Validation of a low-fidelity equine nose twitch model in veterinary nursing education

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Introduction

Equine nose twitch application is a frequently performed restraint technique in clinical practice (Holtgew-Bohling 2015). It can pose a significant physical safety risk, especially when performed by a novice handler and can be considered an aversive technique for the horse if not clinically indicated and/or performed repeatedly.

Objective

The objective of this study was to evaluate a low fidelity model designed to teach veterinary nursing students how to apply a nose twitch to a horse without the use of live animals.

Implementation

The teaching model was designed and developed to mimic a malleable equine upper lip. The memory interior of a travel cushion was shaped and attached using a compression stocking (Figure 1) to an existing equine model horse (Figure 2) and repositioned as required between uses.

Model validation was conducted during a clinical skills workshop for veterinary educators in University College Dublin's Veterinary Clinical Skills Laboratory, where educators with equine teaching experience were invited to use the model and rate its suitability and usefulness as a teaching tool.

Figure 1. The model components

Figure 2. The model in position

29 stage one veterinary nursing students from Dundalk Institute of Technology who had received classroom instruction on the technique of applying an equine nose twitch were invited to practise twitch application using the model and complete a questionnaire evaluating its usefulness as a learning tool.

Two groups were formed based on attendance and non-attendance at this voluntary training session. Twitch application on a model horse was then assessed four weeks later during a Direct Observed Procedural Skills (DOPS) assessment, where students were asked to untie the horse, apply a twitch and hold the horse for a specified clinical procedure.

Results

The teaching model's face, content and predictive validity ratings were assessed by eight experienced veterinary nursing educators and are shown in Figure 3.

17 of the 29 students attended this session, of which 16 completed the evaluation questionnaire (Figure 4) and all 29 students subsequently completed the DOPs assessment. The teaching model's face and content validity was evaluated by 16 of the 17 students who attended the training session and the results are shown in Figure 4.

Figure 3. Expert validation of the model (8 participants)

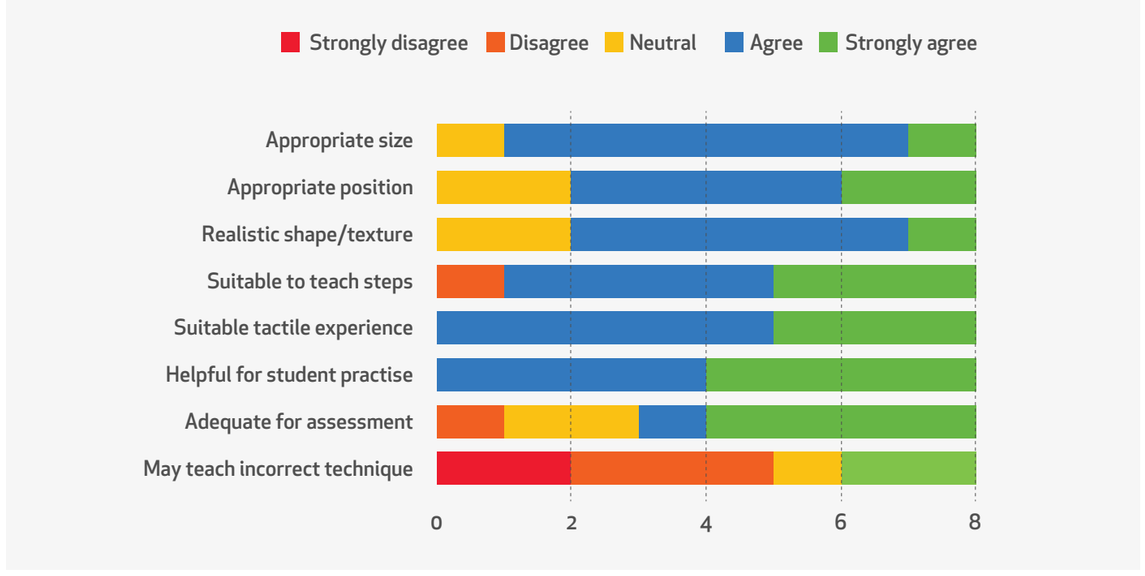
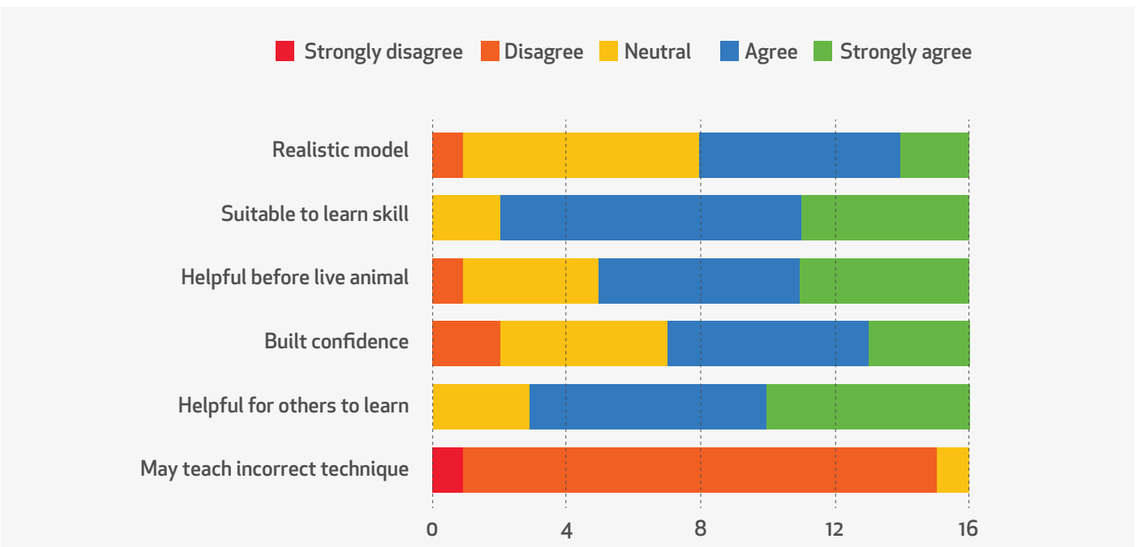


