Integrating Customised Video Clips into The Veterinary Nursing Curriculum to Enhance Practical Competency Training and The Development of Student Confidence

Karen Dunne

Bernadette Brereton

Ronan Bree

John Dallat

Dundalk Institute of Technology, Dundalk

Abstract

Competency training is a critical aspect of veterinary nursing education, as graduates must complete a practical competency assessment prior to registration as a veterinary nurse. Despite this absolute requirement for practical training across a range of domestic animal species, there is a lack of published literature on optimal teaching approaches.

The aim of this project was to assess the value of customised video clips in the practical skills training of veterinary nursing students. The effectiveness of the intervention in promoting student-centred learning and competency development was evaluated via a qualitative case study incorporating student surveys and focus groups.

The study found customised clips to be a valuable teaching tool. The video library helped address problems such as large class sizes, limited individual instruction time and restricted opportunities to practise skills. Internal student factors that inhibited learning, primarily lack of confidence, were also highlighted. Focus groups were found to be an effective way to obtain insights into the learner experience. They facilitated the identification of hidden learning barriers. Strategies to improve the training of practical competencies based on the findings of this study were identified for veterinary nursing educators.

Keywords: customised, video, practical skills, competency, veterinary nursing, confidence.

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1. Introduction

1.1 Background

Competency training requires veterinary nursing students to integrate psychomotor skills and clinical knowledge to perform patient care tasks (VCI, 2008; RCVS, 2014). They must achieve this without causing any further distress or harm to the patient whilst avoiding injury to themselves, their colleagues and clients. This type of "hands on" training with animal patients is highly resource- and time-dependent. Furthermore, there is very little published literature on the most effective teaching (as opposed to assessment) of clinical competencies to guide veterinary nursing educators.

1.2 Irish veterinary nursing education

In recent years Irish veterinary nurse training has moved from a workplace-based apprenticeship model to full-time undergraduate campus-based study interspersed with work placements. This change has allowed students to experience the benefits of a university education but has also reduced the amount of time they spend actually handling animals. Furthermore, as Irish society becomes increasingly urbanised, fewer aspiring veterinary nurses enter the course with extensive animal handling experience, especially in relation to horses and farm animals.

1.3 Competency training

Veterinary nursing graduates must demonstrate competency across both large and small animal species by passing an objective structured clinical examination (OSCE) before they can register as veterinary nurses (VCI, 2008). Both Lane (2008) and Bok (2015) stress that competency training requires student-centred courses that align teaching and assessment to develop the students' abilities to perform practical skills and apply their clinical knowledge, rather than merely memorising factual information.

Veterinary nursing students require access to a range of animal species to develop the practical nursing and animal handling skills they will need in their work. However animal handling is not without risk (McGreevy, 2007; Grandin, 2008) and it is both difficult and expensive to provide a population of suitable training animals. There are also ethical considerations, as protecting the welfare of animals that may be used for teaching purposes is paramount (VCI, 2014).

From a medical training point of view, Rhind (2006) defines competence as a "stage on the road to professional excellence" where the novice progresses from the state of an advanced beginner through competence, proficiency and expertise to mastery and practical wisdom. This definition mirrors the Dreyfus and Dreyfus Model of Skill Acquisition (figure 1) which was subsequently applied to nursing education by Patricia Benner (1984).
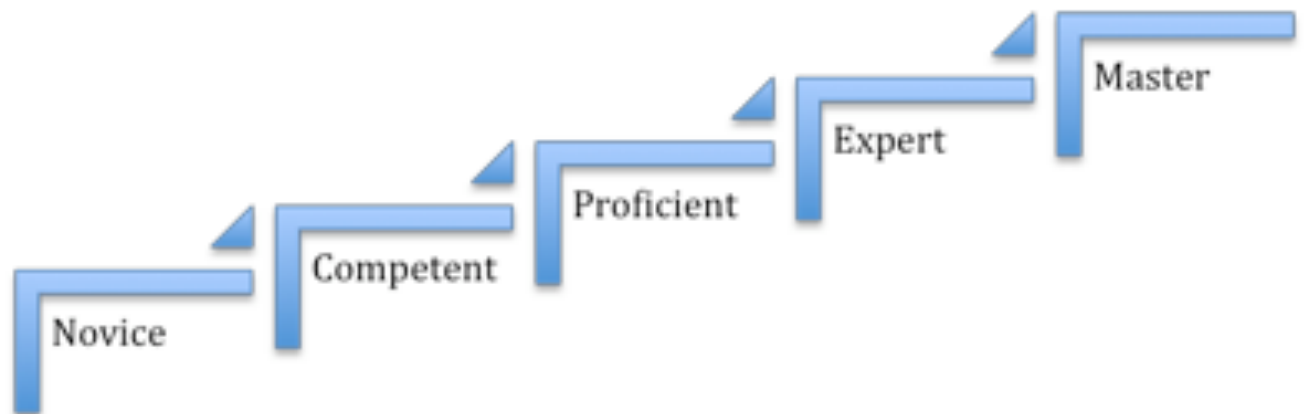

Figure 1. Dreyfus and Dreyfus Model of Skill Acquisition

1.4 Teaching competency

The medical education literature contains an extensive body of work on the assessment of practical competencies (Miller, 1990; Schuwirth *et al.*, 2002; Rhind, 2006; Hardie, 2008; May and Head, 2010; Bok, 2015) but fewer reports focus on how best to teach these key skills. One study that addressed practical teaching methods was from a group at the University of Saskatchewan (Abutarbush *et al.*, 2006). This case study evaluated the use of a self-learning computer programme to teach a group of veterinary students how to place a stomach tube in a horse by comparing it to a practical demonstration by an experienced clinician on a live horse.

