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**Abstract:** Background: Assessment using case based practical exams that require demonstration of clinical practice skills and articulation of clinical reasoning is commonly used in undergraduate allied health and nursing professions. However, the student often struggles in understanding and evaluating their performance of practical skills in preparation for summative practical assessment tasks. The fear of attempting and completing practical tasks does not contribute to learning. Any means of encouraging self evaluation, reflection and facilitating learning that is driven by the learner and not the assessor will contribute to the performance of the student in the short term and the practitioner in the future. Aims: This project used a mixed-methodological approach to explore the use of audio-visual technology to enhance 61 undergraduate physiotherapy students' practice of self evaluation and then sought to explore and understand the student experience of the activity and the teacher feedback provided. Findings: Themes relating to the students concerns, strengths and levels of self-confidence were identified. Reflection on the student feedback provided and the implications for teaching are also discussed.

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# The use of technology to enhance student and self evaluation and the implications of the feedback provided on teaching

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## Abstract

Assessment using case based practical exams that require demonstration of clinical practice skills and articulation of clinical reasoning is commonly used in undergraduate allied health and nursing programs. However, students often struggle in understanding and evaluating performance of practical skills in preparation for summative practical assessment tasks. The fear of attempting and completing practical tasks does not contribute to learning. Any means of encouraging self evaluation, reflection and facilitating learning that is driven by the learner and not the assessor will contribute to the performance of the student in the short term and the practitioner in the future.

This project used a mixed methodological approach to explore the use of audiovisual technology to enhance 61 undergraduate physiotherapy student practice of self evaluation and then sought to explore and understand the students' experience of the activity and the teacher feedback provided. Themes relating to the students concerns, strengths and levels of self-confidence were identified. Reflection on the student feedback is provided and the implications for teaching are also discussed.

Keywords: self evaluation, reflection, technology, physiotherapy, clinical skills, assessment, simulation

## Introduction

The acquisition of clinical skills is a prerequisite for graduate practice for many allied health professions. The assessment of these skills should not only meet the specific goals of the allied health course, the university and the profession but also establish a basis for the student to evaluate their own practice now and into the future (Boud, 2000).

In this study the use of a simulated practical exam task and video feedback was designed to encourage student reflection on physiotherapy practical skills performance in a formative learning environment. This activity was undertaken during the teaching session and prior to the end of session summative assessment task. It was also an opportunity for the teacher to

develop an understanding of the learning that had occurred and the effectiveness of the guidance and demonstration offered in class and individually during the teaching session.

The aims of this project were therefore to develop student self awareness of their performance of clinical skills supported by specific and criterion based feedback from the academic subject coordinator and teacher.

To achieve these aims the student were able to

- practice clinical skills in a low stress setting
- use technology to record their intervention
- receive visual and verbal feedback that would enable the student to improve their self-evaluation and reflection skills
- provide feedback to the lecturer on the effectiveness of the teaching and the material covered in lectures and practical classes.

### **Literature review**

The use of simulated patients or actors to evaluate clinical competency has been in common use in a number of health related programmes (Ladyshevsky, 1999). There is increasing evidence of the relevance of simulation technology in educational institutions that offer health related courses (Issenberg et al., 1999, Kneebone et al., 2002, Carroll and Messenger, 2008). In a systemic review by Cant and Cooper (2010) over 2000 articles, from 2003 to the present, were found that evaluated the use of low and high fidelity simulation in nursing education alone. The use of technology such as computer games and models that simulate human disease scenarios and the videoing of students to improve and evaluate formative clinical skills have become increasingly significant in the training of health care professionals (Carroll and Messenger, 2008). This technology has emerged to address the crisis in accessing workplace learning opportunities (Issenberg et al., 1999, Jeffries, 2005) and as tool for educators and students to evaluate performance during workplace experiences (Jeffries, 2005, Jeggels et al., 2010). Simulation offers the health care student the opportunity to gain proficiency in clinical skills in an authentic and safe environment that will optimize learning (Kneebone and Nestel, 2005, Carroll and Messenger, 2008, Fastre et al., 2010).

