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Developing physiology graduate skills and attributes with Objective Structured Practical Examinations (OSPE’s)

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Background

- Objective Structured Practical Examination (OSPE) assessments of theoretical, practical and problem-solving skills at multiple stations are commonly used to evaluate clinical practical skills in student populations.
- However, other disciplines outside clinical professions (e.g., science subjects) rarely use this successful assessment style.
- We have adapted this format to formally examine a wide range of communication, ethics, numeracy, graphic interpretation and science laboratory practical skills to prepare physiology students for their honours research projects and to enhance their employability. We have recently expanded the range of students formally examined by creating new assessment stations and adapting others to examine pharmacology practical skills.
- Using benchmark statements, student, staff and examiner feedback, stations assessing contextualised skills such as numeracy, graphic interpretation, ethics, health and safety, communication skills, and human physiological data capture were developed.

Aims

To design a 6 station OSPE assessment for Honours physiology students that would provide useful training and feedback regarding a variety of scientific concepts, transferable skills and graduate attributes.

Methods

- Piloted with 2012-13 Honours physiology class (n = 51 students), but now running for 5 years.
- Team of academic and technical staff involved to design, review and assess material.
- Materials and logistics to make it successful for both staff and students had to be considered and designed carefully (see Figs. 2 & 3).

Results

- As well as reviewing their grades and feedback, students were encouraged to reflect upon their own approach to the exercise and how these skills attributes might be useful for things like CV’s, job applications, setting goals etc. Time management.
- Many students told us that it was ‘scary but really useful’, and that it made them think about ‘how work was undertaken and the broader range of skills employers might want, rather than just scientific knowledge or being good at specific techniques’.
- Students also identified their own strengths, as well as gaps in their abilities/knowledge during the practice session and set out to remedy these during the study period before the assessment.
- Comments from the anonymous student feedback survey/staff-student liaison committee showed that students were all extremely supportive of this type of exercise and demanded its expansion into other degree disciplines e.g. anatomy, pharmacology, sports science etc.
- Despite some stations being stereotypically perceived to be harder for the students (e.g. phlebotomy), it turned out that they did very well at those, and it was the more fundamental practical lab skills (e.g. serial dilution) that seemed to stress students more.
- Average grade over last 5 cohorts (n = 253 students) = 76.2 ± 0.7 %.

Discussion & Conclusions

- Positive feedback from both staff and students but we feel we can still improve (See Fig. 5).
- Electronic answer submission using tablets at some stations speeds up grading/delivery of feedback for larger classes—we are trialling their use for all stations.
- In conjunction with students, we are developing animated, mobile-friendly videos to help visual learners better review the tasks/material outside the lab environment. If these are perceived as useful then we will make them available to the whole student population via the VLE.
- Staff feel they have a more detailed understanding of their students’ capabilities and graduate attributes, helping them better advise them on their targets, goals and strengths.
- This assessment style allows rapid assessment with large numbers, but we plan to review the scheduling of the OSPE so we match it with other degrees. This could allow us to share resources and staff for the OSPE’s to further improve our efficiency and the student learning experience.