during the third term of 2014 by using the SUNLearn workshop tool. This would also give the second-year students more opportunities to practise their techniques.



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The aim of the peer video assessments was to alleviate the challenges faced by both students and lecturers and to allow students to practise and perform techniques in an environment in which they were comfortable, less stressed and able to submit their best demonstration. The students had to practise the techniques continuously to achieve the best technique video and they were able to work in groups and correct each other as they proceeded. The students, as the peer evaluators, also had to understand the techniques and the procedures and theory related to the techniques.

For the lecturers, using the peer video assessment workshop changed their role to that of moderator rather than examiner. Moderation was done online and within a set time period.



**Figure 1: Learning technologies allow more possibilities

Student overview

Second-year Physiotherapy classes generally consist of between 70 to 75 students, although the new intake policies of both the Faculty and the University will result in this number increasing in the future. Students are required to learn practical techniques in their second year and to use this knowledge and these skills when they are introduced to the clinical platforms in their third year of study. The Physiotherapy Science 272 module runs throughout the year and students are taught a minimum of one to three techniques per week.

Other relevant role-players

The blended learning coordinator (BLC) trained the lecturer to set up and control the SUNLearn Workshop activities and then guided the lecturer through the creation of the first five SUNLearn Workshop activities. The BLC also tested and set the software and video settings. Also on hand was the learning technologies support team, which assisted the lecturer with any problems experienced, whether by the lecturer or the students. Lecturers in the Department assisted with supplying content, such as marking guides and video examples of techniques. Some lecturers, together with postgraduate students, aided with moderating students' submissions and feedback.

Learning and assessment activities

Educational approach

Four ways of learning (Laurillard, 2012) were identified for the peer video assessment workshop activities:

1. Acquisition: Students were taught the techniques through demonstrations during their practical classes and were provided with video demonstrations of the techniques.
2. Practise: Students were expected to practise the techniques in class, with feedback provided by the lecturer, and they were expected to practise in preparation of submitting their videos via SUNLearn Workshop.
3. Collaboration: It was observed during video submissions and informal discussions with students that they used each other as simulated patients, working in groups of between two and four. This collaboration enabled

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them to guide and correct and thus learn from each other.

4. Production: By creating a video of their techniques, students could review the footage and rectify any mistakes made prior to submitting their videos, thus ensuring that they improved the quality of their demonstrations. Through this exercise, they built a portfolio of evidence while developing their competence in specific skills.

Learning and assessment activities

SUNLearn Workshop activities were created for each technique that the students were taught in the Physiotherapy Science module. A rubric used in the FUSPE environment was uploaded to guide the peer evaluators. To assist the students further, the lecturers in the Department created videos of themselves demonstrating the techniques.

The students were introduced to this type of assessment by the lecturer, who explained what was required of them at the start of the module. The mark allocation towards their final-year mark was also shared with them, as were the technical criteria required for successful submission. Each activity had an approximate two-week time frame. Submissions were made within a week of the practical session in which a technique was taught, followed by a week in which the assessments were completed. Moderation by the lecturers and postgraduate students had to be completed before the end of the term.

In the first quarter of the year, the students were required only to demonstrate the techniques taught during that week. The rubric and example videos were made available to the students before they made their submissions. The peer evaluators were required only to watch the submitted videos and to assign grades per the rubric. They could also watch the lecturers' examples as a guide for marking.

As of the second term, the rubric was not made available to the students during the submission phase of the assessment activity and the peer assessors were required to include feedback to the students. The weight for a submission was 90% and for an assessment 10% of the total activity mark. In the Workshop activity on SUNLearn, the submission mark was the grade given to a student by a peer. The assessment mark was a grade determined by an algorithm within the system that graded a peer on

how well she or he marked a student, i.e. the grade had to fall within the assessment curve generated by the class submission grades.

After the assessments were completed, the lecturers and postgraduate students were assigned videos to moderate. The weightings of the moderated grades were higher than those of the peer evaluators.

Although the trial experienced some teething problems, these resulted in the development of technical guidelines and the identification of free software that students could use to format their videos in order for submissions to be viewed on any device.

Feedback practice

A comprehensive rubric was used from the beginning and students could easily diagnose where they went wrong. From the second term, students were required to give feedback on the videos that they evaluated. This meant that all students received feedback on their work.

Student self-regulation

Students were able to use the practical lecture venues whenever they were available to them but they were not restricted to use only the venues in the Department. Some students preferred the privacy of their own homes or dormitory areas.

Learning environment

Learning setting

Learning was threefold. Firstly, students learned the techniques in the practical lecture venues while working in groups to practise the procedures and then making recordings when they were satisfied that they had mastered the techniques. Secondly, students also learned from one another during this time, giving advice and feedback to others who were practising. Thirdly, students learned while watching and then evaluating other students' recordings.