Learning, and an understanding of one's practice, is also optimized by the inclusion of self evaluation and critical reflection (Higgs and Jones, 1995b, Ajjawi and Higgs, 2008, Carroll and Messenger, 2008). Critical reflection is described as a process of self enquiry where learners and practitioners are encouraged to look at clinical practice through their own eyes, the eyes of colleagues and also through the lens of research and theoretical literature (Steinert, 1993, Ajjawi and Higgs, 2008). Reflection based on self analysis of performance against pre determined criteria with timely feedback from academic and clinical staff can focus the learning experience (Kneebone and Nestel, 2005).

Providing feedback is central to students' learning and when embedded in formative tasks provides a foundation for self assessment and lifelong learning (Higgs and Jones, 1995b, Boud, 2000, Mort and Hansen, 2010). Self assessment and self reflection, used in most cases to promote the learning of skills and abilities, are described as meta-cognitive skills that improve in accuracy over time (Dochy et al., 1999). The accuracy is enhanced when teachers give criterion based feedback on the student self-assessment (Higgs and Jones, 1995b, Ajjawi and Higgs, 2008). Self assessment leads to greater reflection on one's own practice, a higher standard of competency , responsibility for one's own learning and increased understanding of problem-solving (Dochy et al., 1999, Dunning et al., 2004).

Traditionally feedback about performance in theoretical or practical tasks has been given to students either in person or in writing (Hooper, 2010). However with advances in technology the opportunities for audio feedback to supplement or replace in person or written feedback are increasing (Ice et al., 2007, Hooper, 2010) The use of formative activities that are aligned both in a professional context and marking criteria to summative tasks can motivate the student to practice and review material. Formative learning tasks can also provide an opportunity for the teacher to assess the effectiveness of the teaching during the session (Brookfield, 1998). A greater understanding of the benefits of audio visual feedback on physiotherapy student self evaluation and awareness of clinical practice skills in addition to effective teaching in rehabilitation physiotherapy will be useful for the development of best practice in undergraduate physiotherapy courses.

The aims of this study were to:

1. Evaluate the usefulness of audio visual feedback in developing students' self awareness of clinical skills performance in simulated tasks supported by specific and criterion based feedback
2. Use participant feedback to evaluate the use of audio visual feedback as a learning and teaching tool.

## **Methodology**

The purpose of this study was to explore students' perceptions of the experience and usefulness of audio visual feedback as a teaching and self evaluation tool. A mixed methodological approach was used incorporating questionnaires that required both fixed and open ended responses. Fixed responses enabled determination of student's feedback preferences and open ended responses explored student's perception of the value of the audio visual feedback. Focus groups or interviews may have provided richer data but time constraints, secondary to end of session assessment and workplace learning activities, precluded this. Questionnaires were completed anonymously online. The prompts used were designed to capture the participants' perceptions of their experience of the simulated

activity, correlation of the feedback provided by the lecturer with self assessment and the value of the audiovisual feedback as a teaching and learning tool. The methodology for this study was based upon that described by Brimble (2008). Brimble (2008) developed questionnaires to explore nursing student experiences of modelling assessment and treatment skills in a simulated environment

Participants were 3<sup>rd</sup> year undergraduate students studying physiotherapy rehabilitation techniques. The 61 students enrolled in this subject had access to the subject website and online resources. Students in this subject are offered the opportunity to undertake the simulated practical exam task in preparation for the summative assessment. This task required each student to work in groups of three to preselect a case scenario that involved the development of a treatment plan to retrain a specific motor skill such as walking or standing up. During this activity students were able to role play the patient described in the case scenario and the “treating” physiotherapist. The third student video recorded the simulated task. Students not enrolled in this subject were excluded from the study.

This project was conducted during Trimester One of the 2010 teaching year.