Kneebone and Baillie (2008) point out that while simulators can aid in the development of technical skills, their validity must also be demonstrated. The Saskatchewan group addressed this by objectively measuring student performance via two assessors who had been blinded to the instruction method used (computer software or live demonstration). The computer software was found to be an effective teaching method. It was also the approach that was reported as preferable by the learners, due to the high quality of the audiovisual resource compared to a live demonstration.

This study also reported that the students who had trained on the software scored more highly on a written assessment that examined their understanding of the underlying principles of the technique than the students who attended the demonstration (median scores out of 10 were 9.67 for software trained students versus 8.1 for the demonstration group). Given the traditionally strong emphasis that both veterinary students and educators attach to the use of live animals (McGreevy, 2007) these are significant findings and should encourage veterinary educators to consider alternative instruction methods, as explored in this study.

1.5 Objectives of this study

This study will explore the use of customised video clips as a learning support for veterinary nursing students and assess their usefulness as an adjunct to classroom-based practical skills training. While this case study will focus on veterinary nursing students in a single college the challenges that arise in providing skills training involving animals are not confined to this site, and so the conclusions may be of use and benefit to other veterinary educators.

2. Methodology

2.1 Purpose statement

This report describes an exploratory qualitative study of students' attitudes and perceptions of the use of technology in veterinary nursing education. The purpose was to explore student perceptions of customised video clips as a learning support in the clinical competency training of a cohort of Irish veterinary nursing students at Dundalk Institute of Technology.

Barriers to competency training and development as experienced by students were identified and the use of customised video clips in addressing these challenges was evaluated. Surveys were used to capture the initial and subsequent learner experiences and focus groups explored the primary themes of the intervention in more depth (figure 2).

2.2 Using surveys in addition to focus groups

Surveys are a method of data collection more typically associated with quantitative data collection (Creswell & Plano Clark, 2011). However, as outlined by Cohen *et al.* (2011), they have some useful features in relation to educational research: respondents can complete the questionnaire in their own time and without the researcher being present. When compared with interview data, questionnaire data is more readily gathered as all the students in the group can be invited to complete them, thereby allowing more responses to be collected and analysed. Gathering interview data, by contrast, can be more time-consuming for both the participants and researchers (Denscombe, 2014). Some open-ended questions can be included to contribute to the overall richness of the data collected and students who may be too shy or busy to volunteer for a focus group are given the opportunity to contribute.

Comparison of the survey and focus groups responses facilitates triangulation of the data collected and improves the validity and reliability of qualitative research (Cohen *et al.*, 2011, p195). For these reasons, both surveys and focus groups were included in this study.

2.3 Research questions

Three research questions were identified:

1.   Are customised video clips a useful adjunct to competency training?

2.   What barriers to learning do students encounter when attempting to develop clinical competencies?

3.   What teaching and/or assessment strategies can help overcome these learning barriers?
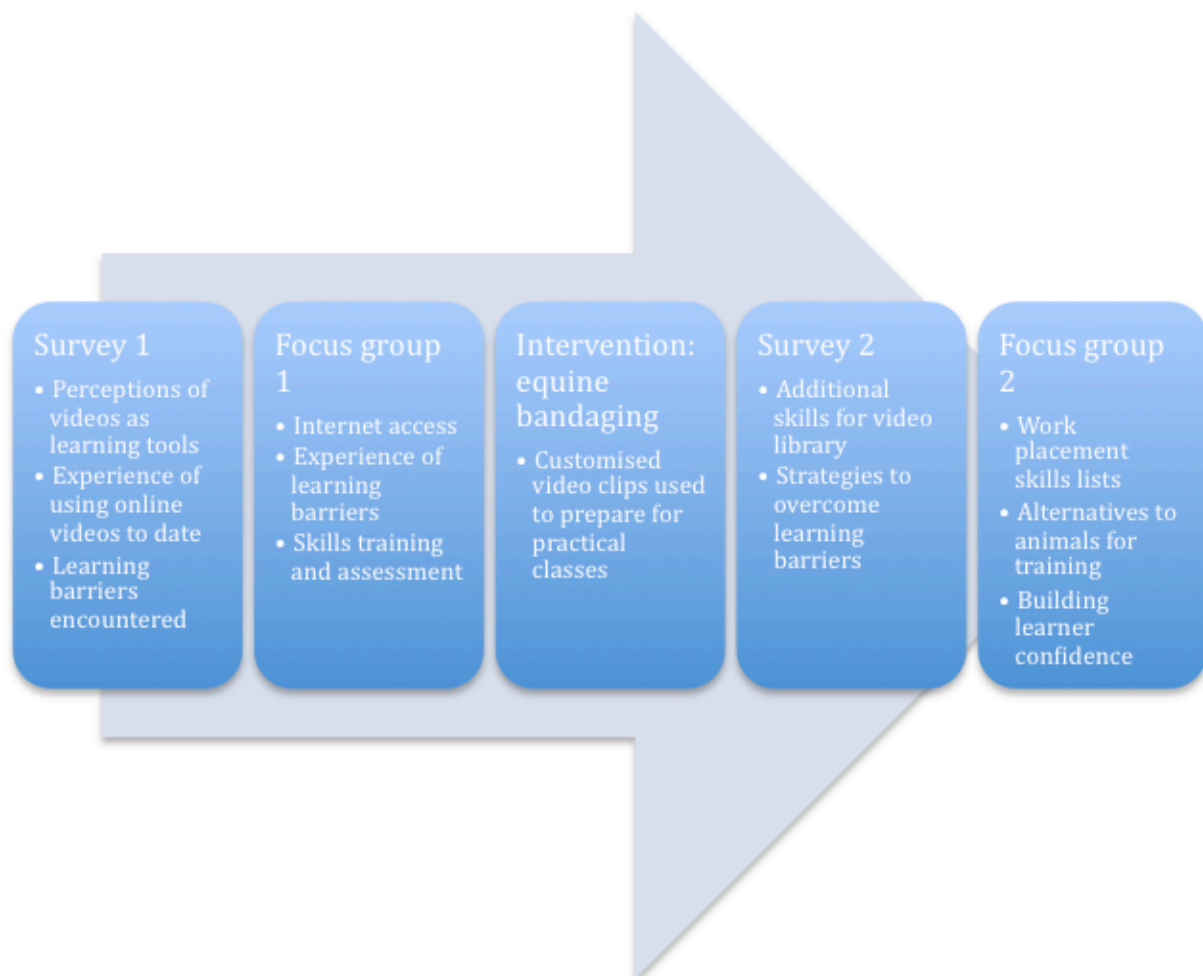
Figure 2. The case study process

2.4 Ethical considerations

This study was approved by the Dundalk Institute of Technology School Ethics Committee and run in accordance with the Institute's Guidelines to the Conduct of Ethical Research in Human Participants (DkIT, 2011). All the students involved consented to participate in the knowledge that their input would be used and reported anonymously and they had the right to withdraw at any time.

2.5 Cohort and sampling

The study cohort consisted of a class of 32 students (31 female, 1 male) in the final (third) year of their veterinary nursing course. This is a typical gender split and class size on this programme. No further inducements to participate were provided beyond the invitation to take part. Participants attended an information session detailing what the study would entail and reassurances that the decision to participate or not would have no further bearing on their training or coursework.

It is recognised that such non-probability convenience sampling limits the claims for generalisability from the results (Cohen *et al.*, 2007, pp.160-162). Nevertheless, the approach taken needs to be pragmatic and balance the ideals of sampling for maximum representiveness with the reality of what is available to the researcher and ethically appropriate for the student population being investigated (Creswell, 2011).

2.6 Selection of the module for the intervention

The video clip intervention was incorporated into the equine nursing module. This module was chosen as the majority of students have limited horse experience. Equine bandaging is therefore challenging, as the techniques involved differ from those routinely employed on pet animals, which the students tend to be more familiar with. Furthermore, the quantity and cost of the materials involved, as well as the economic value of many equine patients, means that limited practise opportunities may arise during work placement. By choosing equine bandaging the risk of the videos appearing to have a positive effect on learning due to pre-existing expertise of the participants was reduced.

2.7 Initial data collection

The evaluation began with an online anonymous survey that the students were asked to complete early in the semester via SurveyMonkeyã. This survey had three research objectives which centred on the educational needs of the students:

1.   To document students' perceptions of video clips as a learning tool.

2. To explore learner experiences of using online learning resources, such as videos.

3. To identify challenges students encountered when learning practical skills both in college and during work placements.

The survey was piloted with three students prior to use with the participants. It contained a mixture of multiple-choice, open-ended and ratings items. 29 of the 32 students in the class completed this survey (91% response rate). See appendix one for a listing of the survey items and responses. This was followed by a focus group with four student volunteers. The focus group questions were developed from the main themes identified in the survey responses and addressed three areas: internet access, practical skills learning and assessment and learning challenges encountered by students (appendix two).

2.8 The intervention

The video clips were produced by one of the authors (KD). They demonstrated the application of equine full- and half-limb bandages on a life-size model horse (appendix three) using the techniques covered in the course content (Hanie, 2006, pp.118-130). High definition (HD) footage was recorded on a Panasonic SDR-H81 HDD video camera in a 16:9 screen format and edited using iMovie '11 (version 9.0.4), prior to being uploaded onto Vimeoã. The video library was made available to the students via Moodle, the college's virtual learning environment (VLE).

Table 1: Aims of the practical class design.