Figure 4. Student validation of the model (16 participants)



The students who had attended the practice session (Group 1) performed better in the DOPS assessment than non-attendees (Group 2), with a pass rate of 47% (8/17) for Group 1, compared to 23% (3/12) for Group 2. The examiner did not know which students had attended the practise session.

The overall pass rate for the DOPS assessment was 38% (11/29). Of the 18 students that failed to perform the task safely or correctly; nine were from Group 1 and nine were from Group 2, with some students making more than one error (Table 1).

Table 1. Student errors in the DOPS assessment

Error	Group 1 (n=17)	Group 2 (n=12)	Total (n=29)
Stood in front of horse	n=0 (0%)	n=2 (17%)	n=2 (7%)
Did not untie horse	n=3 (18%)	n=4 (33%)	n=7 (24%)
Rope wrapped around hand	n=1 (6%)	n=1 (8%)	n=2 (7%)
Unclipped rope from halter	n=2 (12%)	n=2 (17%)	n=4 (14%)
Held horse by halter	n=1 (6%)	n=2 (17%)	n=3 (10%)
Trailing lead rope	n=1 (6%)	n=1 (8%)	n=2 (7%)
Removed head collar	n=1 (6%)	n=0 (0%)	n=1 (3%)
Twitch not tightened	n=0 (0%)	n=1 (8%)	n=1 (3%)
Stood behind vet	n=1 (6%)	n=1 (8%)	n=2 (7%)
Stood on opposite side of horse to vet	n=0 (0%)	n=1 (8%)	n=1 (3%)

Discussion

Design and construction of the model encompassed experimentation with alternate materials (sand/fluid bags secured with cohesive bandage). These were found to be unsuitable for the tactile experience of performing the skill and they failed to enable repeated performance of the skill through non-reversion to original shape once used.

The overall pass rate for DOPS assessment was quite low at 38%, with failure to untie the horse the most common error made. The low level of experience reported by the students should be taken into account; with 12/17 Group 1 students reporting little or no prior equine restraint experience and 14/17 having never placed a twitch on a horse before. The data collection was conducted anonymously in accordance with research ethics guidelines and the researchers were therefore constrained from measuring previous equine experience for the students in group 2.

This low fidelity model demonstrated improved student performance of equine nose twitch application following use, most notably, where to stand when applying and holding the twitch.

Conclusions

- The educators found the model to be suitable for teaching twitch application.
- The students that used the model described it as helpful in practising the skill prior to performing it on a live animal.
- The DOPS assessment demonstrated an improvement in skills acquired for the students that used the model for practice prior to assessment.
- The model alone is not sufficient to master this skill, but it is a useful and safe first step.
- Twitch application must be taught in context i.e. the need to hold and have control of the horse's head before applying a twitch must be emphasised.

References: Holtgew-Bohling K.J. (2015). Livestock safety and handling. In: Large Animal Clinical Procedures for Veterinary Technicians. 3rd ed. St. Louis: Mosby, pp.18-74.

Ethics: Ethical approval for this study was granted by the Dundalk Institute of Technology School of Health & Sciences Human Ethics Committee.

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