Following ethics approval (Charles Sturt University Faculty of Science AN 405/2010/07), the research process was described to students in a lecture setting by a researcher who was not involved with either teaching or assessment of the students. The students were advised that each student who participated in the simulated practical task would be asked to complete questionnaires seeking their feedback on concerns pre experience, reflections post experience, and value of the feedback provided by the teacher. Emphasis was placed on the voluntary nature of student participation in the project, and that students who chose to participate would be able to withdraw voluntarily from the project without penalty. Further, the level of a student’s performance in the simulated practical exercise would not influence judgements made about their performance in the summative assessment task. Surveys used in the project were made available within the subject’s online learning environment, CSU Interact – a Sakai instance, using an online tests and surveys tool. Responses to surveys were anonymous and unidentifiable.

### **Data Collection**

Data collected online was analysed manually. For fixed response questions that required a yes/ no response, this was done by collating figures to produce quantitative data. Responses to open questions were reviewed by the researcher, common phrases identified and predominant themes developed to which responses could be allocated. The students who chose to participate in the project were asked to complete five components:

1. Pre experience survey.

Students were asked to describe their perceptions of both the negative and positive aspects of the audiovisual recording of the simulated clinical task.

## 2. Completion of the simulated treatment.

The students were provided with a schedule of days and times over a one week period in the latter part of the teaching session. At that time of the session, core subject content had been covered but there was still sufficient time prior to the summative task for students to make use of feedback provided. The students attempted the simulated task in groups of three and were given one hour to complete the activity. Each student in the group in turn took on the role of clinician, client, and recorder. The student in the clinician role treated the client for a period of twenty minutes. The recorder used the audiovisual equipment provided by the university to record the activity for use in the feedback sessions. This recording was then downloaded to a DVD for the teacher to use in the feedback sessions.

## 3. Post experience survey and feedback preference.

The students were asked to reflect on their perceptions of the experience, its effect on their confidence to accurately self-assess their performance against set criteria, the degree of alignment between the simulated task and their experiences of real-world clinical assessment, and their preferences for receiving feedback on their performance.

## 4. Receipt of feedback.

Those students who chose to receive feedback on their performance were then given feedback in the form they chose in phase 3. Steinert (1993) describes 12 factors to be considered when preparing the student for video review of their performance in a simulated task.

These factors are presented in Table 1.

Based on consideration of these factors, the students were able to elect to receive feedback from the teacher individually, within the presence of the group participating in their simulated assessment, in front of the whole class, or not at all. One hour and 15 minutes was allowed when providing feedback to small groups of three. Individual feedback lasted 40 minutes.

## 5. Feedback evaluation.

The students were asked to reflect upon the correlation between the feedback and their perception of their performance in the simulated assessment, the perceived extent of usefulness of the feedback and the appropriateness of the format used to deliver feedback.

The lecturer was to use this feedback to determine the effectiveness of teaching in the sessions and the students understanding of the material taught.

## **Data Analysis**

There were 61 the students enrolled in the subject on which this project was undertaken. Sixty (60) students participated in the simulated practical task and sixty students received

group or individual feedback sessions. Twenty five (25) students completed the pre experience survey, 25 students completed the post experience and twenty students (20) attempted the feedback evaluation (phase 5). Data analysis included thematic coding of the exploratory responses and collating figures for the fixed responses. This was done manually by the co researcher with verification by the lead researcher of the themes identified during the initial phase of data coding.

## Findings

The following section discusses the themes identified for each phase of the project with the use of illustrative quotes. Figures have been used to depict the themes identified. The area of the shape outlined in the figure is proportional to the number of responses to that theme by students in the project. Qualitative responses have been retained in the form of quotations to add depth to the themes discussed.

### Phase 1: Pre experience themes

The students were asked to describe potential negative aspects of observing and listening to themselves interact with a “patient” during the performance of a simulated clinical practice task.

The themes identified are represented in Figure 1

Technical problems (8/25) were the most commonly cited concern such as the audio-visual equipment not working, difficulty downloading onto a disc and poor sound.

*“While the video experience is a very positive one some negative aspects may include difficulties with using technology”.*

This may relate to the novelty of using such equipment for many of the students. Inadequacy of knowledge and lack of preparation (4/25) was also a concern.