To foster a sense of personal responsibility amongst the students for their own learning.
To reduce the amount of class time spent in lecturer demonstrations and explanations.
To avoid the problem of poor visibility when a single lecturer demonstrated the task to a large group of students (one tutor per 16 students).
To increase the amount of "hands on" time the students spent actually performing the task and getting the chance to practice the technique.
To allow the lecturer to spend more class time interacting with the students and providing guidance and formative feedback on their performance.

The students were instructed to watch the video clips on Moodle before the relevant practical class and arrive ready to begin applying a bandage immediately i.e. there would be no initial demonstration by the practical class tutor. They were aware that 20% of the continuous assessment marks available for the practical class were to be awarded for completing this advance preparation.

Figure 3. A bandaging class[1]*.*

This grading decision was in accordance with Dundalk Institute of Technology's Department of Applied Sciences guidelines; whereby up to 30% of the marks for a practical class were awarded for class participation and engagement as a means to encourage deeper learning by students, especially those with weaker academic writing skills who may have initially struggled with practical grading based solely on a written submission. The remaining 70% of the marks were available for assignments based on the practical class content e.g. a laboratory report or a skills assessment. The Moodle user participation log was used to check that the students had actually accessed the relevant material before the class and to award the marks. Students were reminded of the need to use their individual Moodle login to watch the videos, thereby ensuring the marks would be awarded to them. The aims of this blended learning approach are summarised in Table 1.

2.9 Follow up survey and focus group

The second online survey was used at the end of the semester to address two main areas which arose from survey one: identification of further skills that video clips could support and possible solutions to college and work placement learning challenges (appendix one). 22 students completed this survey (69% response rate).

The second focus group involved three students and its questions were based on the results of survey two. It sought to explore the three main themes that emerged from survey two; namely student views on updates to the skills lists used to guide work placements, the use of learning tools instead of live animals and confidence development (appendix two).

2.10 Focus groups

Each focus group lasted for sixty minutes and was held in a small meeting room with comfortable seating to help the participants feel at ease, in accordance with the guidelines of Krueger (2002). All of the students who had completed the survey were invited to take part in the focus groups and four of them volunteered to take part in the first session, whilst three participated in the second session.

The emphasis in a focus group (as opposed to a group interview, which is interviewer-led) is to facilitate discussion amongst the participants (Thomas, 2013, p.203). Four to six participants are typical (Creswell, 2011) with an upper limit of 8-12 identified as being necessary to enable all the participants to contribute adequately (Krueger, 2002; Cohen *et al.*, 2011). Denscombe (2014) notes that in small-scale research projects the numbers are often smaller due the costs and practical challenges associated with arranging focus groups.

Two of the authors (KD and RB) co-moderated the focus group session. The format used was a semi-structured session: the discussion elaborated upon and further clarified the topics raised by the open-ended questions that had been prepared in advance based on the survey results (appendix two).

RB does not teach on the veterinary nursing programme and so was in a position to encourage the students to speak freely about their experiences. The focus group process was explained to the participants at the outset and they were all encouraged to contribute in turn, thereby ensuring everyone was given the opportunity to share their views. KD was present to take notes and clarify any queries that arose in relation to procedures within the veterinary profession e.g. specific acts of patient care that students may perform under supervision. This is an accordance with the view of Millward (1995) who states that the researcher should be involved in the focus group due to their familiarity with the project. Two moderators were used to reduce the risk of bias from any one individual. The participants were relaxed throughout the session and engaged with the discussion in a positive and forthcoming manner.

Both moderators took notes which were cross-checked immediately after the session. The notes were then compiled into an anonymous transcript before being made available to the participants so that they could check them for veracity. One author (KD) then reviewed the

transcripts, coded the responses and identified the main themes. The transcripts were manually analysed by identifying the main codes and grouping these into categories (themes) using the iterative process described by Braun and Clarke (2006) and Creswell (2011). The analysed data was then reviewed by one of the co-authors.

3 Results

3.1 Practical class participation

Informal feedback during and after the classes was positive and all bar one of the students (97%) watched the videos online beforehand, as requested.

3.2 Survey one results

The key findings are summarised in Table 2.

Table 2: Key findings in survey one.

100% of respondents (29/29) found video clips to be either a very useful or quite useful learning tool.
Preferred methods of accessing clips were personal laptops (85%) and college PCs (52%). Home PCs and smartphones were lower at 33% and 19% respectively while none of the students reported using netbooks or tablet computers.
The major learning barriers identified in college included nerves (43%), limited lecturer teaching time (39%) and large group sizes (29%).
Common work placement barriers included practices that don't perform the necessary skills (78%) and lack of time (52%). Limited opportunities to perform new tasks, or problems with unfamiliar equipment, were reported by 33% of respondents.

3.3 Focus group one results

The initial focus group questions were developed from the key findings in survey one and aimed to explore them in more depth. Slow and/or unreliable internet connections and inadequate numbers of college computers to meet demand were reported as challenges when it came to viewing the video clips. However all of the students had been able to find a way to access them.

