Workshop on Teaching a Course on Measuring Behaviour: Philosophy, Concepts, Experiments, and Resources

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ABSTRACT
The purpose of this workshop is to discuss the teaching of undergraduate and graduate courses in "Measuring Behaviour". The authors will discuss their experiences and share their course outline and then discuss (1) possible topics to be covered in such a course, (2) textbooks and readings, (3) laboratory (practical) projects, (4) equipment needed, (5) ethics for testing animal and human subjects, (6) grading, and (7) student evaluations.

Author Keywords
Teaching, lectures, laboratories, equipment, resources.

INTRODUCTION
How should a course in "Measuring Behaviour" be designed? This workshop will discuss the requirements for teaching a laboratory course on Measuring Behaviour and develop ideas for future courses. We have developed such a course, which has one 90-min. lecture and one 90-min. laboratory class per week for a 13 week term for 24 third year Psychology and Neuroscience students. In the first part of the workshop, I will give an overview of the organization of this course, the topics covered in the lectures and the laboratory projects. In the second part, the floor will be open for discussion of other people's experiences with teaching such a class.

PART 1: COURSE OVERVIEW
The lecture portion of the course was designed to discuss the issues involved in understanding the importance of measuring behaviour, from fruitfly courtship behaviour to human facial expression and social behaviour. The laboratory component was designed to give practical experience in conducting behavioural research.

Lecture Classes
We used the textbook "Measuring Behaviour", 3rd edition, by Paul Martin and Patrick Bateson, plus a number of journal articles and course notes that we prepared ourselves. The lectures covered the following topics: (1) What is behaviour? (2) Qualitative description of behaviour; (3) Quantitative methods for describing behaviour; (4) Advanced quantitative methods; (5) Why measure behaviour? Theory and hypothesis testing; (6) The functional analysis of behaviour: experimental design and statistics; (7) Ethical issues in experimentation with animals and humans; animal health and welfare; (8) How can you measure your own behaviour? (9) Analyzing bouts of behaviour; (10) Measuring social behaviour; (11) Measuring facial expressions: can behaviour be used to detect lying? (12) Measuring behavioural development; (13) Errors in measuring behaviour and the use of automated equipment to measure behaviour.

Lectures involved the use of regular powerpoint (overhead) presentations, plus the use of demonstrations and videos from the internet. These included examples of fruitfly courtship behaviour, human facial expressions, magician's tricks, and the social behaviour of children. Some of these will be described. All course materials were available on the class website which students could access. Students wrote two exams to assess their comprehension of the lecture material.

Laboratory Projects
The laboratories enabled students to use the techniques discussed in class in four different projects: (1) Qualitative and quantitative description of mouse home cage behaviour; (2) Qualitative and quantitative description of mouse behaviour in the open-field and elevated plus maze: as measured by students and automated apparatus; (3) Sequential analysis of grooming behaviour in stressed and non-stressed mice, and (4) Observing the behaviour of pedestrians at cross-walks (Independent project). A poster on the independent project is presented to illustrate the independent project (Brown, O'Leary and Allen, 2010).

For the laboratory projects, we used a video camera, video playback system, computerized behavioural scoring program, and a computerized video-tracking system. Students wrote and were evaluated on four lab reports. Other laboratory projects that we are developing include measuring Siamese fighting fish display behaviour and gait analysis in humans.

PART 2: DISCUSSION ON TEACHING CLASSES

The workshop will examine new ideas for (1) classroom presentations, demonstrations and short videos, (2) in-class experiments, (3) topics for laboratory projects; (4) the equipment necessary to teach such a class, and (5) the development of on-line resources for lecture and laboratory projects. It is expected that the workshop participants will give examples from their own experiences, discuss projects which "work" and those that do not "work" with such a class, and discuss ideas for the development of web-based resources.

REFERENCES

1. Richard E. Brown, Timothy P. O'Leary, Stephanie L. Allen 2010. Who said pedestrian means dull: Teaching methods in the measurement of behaviour through observational studies of pedestrian behaviour. *Proceedings of MB2010*, 392-393.