*“Make us realize how unprepared we are for the prac exam”*

The time taken to complete the activity (4/25) was a concern and linked to the need to set up the area and equipment within a specified timeframe to enable others in the cohort to complete the tasks as well.

*“Time consuming and fiddly to set up. A lot may depend upon the operator of the video camera”*

*“If one group of the students were to have trouble operating the video camera this may cause them to take longer performing the simulated prac exam and conflict with the schedule”*

The fear of making a poor impression and the stress of being judged by others (4/25) was also linked to ongoing negative judgements of performance in summative tasks (1/25), even though this had been addressed in the information session to the students.

*“The notion that I will be viewed by others apart from the marker makes me feel a little stressed: reason being that there will be high expectations on my part and I don’t want to look like a fool/novice”*

The students commented on the lack of direct supervision by the lecturer during the performance of the simulated practical task (4/25) and not getting immediate feedback from the lecturer (4/25) to correct their approach and thereby avoid time wasting.

*“Without the lecturer there they will not be able to show me firsthand what I am doing wrong at the time and they will not be able to show me what I am meant to be feeling”*

*“Without any direction from the marker during the assessment it will be easy for me to waste time and not carry out the task in the true assessment conditions as I would during the exam”*

*“Not having the opportunity to practice in front of the teacher in exam format and get direct feedback then and there”*

Additional concerns relate to the limited view provided by the camera which is not reflective of real world practice.

*“Also the video experience does not allow the examiner to view what is going on from several angles which in neurological rehabilitation is often necessary”*

Three students did not express any concerns and expected it all to be positive (3/25).

*“the ability to perform a mock exam under exam conditions and receive feedback will be great for the actual exam”.*

These students may have had a positive experience of the use of video feedback and analysis to account for this perception.

### **Phase 3: Post experience questionnaire and feedback**

The questions posed in the post experience questionnaire continued to explore the positive and negative aspects of the simulated practical experience, confidence to self assess, and feedback preferences. This questionnaire also sought to explore the alignment of the student experiences with this task and real practice. The support, guidance and layout of the room for the feedback sessions was based on the work of Steinert (1993). This was done to encourage interaction during the sessions and provide the students the opportunity to discuss their reasoning behind their treatment choices which typifies real world practice.

The positive themes identified are represented in Figure 2

## Positive aspects

The positive aspects included the ability to practice in a less stressful exam like setting with all the appropriate equipment (7/25)

*“Also while it wasn’t quite as high stress as the real exam it was good to go through the motions of the real exam and get a sense of what it is like”*

The time limit imposed for the simulated tasks also created a realistic situation (2/25).

*“Because of the time limit we had to do one take without any stoppages as if we were in the exam”*

The simulated task also forced the students to prepare earlier for the summative task (5/25) and in doing so the students were able to select a case to use, that from their perspective required more targeted feedback (4/25).

*“We could choose a topic that we knew we required help with”*

*“It was a good stimulus for studying up on the relevant material and getting a bit of a head start on exam preparation rather than cramming at the last minute.,*

*“It forced me to start studying early and practicing my rehab skills at an early stage”*

The opportunity to use the recording to observe their handling and positioning of themselves and the “client”, review and discuss their performance was also described as a positive aspect (3/25).

*“Also a good opportunity to practice techniques and manual handling with other the students....the written instructions made all this run very smoothly”*

## Negative Aspects

Technical and timing issues were identified, particularly where challenges arose with transferring the video onto the DVD (2/25), checking that recording was occurring (1/25), recording sound (3/25) and difficulty positioning the camera to get the best angle (3/25); having extra pressure as a result of other students running over time forcing others to rush through their session (3/25).

*“Worrying if the camera was working”*

*“Having trouble trying to load the video onto a DVD. This took nearly 2 hours”*

*“Some of the angles made it difficult to see everything you needed to”*

Technical issues had been raised as concerns in the pre exercise survey and were dominant in the post experience questionnaire. Two (2/25) students however commented upon the usefulness of the written instructions provided prior to the simulated tasks in addressing technology concerns.