The participants were clear about the value of the customised clips as a learning support:

"It's getting to actually see the task being performed in front of you, identifying the separate steps".

"Actually seeing the lecturer do it exactly as it should be done".

The customised clips were preferred for their accessibility and reliablity, rather than wasting time searching for clips online that were often inaccurate or used unfamiliar equipment and/or techniques.

The students also felt that the clips were useful during work placement (to show colleagues what they needed to be able to do) and when preparing for assessments:

"You can practise the task with a clip, at home and at work".

"You can play and pause the clip, identify steps you missed".

Nervousness was identified in the survey as the biggest challenge when it came to learning practical skills. The focus group participants felt that the anxiety they initially felt when working with their classmates had dissipated as they progressed through the course and got to know each other better. However performing the task for a tutor remained troublesome:

"I don't get nervous in front of my friends, but I do in front of the lecturer. I feel I have to perform the task meticulously".

A range of external factors also presented challenges when learning practical skills. These included group size, time constraints, tutor availability, limited opportunities during busy placements to get "hands on" with valuable or fractious patients and lack of access to suitable equipment.

3.4 Survey two results

22 out of the 32 students in the class completed the second survey (69% response rate) and the key findings are summarised in Table 3. The lower response rate to this survey may have been due to the fact that it was conducted close to the end of the semester, at a time when the students were primarily focused on exam preparation. However this is still above the reported average response rate of 43% for online surveys (Cohen *et al.*, 2011, p. 277). It also exceeds the 50% response rate that Creswell (2011, p.416) reports as desirable.

Table 3: Key findings in survey two.

The most frequently requested content for additional video clips related to OSCE tasks, followed by large animal tasks.
73% of respondents reported the Personal and Learning Support (PALS) module from the previous semester to have boosted their confidence when performing practical tasks. 18% found it not very helpful and 9% reported it to be not at all helpful.
The teaching methods that helped build student confidence when performing practical tasks included one-on-one tuition, practice sessions, constructive feedback, video clips, demonstrations and small group teaching.
By far the most preferred assessment method for building confidence was an OSCE (10/18), followed by role plays (3/18) and practical class write ups (2/18).

3.5 Focus group two results

For the final research phase three students volunteered to participate in this focus group. When asked about other learning tools the respondents indicated that while they valued learning opportunities involving live animals they accepted that there were practical reasons why they would not always be available.

Cadavers were valued for the opportunity to develop "tissue touch". Role plays were felt to be a good way to build confidence and online quizzes with instant feedback were useful to check understanding and for revision of topics. However, live patient care was seen as the ultimate goal and the desire to successfully treat them was highly motivating. As one student put it:

> "real patients stay in your head, ultimately that's what gives you confidence, as well as responsibilty and a real sense of acheivement".

The skills list for work placement, which details tasks that the student must complete successfully prior to being signed off by their supervisor, was identified as a helpful guide. It focused learning priorities for both the student and the supervisor and could help to build a relationship with colleagues in practice by identifying useful work goals.

Lack of confidence had been flagged as an impediment to learning earlier in the study (survey one). Factors reported by the students as being helpful in building confidence included repeated practise opportunities, accurately portrayed techniques, and enthusiasm from both classmates and tutors.

Nerves were acknowledged as a real challenge for most learners but also one that could be managed by students learning to work together. Having to complete group projects and give presentations made the learners realise that they were capable of completing daunting tasks. Continuous feedback was also seen as vital; it was perceived as very valuable when a college tutor or work placement mentor provided constructive guidance while the student was actually performing a skill. Exemplars of high quality student work were also highly motivating, as they showed the students what their peers (as opposed to a lecturer) were capable of and inspired them to try harder.

4 Discussion

4.1 Justification of the customised video library

The students in this study considered customised video clips to be a useful learning tool. A previous study had found clip access to be a limiting factor for some students (Holland *et al.*, 2013) but while some internet access problems were reported here they did not appear to be impeding students' ability to access the learning resources. This is encouraging as it reveals the video library to be a functional learning aid and helps justify the time and resources required to produce the clips.

4.2 Barriers to competency development

The majority of the external learning challenges that were identified by the students were not unexpected. Large group sizes, resulting in limited opportunities for one-on-one training and personalised feedback, have been identified as a challenge in the delivery of practical training (Abutarbush, 2006; McGreevy, 2007; Baillie *et al.*, 2015). The steps outlined in Table 1 were designed to address these issues, along with the incorporation of the video clips into practical class preparation.

Internal student factors such as nerves and a lack of confidence in their ability to perform practical skills, were also widely reported as a barrier to learning. This was an unanticipated outcome but one that has the potential to significantly limit student learning. Furthermore, this is not an issue that resources alone can address. It warrants further exploration in order to try to determine the underlying causes and identify possible solutions.

4.3 Overcoming learning barriers

4.3.1 Building confidence

When it came to addressing the issue of lack of confidence the student responses indicated that 73% of them had found their personal and learning support (PALS) module from the previous semester to be either somewhat or very helpful. Whilst being a positive finding this was also unexpected, as the PALS module was developed to promote teamwork and interpersonal skills, rather than the support of practical skills training. Nevertheless, many of the students indicated that the content of this module had been useful in helping them to improve their self-confidence when it came to practical task performance.

