LEARNING THROUGH ENQUIRY
An interactive, student centered, group approach for the solving of problems in Veterinary Clinical Pathology

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1. BACKGROUND
Veterinary Clinical Pathology is about the use of laboratory tests (and the resultant data) to assist in the diagnosis and prognosis of animal disease. To this end it revolves around the teaching students problem solving in a real or experiential situation. This poster outlines a teaching strategy for engaging the students in a problem solving approach in analysing laboratory data.

2. GOALS OF THE TEACHING STRATEGY
● To provide an interactive, student centered strategy for learning an approach to analysis of laboratory data in Veterinary Clinical Pathology.
● To employ the SOLO (structure of the observed learning outcome) taxonomy to align outcomes and assessment components of unit of study design, and to encourage a deep approach to learning.

3. METHODOLOGY
The strategy, designed to operate in tutorials of 1-2 hours duration with 16-20 students, was divided into five sequential activities:

4. EVALUATION SOURCES
● tutors’ reflection on the session
● tutors’ feedback to one another
● anonymous student evaluation questionnaire form based on established criteria.

5. EVALUATION RESULTS
● time frames for the teaching strategy were adequate, but that there was a need to vary some components from week to week because of variable group dynamics
● some students were dominant in the final discussion phase, but their influence was tempered by appropriate tutor facilitation
● Table 1 presents the combined results for the three groups of students for the course evaluation questionnaire

6. OUTCOMES
For the students, the use of group discussion and significant reflective practice in the strategy not only enhances interpersonal skills but also encourages a deep approach to learning leading to ownership of knowledge and increased awareness of the worth of Veterinary Clinical Pathology in the investigative process of diagnosing animal disease. For the educator, the strategy provides an opportunity to act as a facilitator of student learning in an organised and finite timetabled period.

REFERENCES

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DISCUSSION
● The teaching strategy was designed to encourage active learning. Group discussion (‘active talk’) enables students to select key points, recapitulate on experience and formulate new ideas, while improving generic or interpersonal skills such as teamwork, communication, initiative and responsibility. Group discussion, therefore, is a means by which altered and improved understanding can be achieved for students. This belief, that all knowledge is created from within and that it is dependent on both individual and social activity, is the central theme of constructivism.
● Group dynamics, particularly dominant students, impacted on success of group discussion for some students. A partial solution was a comfortable, familiar and non-threatening venue that placed the students at ease before and during the session.
● A number of techniques were employed, promoting interactivity. Initially ‘ground rule establishment’ before ‘subgrouping’ encouraged interaction and individual involvement. As subgroups grew they turned into ‘buzz groups’. This ‘pyramiding’ or ‘snowballing’ is designed to gradually increase the difficulty of the task as the groups enlarge. Finally, ‘debriefing’ involved an initial period of ‘silent reflection’ for the students and tutors while the representatives of the two groups wrote the main conclusions and suggestions for case development on a white board. It was followed by a period of ‘asking questions’ and ‘free discussion’ involving both students and tutors and then completed with a period involving all the students obtaining ownership of the information by developing a consensus plan for the case.

● The method of evaluation of the teaching strategy employed self-reflection, peer feedback and student evaluation to achieve balance. Self-reflection is an exercise that all teachers should engage in if they are to align their approaches to teaching to their students’ approaches to learning. This congruence is necessary if the desired student learning outcomes are to be achieved. Peer feedback not only enabled a worthwhile evaluation of the strengths and weaknesses of the teaching strategy but also provided feedback on how the tutors contributed to the effectiveness of the strategy.

● Student questionnaires are an important tool for evaluating the effectiveness of teaching and providing feedback. The designed questionnaire, however, was unable to distinguish between the students’ lack of involvement in the different stages of discussion.

● Utilisation of the SOLO taxonomy for the development of the teaching strategy seemed a logical way of developing the students’ appreciation of the investigative process in veterinary science, and compartmentalising the hierarchical learning process for students. Students compartmentalisation risks students failing to engage at the higher levels, particularly at the relational and extended abstract levels. Consequently, facilitation by tutors during the process and the opportunity for reflective observation at the end of the process were essential to turn the experience into a holistic learning event for the student.

● In conclusion, the teaching strategy provided the opportunity for students to develop and practice an approach to the analysis of laboratory data in a manner consistent with current educational thinking of student centered learning. The use of group discussion and significant reflective practice not only enhanced interpersonal skills but also encouraged a deep approach to learning leading to ownership of knowledge and increased awareness of the worth of veterinary clinical pathology in the investigative process.