



## Workshop 1.4

# Multi-media exhibits of alternatives in education

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### Lecture

## Humane endpoints in biomedical research: An interactive CD ROM

*Iris Boumans and Coenraad Hendriksen*

Netherlands Centre Alternatives to Animal Use (NCA), Animal, Science and Society, Utrecht, The Netherlands

The CD ROM “Humane endpoints in biomedical research” is an interactive program for educational and training purposes, aimed at increasing the awareness and competence regarding humane endpoints amongst those working with laboratory rats and mice. This CD ROM is intended to be incorporated into laboratory animal science training programmes and can be applied as an alternative in favour of the refinement of animal experimentation by any one.

Both normal and abnormal behaviour and signs of pain and distress are shown, as well as general clinical signs and clinical signs that are typical for a number of specific biomedical research areas (those in which animals may be subjected to severe suffering). An overview is given of parameters that can be

used when applying humane endpoints. The information on “Humane endpoints in biomedical research” is accompanied by more than one hundred additional images and video clips. The information on pathology may facilitate the correct assessment of suffering, and taking measurements for follow-up experiments. Relevant laws, guidelines and reports are included too. Finally, the acquired knowledge can be assessed via a number of interactive tests.

The CD ROM will be available in Dutch and English. At the 5th World Congress on Alternatives and Animal Use in the Life Sciences, an opportunity will be given to view and explore this CD ROM.



## Lecture

# Interactive, computer-based alternatives to using animals in university teaching

*David Dewhurst*

University of Edinburgh, Learning Technology, Edinburgh, UK

A number of studies have demonstrated that interactive, multimedia computer-based learning programs are effective in meeting many of the learning objectives of classes which use animals in university teaching. Here we describe a number of programs, developed over several years, which simulate animal preparations frequently used to teach pharmacology and physiology to undergraduate students ([www.sheffbp.co.uk](http://www.sheffbp.co.uk)). They have been developed by experts in the field, usually to support their own teaching, and may be used in a variety of ways e.g. to support conventional practical class teaching, or for self-directed learning by students. The programs generate simulated tissue responses e.g. muscle contractions or nerve action potentials, either from actual experimental results or from predictive models. Responses are presented on the monitor screen, in a form

comparable to that in the real experiment i.e. storage oscilloscope or scrolling chart recorder. Students are expected to simulate many of the tasks associated with practical class teaching such as determining experimental parameters, collecting data in much the same way as they would in the laboratory, data reporting and communication. They work, usually in small groups, at their own pace and most take readily to this form of teaching. In many cases the programs use text and high-quality graphics to describe the preparation, the apparatus, methods and the underlying physiology and/or pharmacology. Some contain self-assessment questions or student-centred tasks to test accuracy of data collection, data interpretation, knowledge of underlying principles etc. Examples from a number of programs are used to illustrate these features.

## Lecture

# Internationalising alternatives in higher education

*Nick Jukes*

InterNICHE, Leicester, UK

InterNICHE has been working internationally to promote and implement alternatives in higher education for 17 years, facilitating the replacement of harmful animal use and building a broad network with contacts in over 50 countries. From the InterNICHE experience, successful international work requires qualities and practices from organisations that include: A bold and positive vision, a specific focus and an awareness of the links between issues; a commitment to pro-actively catalyse sustainable change and create win-win solutions; the design of organisational structures conducive to participatory democracy, alliance building and the organic growth of the network; the practice of solidarity and support for local initiatives rather than

empire building; and the provision of resources and training for action and capacity building. The presentation will draw on examples of InterNICHE projects such as the production and multi-language translations of printed, video, and website resources; the Alternatives Loan System for trial of software, mannekins and simulators anywhere in the world; the international Humane Education Award for local development and implementation of alternatives, including freeware; support for student conscientious objectors; and conferences, outreach visits, and training in alternatives for teachers. The challenges met within such work will also be explored, and suggestions of how to overcome them will be given.



## Lecture

# The NORINA and TextBase website: New design and possibilities

*Karina Smith<sup>1</sup>, Adrian Smith\*<sup>1</sup>, Baard Johannessen<sup>2</sup> and Arne Lie-Johannessen<sup>2</sup>*

<sup>1</sup>Norwegian School of Veterinary Science, Laboratory Animal Unit, Oslo, Norway; <sup>2</sup>Nettforsk, Arendal, Norway

The Norwegian Reference Centre for Laboratory Animal Science and Alternatives has maintained a website since 1996, featuring the NORINA database (<http://oslovet.veths.no>). NORINA contains information on nearly 4,000 audiovisual aids and other materials that can be used as alternatives or supplements to animal use in teaching and training. The website also includes TextBase, a database with information on 1,100 textbooks of relevance to the 3Rs. The website has been totally

rebuilt in 2005. The databases are now linked to the other textual information on the website, with many new features. The site includes information on guidelines for animal research, the care and use of fish, current legislation, course material (including three compendia), links to databases within the 3Rs and a Virtual Tour of the Centre. The website has now an additional shorter Internet address: [www.norinadatabase.org](http://www.norinadatabase.org).

## Lecture

# The European Resource Centre for Alternatives in higher education (EURCA)

*Marjolein van Boxel<sup>1</sup>, David Dewhurst<sup>2</sup> and Jan van der Valk<sup>1</sup>*

<sup>1</sup>Netherlands Centre Alternatives to Animal Use, Animals, Science and Society, Fac. of Veterinary Sciences, Utrecht University, Utrecht, the Netherlands; <sup>2</sup>University of Edinburgh, Faculty Group of Medicine and Veterinary Medicine, Edinburgh, UK

Practical pharmacology, physiology, laboratory animal science, anatomy and dissection classes intend to teach students practical skills, as well as factual knowledge and procedures regarding data handling, experimental design and communication. In many curricula animals are used, even though animal-based classes are resource and time intensive, require technical support, equipment and notably animals. Use of animals, certainly for education purposes, is questioned nowadays. There is a widespread availability of non-animal alternative models, such as computer-based simulations, static and interactive video, post-mortem material and *in vitro* methods. These non-animal models are often less expensive, certainly in the long run. In the context of Russell and Burch's 3R principle, application of alternative models contributes to the reduction of animal use.

Moreover, several studies have demonstrated that the effective knowledge gain is equivalent to that of animal classes. Additional advantages of many alternatives include their suitability for tutor-independent training, possibilities for self-assessment and the inherent combination of theoretical and practical components. The choice for the adequate model to use depends on individual tutors to clearly define learning objectives. The European Resource Centre on Alternatives in higher education has an on-line database aimed at helping teachers making a well-balanced decision. The EURCA database (<http://www.eurca.org>) offers extensive information on high-quality peer-reviewed models. Furthermore, EURCA demonstrates models from its database and offers advice to teachers at national and international meetings.