A study by Tarlinton *et al.* (2011) reported lack of confidence as a barrier to problem-based learning in a cohort of first year veterinary medicine students. Butters *et al.* (2013) reported positive outcomes from a project designed to improve nursing students' writing and numeracy skills. Increased learner confidence led to significantly improved retention rates and student satisfaction in a pre-registration nursing course. Canadian students of veterinary medicine reported role plays with simulated clients to be valuable in building their confidence in their communication and professionalism skills (Coe *et al.* 2012) while Cake (2006) noted that veterinary students felt that tutors who displayed enthusiasm and provided prompt feedback best facilitated learner confidence.

To build their confidence the veterinary nursing students in this study explained that not only did they need to practise a task repeatedly, but they also needed to <u>know</u> that they were practising it correctly. This was where they felt the value of the video library came from: they trusted the lecturer in the customised clip to perform the task correctly and so felt confident that if they emulated the task in this way they would avoid "picking up bad habits" or failing their examinations due to incorrect technique.

4.3.2 Preference for customised video clips

The focus group participants expressed a preference for customised in-house video clips over generic ones sourced from YouTubeÓ or other online sources. The customised clips were seen to be reliable, as they demonstrated the technique being performed by experienced clinicians using familiar equipment and techniques. This contrasted with generic clips which were recognised as being frequently incorrect or inaccurate. Having the clips available in the VLE also meant that students did not waste time searching online for useful learning resources.

Customised clips were also valued as they allowed the student to see the theory that had been covered in class being applied. This was reported to aid both understanding and retention; or as one student put it:

> "[It's] difficult to visualise how skills are carried out when they are just written
> down. Seeing a skill being carried out helps to clarify things."

4.4 Live animals versus other learning supports

When asked to state their preferences for learning clinical skills in survey one, both college practical classes and video clips scored highly (100% and 89% of respondents respectively). This was higher than for performing them or observing demonstrations on live animals, either in college or on work placement. This was a somewhat surprising result as traditionally both veterinary educators and students have considered live animals to be the "gold standard" for hands on learning (Abutarbush *et al.,* 2006; McGreevy, 2007).

When this issue was raised in the focus group, the students explained that they valued the opportunity to perform tasks with live animal patients, especially for the feelings of responsibilty and real achievement obtained when completing the task successfully. However they preferred to make their initial attempts in the more controlled atmosphere of college practical classes, without the added pressure of dealing with a live animal and its owner. Practical classes provided the opportunity to practise the technique with their peers and whilst receiving constructive feedback from an experienced lecturer.

4.5 Learning barriers in college practical classes

Nevertheless, college practical classes are not without their drawbacks, which have been recognised by both students and teachers alike. External factors that may inhibit student learning include large group sizes (16-18 students) and the limited opportunities this allows to spend time engaged in one-on-one teaching and individualised feedback. However, the high percentage of students who reported feelings of nervousness during practical classes (43%) was unexpected. 21% of the respondents also reported that they worried that other students would think they were unable to complete the tasks correctly.

Educators are aware that every class contains a small number of individuals who clearly struggle with nerves and lack self-confidence. These results indicate that there is another relatively large cohort of students who feel stressed and anxious during practical classes, even though they are not overtly displaying it. High anxiety levels are not conducive to optimal learning so this finding warrants careful further consideration to measure and possibly minimise it.

4.6 Learning barriers during work placement

Most veterinary practices do not perform all the tasks the students are required to complete as part of their training. Further challenges identified included learning alternative methods of completing a task from that which had been taught in college and working with unfamiliar equipment. Students also expressed concerns about picking up "bad habits" when performing tasks during placement, which could then reduce their grade in future college assessments.

The majority of participants plan to work primarily with companion animals (dogs, cats and other pets) and so would like to see a reduction in the number of large animal tasks on the skills list. However, the VCI stipulate that graduates must be able to provide nursing care to these species and so there is a requirement for all students to spend time working with them. Coe *et al.* (2012, p. 35) neatly summarised this facet of student feedback in their work:

> "The purpose of obtaining student perceptions is not to conform to all student expectations but to understand those expectations so that they can be addressed and managed in meeting course learning objectives."

These work placement challenges have always been a part of veterinary education and they are impossible to eradicate completely. However the focus group revealed that the students were prepared to take responsibilty for their own learning and they were able to identify numerous ways of tackling these challenges. They recognised that it was important to show enthusiasm and interest in order to build up a good relationship with the practice staff over the several weeks of an individual placement. In doing this the staff trusted them to take on more responsibility and helped them to perform additional tasks. Experienced colleagues who would let the student perform the task whilst offering advice and guidance were seen as mentors.

4.7 Personal responsibility for learning

The students felt that it would take five years or so after graduation to become an expert. They recognised that it was their responsibilty to grasp learning opportunities as they arose, both during college and in their careers:

> "You will also have to keep learning on the job...it's up to you to make sure   you keep up to date and make sure to ask your employer to let you do things, don't just hang back: make it happen."

