Objective assessment of practical skills in finalist veterinary students

Holm D E[1], Mostert E[2]

[1]Faculty of Veterinary Science, University of Pretoria, dietmar.holm@up.ac.za, [2]Dept for Education Innovation, University of Pretoria

Introduction

The use of objective assessment practices has become an international norm, and Objective Structured Clinical Examinations (OSCEs) are used to assess practical skills as part of the final examination of BVSc students at the University of Pretoria.

The BVSc programme includes one multi-species and multi-discipline module on Core Veterinary Practice, which together with one module on Elective Veterinary Practice comprises the final 18 months of experiential training (Irons *et al.*, in press). Theoretical knowledge is assessed separately using Computer-Based Assessment (CBA) (Mostert and Holm, 2017).

Materials and Methods

A list of 40 practical skills to be assessed is set up by the examination committee in consultation with two external moderators. Examiner training on skills assessment is provided in workshops, following which rubrics for OSCEs are developed through a four-stage revision process.

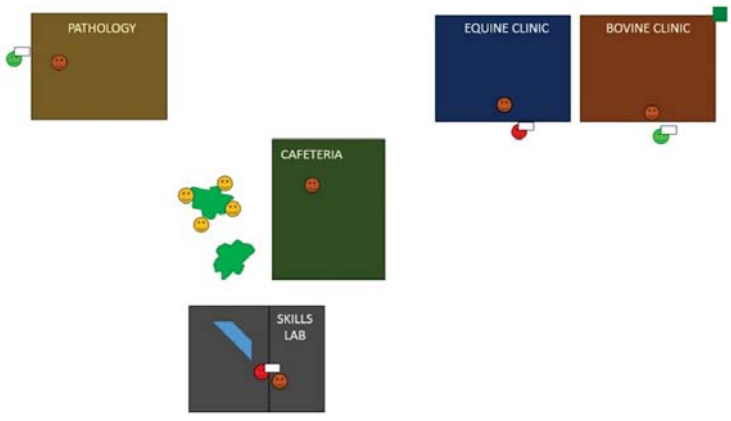
Rubrics include critical errors which are considered to result in failure of the procedure. Ten OSCEs are assigned to each of four species- or discipline-based panels, and made available to students two months before the examination.

Before the day of the examination, students are randomly assigned an examination order in pairs, and instructed to arrive at the central meeting room (cafeteria) prior to the start of the examination.

These pairs of students then draw cards so that each student attends two of the four panels: either Small Animals or Equines, and either Production Animals or Pathology and Veterinary Public Health (VPH).

Following this each student draws a sealed OSCE rubric from the assigned panels and hands it to the examiner at the panel. The examiner provides the scenario and the student is given 1 minute to prepare, and 15 minutes to complete the task.

Narrated MS PowerPoint used for coordinating the timing



Timing of the process is kept using a pre-recorded narrated MS PowerPoint presentation, presented in the central meeting room and of which the sound is transmitted to each of the examination panels using the Local Area Network.

Examiners and students are instructed not to enter into discussion during the OSCE. The examiner uses the rubric to mark the task and to assign a global rating score of either pass (70%-100%), just pass (50%-69%), just fail (40%-49%) or fail (<40%). Students who fail one panel are offered an ancillary examination on one of the remaining OSCEs in that panel, at the end of the examination.

Data from the OSCE rubrics are transferred into MS Excel and grades for the OSCEs are calculated as the proportion of correctly marked steps adjusted according to the subjective global rating score of the examiner and a critical error penalty.

Results and conclusions

In November 2016, 125 students were examined using this procedure. The examination was completed in 2 ½ days. A total of 276 panels were examined with 20 failures and a mean grade of 85.5% (95% CI 83.3% - 87.6%), independent of whether it was a student's first, second or ancillary panel (P > 0.37). Mean objective and subjective examiner scores per question examined are presented in the table. Practical examination grades were not correlated with CBA grades (coefficient 0.08, P = 0.38).

Student grades per panel

Panel		Student grades				
	Number of steps*	n	Objective (proportional) score*	Subjective (global rating)# score*	Final score*	Proportion passed (n)
Production Animals	17.4	70	89.5%[a] (86.7%; 92.3%)	3.4[a] (3.2; 3.6)	81.4%[a] (76.5%; 86.2%)	0.87[a] (61)
Pathology and Veterinary Public Health	16.0	62	93.9%[b] (91.9%; 95.9%)	3.8[b] (3.7; 3.9)	91.5%[b] (88.4%; 94.6%)	1.00[b] (62)
Small Animals	18.1	66	90.4%[a] (88.1%; 92.7%)	3.6[a] (3.4; 3.7)	84.4%[a] (80.1%; 88.6%)	0.94[a] (62)
Equines	14.3	69	93.7%[b] (91.6%; 95.8%)	3.5[a] (3.3; 3.7)	85.3%[a] (80.7%; 90.0%)	0.90[a] (62)

*Mean values

#1=fail, 2=just fail, 3=just pass and 4=pass[a,b]Means and proportions in columns with differing superscripts differ significantly (P<0.05)

It is concluded that a range of practical skills can be assessed accurately and independently of theoretical knowledge using only two OSCE panels per student.