Other respondents cited stress because they were not ready for the session (2/25), stress particularly from seeing oneself on the recording (2/25).

*“Hate watching myself on video”*

*“Being a bit embarrassed in front to the camera was really the only negative! Overall it was really beneficial”*

The negative themes identified above are represented in Figure 3

Others realized how much work they needed to do to prepare for the exam (3/25). From an educational perspective this is a positive outcome and one of the goals to be achieved from the simulated practical exam experience.

*“Realizing how much I have to work on before the real prac exam”*

Preparation for the exam could have been enhanced by improved guidance about what was needed to be demonstrated in the simulated task (2/25) and also a review of the marking criteria for the summative task. Whilst the criteria for both tasks were similar it is evident that reiteration of the criteria would be beneficial prior to the simulated practical exam experience. The inconvenience of coming in on a day where there was no teaching was commented upon, however the students could select from a timetable over a one week period of preferred times and days to minimize inconvenience.

Confidence in ability to self assess against set criteria was explored in this phase of the project. Sixteen (16/25) of the participants identified a substantial or moderate improvement in their confidence to self-evaluate performance against the set criteria of the simulated task. Five (5/25) felt it was unchanged, 2/25 were unsure and 2/25 did not answer.

### **Extent of alignment of experiences with real practice**

There were themes that revolved around the likenesses to a real world event both in time frames and the availability of physiotherapy equipment (6/25) and the need to think quickly and make an informed decision (2/25) which is required for the real clinical setting.

Generally the *“field is the best place for learning”* (1/25) and the simulated practical tasks are helpful in consolidating handling and communication skills. Other comments made reflected the uncertainty of a simulated task where the client model does respond as a “real” patient would (3/25). Others were simply unsure (1/25) because of limited clinical experiences at that time (3/25).

*“It aligns with my practical experiences because in the past my clinical supervisors would assess my capabilities and then would gradually reduce their input until I can assess my own capabilities. This includes my competence to perform a subjective and physical assessment and devise a treatment plan. This is necessary because in the clinical setting the only person who will ultimately be responsible for my learning and my actions is myself”*

*“The speed and clarity of instructions to the patient were clearly identifiable”*

Do you wish to receive feedback?

Twenty participants responded in this phase of data collection.

Sixteen (16/20) elected to receive feedback and 4 (4/20) did not answer. Most preferred to receive feedback within their group (13/20), less so individually (1/20) and others did not answer (4/20). The format most preferred was verbally (11/20), followed by written (3/20), audio recorder (2/20) with 4/20 students not answering.

Phase 5: Evaluation of feedback provided

The most consistent comment provided by the participants was the benefits and usefulness of the feedback provided (17/20).

*“Very useful – it made big improvements to my knowledge of what to do and how”*

This was reflected by focussing the areas for improvement and study (11/20), the provision of extra tips and ideas (4) increased confidence in preparation for the summative practical exam (3/20) and being able to listen to the feedback provided to others to gain information on wider areas (2/20).

*“Now have a much clearer understanding of what is expected of me in the practical exam”*

*“It was also helpful to be there as my group members were given feedback as it allowed me to gain information on a wider range of areas”*

Other feedback focused on having not enough time to write down comments during the feedback session (2/20).

*“Also it may have been helpful to record what the lecturer was saying as we really did not have any time to make notes because we wanted to ask as many questions as possible”*

The correlation of the feedback with students' perception varied. Some students felt there was a lack of detail (2/20), others felt they had done terribly however the feedback was very positive (3/20) and others reported strong correlation with the lecturer and with the peers in their group (9/20).