Collaborative settings

While practical examinations were always individual tasks, the peer-assessed video workshops allowed for students to collaborate when practising and recording their video submissions.



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BLENDED LEARNING
CASE STUDIES 2016**Technology resources**

Students used their own cell phones and other recording equipment to make the videos for submission. They were supplied with technical specifications for the length and time of the videos that were uploaded for each of the workshop activities.

To edit their videos, students were supplied with a free version of [Format Factory](#), which they installed on their computers or laptops to convert the video formats to .mp4. This was required because older Android devices and video software cannot play Apple's M4V video format. A video tutorial was created and uploaded onto SUNLearn to show students how to use the software.

Table 1: Specifications for the video settings

Video specifications	
Video format	.mp4 (use the Format Factory to convert your video to .mp4)
Resolution settings	640 x 490
Video length	5 minutes
Video size	< 100 MB

Video Assignments

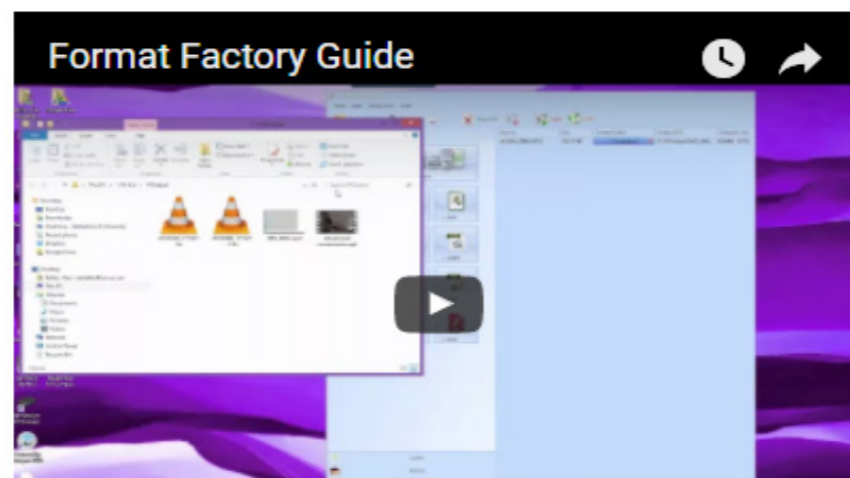


Figure 2: Screenshot of the Format Factory video guide made available by the BLC

The SUNLearn Workshop tool was used as the peer assessment instrument. This tool worked in four phases. In the first (setup) phase, the SUNLearn Workshop tool and rubric for assessment were set up. In the second (submission) phase, students submitted their videos (they usually had a week to do so). Once everyone had submitted their videos, the third (assessment) phase started, with students grading each other's work using the rubric provided. In the fourth (grading) phase, the lecturer could add grades and then finalise the peer assessments.

Support challenges

Students were supported by the lecturer, the BLC and the SUNLearn support team if any issues arose. Issues relating to the formatting of videos made on Apple products required some extra setting changes on the Format Factory program. A video user guide for Format Factory was created by the BLC to assist students to format their videos.

Student experience**Student feedback on the learning experience**

No formal feedback process was conducted at the time that this report was written but informal conversations with the students indicated that, although they saw this learning experience as a lot of work, they understood that it forced them to practise and learn the techniques that they will be using in a clinical setting.

Assessment impact

Student participation improved after it was decided that the grade allocation would contribute to the continuous assessment marks of the students. It was expected that the students would generally grade their peers with high scores but this was not the case, especially after they were asked to support their scores with compulsory feedback, which was moderated. The lecturer noted that the feedback was both critical and honest.

General**Opportunities**

Based on the acceptance by the students of using this manner of assessment, an opportunity to continue with even more near-peer assessment could be investigated by asking third-year students to assess second-year



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students. In this way, the lecturers could assess the third-year students' understanding of the techniques versus that of the second-year students.

Challenges

The biggest challenge was obtaining buy-in from the students to complete the tasks on time. This improved drastically over time but more needs to be done to encourage the students to adhere to the task times.

Advice

Colleagues in the Department of Physiotherapy have committed to using this method of evaluation for the third-year students. Keeping the format the same will result in fewer problems being experienced by both the students and the lecturers.

Other concluding thoughts

The project is in the process of being completed and the data, such as the mark comparisons between physical FUSPEs and online FUSPEs, will be analysed through a formal research project. Participation by students has increased and students have reported that, although it did take a while to do the recording, most time was spent on practising the techniques to get them correct. This is in keeping with the current evidence of best practice that clinical skills are best learned when repetitive practise with immediate feedback is promoted (Kneebone, 2005).

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