4.8 Competency development

This study revealed the development of learner confidence to be a contributor to competency attainment. Many factors contributed to confidence; the opportunity to practise tasks repeatedly, the provision of constructive feedback (especially during and immediately after performance of a task) and the establishment of a learning environment where the student felt comfortable enough to attempt the task without feeling unduly pressurised by scrutiny from peers or tutors.

The data also emphasises the point that not all students learn and develop self-belief in the same way. Most of the students reported the PALS module to have helped them develop confidence that they were then able to transfer to their practical skills training. However this

was not the case for 27% of respondents (almost one third of the class). See figure 4 for a breakdown of the responses to this question. The students who reported it to be unhelpful had not incorporated skills into the PALS session, found group work intimidating or were impeded by a perceived lack of effort by other group members. This emphasises that there is no "one size fits all" solution and that while the PALS module turned out to have an unexpected (albeit welcome!) positive overall effect on practical skills training, this was not experienced by every participant.
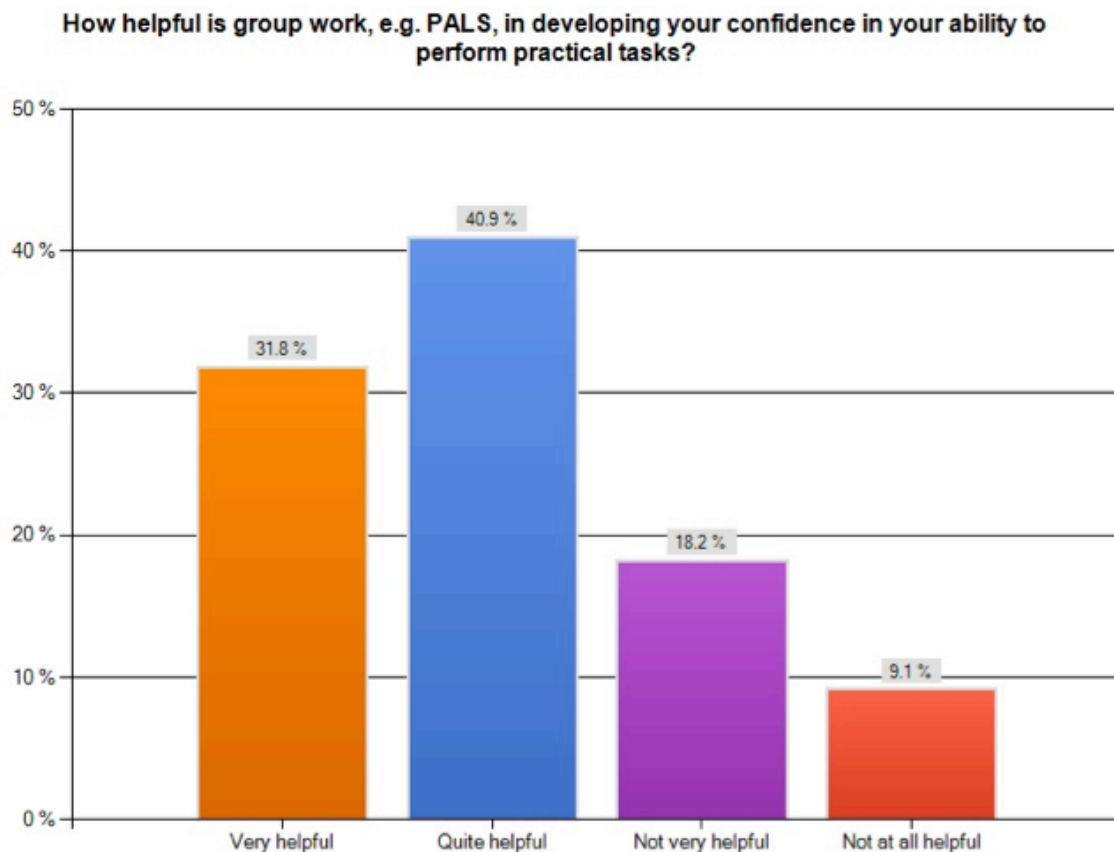

Figure 4: Group work in confidence-building outcomes.

4.9 Limitations of the study

This single site case study involves a limited number of participants (32). So despite the high survey response rates the results should not be assumed to be directly applicable to the wider population of veterinary nursing students. This is particularly the case with the two focus group results where four and three students participated respectively. It would have been desirable if six to eight students had taken part in each session but the authors were required to work with the students that volunteered without further inducement. However both Morgan (1996) and Carey (1994) report that more interaction occurs with smaller groups, so lower volunteer rates is not necessarily an impedient to the collection of useful data.

The veterinary nursing course is intensive, so a heavy class timetable and high workload could have contributed to the lower participation rates in the focus groups. However ethical approval criteria prevented further exploration of students' reasons for declining to participate in an effort to address them. Nevertheless, those who did participate represented a range of backgrounds and academic profiles (both direct entry from school and mature applicant students were involved). The participants fully engaged with the process and their responses provide insights into their learning experiences that would otherwise not have been available to the authors.