*“The feedback was that I did a lot better than I thought “*

*“It did correlate with my view of my performance but I would have like some general feedback as well to see if overall the treatment was beneficial for that client”*

## **Discussion**

This study has demonstrated that the simulated practical exam task is a useful tool for physiotherapy students to reflect upon and evaluate their own performance against set criteria and external feedback provided by the lecturer. The use of audio-visual technology is an effective medium that enables a student to review his or her performance on completion of a task and later, where reflection on task performance can provide evidence

of growth in skills proficiency using the feedback provided. Audio visual tools have been used to evaluate a range of clinically relevant tasks in simulated environments such as assessment and treatment (Brimble, 2008), communication skills (Kneebone and Nestel, 2005), evaluation in clinical competency tasks (Newble, 2004, Ladyshevsky, 2010), and teaching styles as avenues for reflection and self assessment (Jacobs et al., 1999, Jeffries, 2005). In this study the use of audiovisual feedback to focus student learning in preparation for a summative task has also assisted students to deal with the stress of exam situations where the formative task replicates the set up, content and timing of the summative task. Stress described by students when they are being watched or recorded during practical tasks and performance judged is acknowledged but with practice of tasks under exam conditions and the provision of feedback that is specific, non judgemental and collegial stress may be alleviated.

The overall performance in the summative tasks indicated that the physiotherapy students were better able to articulate reasoning based on a much deeper understanding of the underlying impairments that can impede the performance of functional tasks. Articulation of clinical reasoning enables students to demonstrate their application of knowledge to a clinical or workplace scenario (Higgs and Jones, 1995b). Practicing this skill in the simulated task with criterion based feedback maximizes transferability to the workplace setting. Transferability of skill set is also maximized where students are exposed to various ideas and approaches from teachers and clinical educators in environments where learning is valued (Cole and Wessel, 2008, Ladyshevsky, 2010). In this study students identified an increased confidence in approaching the lecturer for feedback particularly in a group setting where a range of ideas could be discussed in relation to the case scenario. Awareness of alternative ideas and approaches is part of workplace learning where the prime purpose is to provide students with the opportunity to learn in other contexts and "communities of practice" (Keating, 2006). The simulated task provided an opportunity for a diversity of clinical skills to be acknowledged. Improving students' confidence to accurately self assess performance in clinical skills based upon meaningful feedback is important in preparation for real work scenarios where flawed self assessment can affect success and relationships in the workplace (Dunning et al., 2004).

As a result of the feedback provided by the students it may be beneficial to review the criteria for the simulated practical task and the summative practical task at the same time so the students can identify the commonalities, target areas of concern in the simulated task and feel more prepared for the summative task. It may also be useful to instruct the students earlier in the session on the use of the audio-video equipment. The use of group feedback will continue as the most preferred option because of the shared ideas and support provided.

Further development of the simulated practical task could include interaction with the lecturer during the task so the students could receive immediate feedback, and, prior to the

simulated task, modelling by the lecturer of the treatment of a case so students have an example of the skills to be demonstrated and assessed. Enabling students to record the feedback provided and to revisit it in preparation for their summative assessment can be included in changes to the simulated practical task format.

### **Reflective teaching and implications of the feedback.**

The feedback provided by the students provided an opportunity to see teaching through their eyes. Whilst comments were generally very favourable there were some very constructive insights that could be used to enhance teaching. These insights included affirming for the students the range of treatment choices that could be considered appropriate for selected patients. A lecturer needs to be aware that the students will seek to give the right answer, if nothing else to appease the lecturer and eventual assessor. The most effective way to communicate that a diversity of treatment approaches is appropriate and in many cases essential is to demonstrate when modelling during teaching sessions that a range of options is an important part of clinical practice. Part of demonstrating treatments to the students is to show how in real world settings the physiotherapy treatment evolves and adapts over time and in response to the changing needs of the client. This can be affirmed with the client tutors who come to practical sessions.

Manual guidance is a key tool in physiotherapeutic client management. Some students have expressed and demonstrated reluctance in using their hands to assist and guide the model. This is a challenge as the confidence with which people use their hands is a personal choice but needs to be addressed carefully as safety is a key element of care.

Reflection on the range of communication styles used by the students in the simulated task highlights the need to develop a balance between professional interactions and making the patient feel part of and included in the treatment. A key implication for teaching will be to develop each student's ability to use active listening skills to assist in developing relevant client centred goals. Again this can be demonstrated much more explicitly as a skill that will be focused on and demonstrated. Communication skills such as active listening, eye contact, and demonstration of empathy are identified as important elements of professional practice (Brennan, 2003, Parry, 2008). As a means of developing communication skills in concert with clinical skills, communication analysis of the audiovisual tapes could also be undertaken in the future to look at models of effective communication (Parry, 2008).

Finally, as part of good teaching practice and in response to the students' comments it is essential to walk the students through the marking criteria and make explicit the link to the summative task. If the students can see the link between the criteria, their meaning and how they are assessed, transparency of the assessment process is enhanced.

### **Implications for practice and limitations of this study**

Implications

The findings from this study indicate that the use of a formative simulated practical exam task is effective in increasing student confidence and efficacy in self evaluation of clinical skills. The opportunity for deliberate practice that this activity provides, the inclusion of feedback and the opportunity to correct errors will encourage the ongoing use of this activity in the undergraduate curriculum.

The congruence of the simulated task with the summative assessment criteria also enables the students to perceive the validity and fairness of the assessment criteria contributing to an increased understanding of the criteria used to distinguish competent graduate practice.

### Limitations

These findings are limited to a small cohort of students in one teaching session. Whilst 98% of the students in the cohort participated in the simulated task less than 50% provided feedback about their perceptions of the activity and the usefulness of feedback provided. A low response rate such as this does not allow for a range of perceptions to be acknowledged or the impact of different student backgrounds and cultures on the use of the audio visual tool. The low response rate may be attributable to the timing of this project with end of session academic activities such as exams, students being overwhelmed with online information and prioritizing tasks or general disengagement. Obtaining feedback from students enrolled in undergraduate programmes is a major area of focus for many tertiary institutions. Student feedback via subject and course evaluations is critical in maintaining quality and standards in higher education (Brennan, 2003) yet evaluations struggle to gain meaningful and statistically significant feedback because of low response rates (Brennan, 2003).

The design of this study does not allow for the provision of immediate feedback by the teacher. Literature cites the importance of timely feedback (Higgs and Jones, 1995a, Cole and Wessel, 2008, Boud, 2000). In this study, the feedback provided was delayed. Students completed the video recordings of treatments during one week of the teaching session. In the subsequent two weeks, times were provided for students to meet with and discuss their performance in the simulated task with the lecturer. The lack of immediate feedback may be acknowledged in the students' preference for the lecturer to be present during the simulated tasks so mistakes could either be avoided or addressed in a timely manner. The scheduling of the simulated task however may not be able to be changed due to timetabling issues but the study design could be improved to include a short group reflection before and after the simulated tasks to enable pre simulated task activity concerns to be discussed and acknowledged and post activity feedback provided in a more suitable manner. Reflection has been used as a tool to enable students to explore and understand their decision making and ultimately the complexities of practice (Boud, 2000, Fish and De Cossart, 2006) and in the absence of immediate feedback can supplement the students understanding of their practice (Higgs and Jones, 1995b).

Opportunities for students to revisit the simulated practical task and address areas of concern to maximize the effectiveness of the feedback can also be provided.

Similarly the use of an actor rather than another student to simulate the client scenario may have enriched the simulated practical exam experience and therefore altered the pre experience and post experience reflections of the students.

### **Conclusion**

The usefulness of the simulated practical exam task to engage the physiotherapy students in learning, self assessment, critical reflection and identification of areas for development is evident from the feedback provided.

The contextual nature of the simulated tasks provides the students with insight into treatments and the interaction between “patients” and “therapist” as they would occur in a clinical situation. Whilst the simulated task does not replicate situated learning in its purest form, as a formative learning strategy it can provide the student with insight into their practice and learning into the future and the teacher with insight into their teaching practices and assumptions.

Learning to self-assess takes time, and the simulated practical task provides one opportunity for students to develop their ability to self-assess in the immediate term. It can be expected that provision of ongoing opportunities to critically reflect on their own learning and practice using simulation and technology, will enable students to perform better on end-of-course examinations and workplace assessments that measure their knowledge representations, competency and skills. Ongoing use of the simulated clinical activity can also include evaluation of communication strategies used by students as a tool to further enhance the skill set for graduate practice.