When conducting the focus group one author (KD) teaches on the course. This could potentially have contributed to a reluctance on the part of the students to speak freely in the focus groups. However the students were made aware that this author would be involved in the data collection beforehand and they volunteered to take part knowing this to be the case. During the focus group sessions this author was present in an primarily observational role to take notes, rather than directing the discussion. Pre-prepared questions based on the survey results were used to ensure that the discussion remained on topic.

The opportunity to practise skills in class on a model patient may reduce the anxiety felt by students when working on veterinary patients. However, as Bailie *et al.* (2015) point out, the use of learning supports such as videos and models does not automatically transfer into improved performance when performing the skill for real. Educators therefore have an obligation to test the validity and reliability of the teaching supports that they utilise. This realisation will form the basis for future work assessing the effects of the video clip library on actual student performance.

4.10 Future validation of the customised video library

This study began by testing the assumption that video clips are a useful tool for students when learning practical skills. The feedback from the students was that as well as being a valuable resource for both learning and exam preparation, the technical difficulties that attempting to watch video clips may present do not constitute an insurmountable obstacle to their use. This finding corresponds to levels one and two on Kirkpatrick's model of evaluation (Rouse, 2011) and justifies the time and resources necessary to develop a library of customised clips.

Evaluation of the ability of the video clips to improve students' performance in practical examinations was beyond the scope of the current study. However this would be a benefical next step, as it could advance the assessment of the video library to stage three of Kirkpatrick's model. Demonstration of the ability of this blended learning approach to actually improve student performance in practical examinations would further enhance its value.

5 Conclusions and recommendations

For ease of reference the conclusions and recommendations are summarised in tables 4 and 5. Given the frequency with which these challenges are likely to be encountered across veterinary clinical training the authors believe that they will be relevant to other educators in the field.

Table 4: Conclusions of the study.

Customised video clips are a useful resource for practical skills training.
Both internal (learner) and external (resources) factors present learning challenges in both college practical classes and during work placements.
Work placement skills lists should prioritise key practical skills involving real patients and the development of professional competency.
Learner confidence is a key factor in developing practical competency.
Learner confidence can be developed in a variety of ways and can "carry over" from one subject area to another.

Table 5: Recommendations for veterinary nursing educators.

Invest time and resources in developing customised video clips for practical skills training.
Review skills lists to ensure they support the development of professional competency, rather than becoming a record of tasks performed only once in order to get the list completed.
Recognise the importance of fostering learner confidence and actively incorporate this into teaching and assessment strategies.
Suggested interventions include group and peer learning, repeated opportunities to practise practical skills, constructive and prompt feedback and the provision of a positive and enthusiastic classroom atmosphere.
Consider the use of focus groups to obtain student insights into their learning experience when developing and reviewing course content and delivery methods.

This study highlights the critical value of meaningful student feedback when it comes to effective learning support. Educators cannot optimise learning without identifying the challenges actually encountered by students and implementing measures specifically designed to address them.

All veterinary professionals are aware of the responsibility we have to our patients. Those of us who work as educators constantly strive to pass on excellence in animal care to students. Patient outcomes will benefit from improved clinical training, so it is hoped that some of these conclusions and recommendations could be of value to other veterinary nursing trainers and learners.

Further evaluation of the effectiveness of customised video clips in improving actual student performance of practical skills would be beneficial. A project addressing this topic is currently underway at Dundalk Institute of Technology.

6 Acknowledgements

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[1] Students' permission to take photographs during practical classes was obtained by the first author (KD).

ies for similar research on a greater scale are compelling.

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Appendix 1

Survey one responses:

https://www.surveymonkey.com/results/SM-QFC9LKKC/

Survey two responses:

https://www.surveymonkey.com/results/SM-WT5J8KKC/

Appendix 2:

Focus Group 1 Questions:

1. Accessing clips

The survey indicated that a number of challenges exist when trying to get on line and watch or download video clips? How could these challenges be overcome?

2. Learning and exams

What is it about video clips that could make them a useful learning tool?

What role might video clips have in exam preparation?

3. Challenges when learning practical skills

Several survey repsonses indicated that students get nervous when learning practical skills in class, can you elaborate on that?

What effects do group size and the time available have on practical classes?

Several challenges were identified when learning practical skills during work placement. How could these be addressed?

A number of responses related to the need to develop **confidence** in performing the skills after practical class training. Why do you think confidence is relevant to students in your situation?

Focus Group 2 Questions:

1. Are there other learning tools that you would like to have access to for practical skills training?

2. What are your thoughts on the work placement skills list?

3. How do you feel about the use of learning tools, such as models, videos or computer animations, in the place of live animals?

4. Are there learning and assessment methods that help students develop confidence in their ability to perform practical tasks correctly?

Appendix 3

Equine bandaging videos from http://www.vimeo.com/vetnursing

   Half limb: https://vimeo.com/44099090

   Full limb: https://vimeo.com/44111655

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[1] Veterinary Council of Ireland guidance document, available to veterinary nursing educators.

[2] Veterinary Council of Ireland publication, available to members of the veterinary profession.