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Table 1

Guidelines for effective videotape reviews. Adapted from Steinert (1993).

Prior to the videotape review with the student the teacher should:
<ol style="list-style-type: none"><li>1. Determine the objectives of the review in enhancing self evaluation and preparation for practice</li><li>2. Manage common problems e.g. .technology support, equipment needed</li><li>3. Choose the best format for teaching and preparing the student for the videotape review e.g. group or individually</li></ol>
During the videotape review the teacher should :
<ol style="list-style-type: none"><li>4. Develop a plan for the feedback session e.g. outline the objectives ,concerns and focus of the session at the commencement of the session</li><li>5. Establish a supportive environment e.g. acknowledge student reactions to being filmed, receiving feedback, arrange seating and room layout</li><li>6. Outline the process for the session e.g. who would like to control the video</li><li>7. Determine from the student what treatment is being demonstrated on the video e.g. case study of "Fred" and demonstration of gait retraining.</li><li>8. Follow principles of effective feedback</li><li>9. Focus the discussion</li><li>10. Summarize and review</li></ol>

Figure 1

Pre experience themes identified

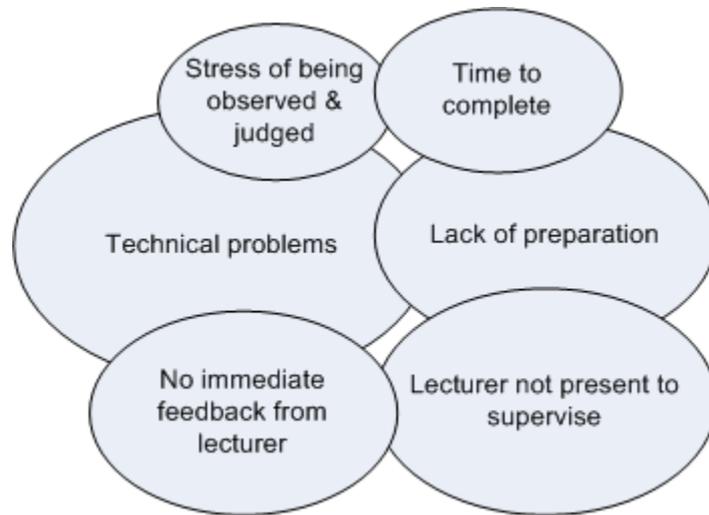


Figure 2

Positive themes identified

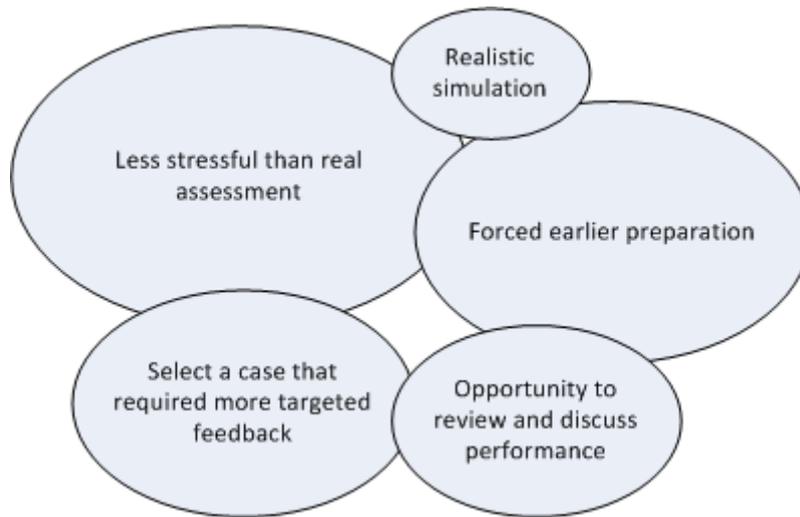


Figure 3

Negative themes identified

