

## Colama 2012

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The II Latin American Conference on Humane Education and Alternatives was held as part of Colama 2012. Following on from the first event held in Peru in 2010, the conference was jointly organised by InterNICHE and Colama and provided the education and training theme for the event. InterNICHE, the International Network for Humane Education, is an NGO working internationally to enhance education and training in the life sciences through curricular transformation and replacement of harmful animal use.

There are three distinct but related fields in education and training. The first is education about alternatives for students and society in general. The second is education and training at secondary, university and professional level realised through alternatives. The third is training in alternative techniques within research and testing, such as specific *in vitro* technologies.

The conference focused on the second field: the ethical and effective acquisition of knowledge, skills and attitudes in medicine, veterinary medicine and biology. InterNICHE argues that this demands full replacement of conventional, harmful animal use - that is, the dissection of purpose-killed animals, animal experimentation, and other instrumental animal use. Such a transformation can give students and trainees access to humane and innovative alternative tools and approaches that reflect best practice.

For disciplines such as anatomy, pathology, physiology, pharmacology, clinical skills and surgery, students and professionals can have access to the wide range of non-animal alternatives that are now available. These replacement methods, usually developed by the teachers and trainers themselves, include models, mannekins and simulators; video, multimedia software and virtual reality (VR); and student self-experimentation.

Within zoology and veterinary medicine, hands-on experience of living animals and of animal cadavers, organs and tissue is also necessary. InterNICHE has broadened the definition of alternatives beyond non-animal tools to include ethically sourced cadavers, organs and tissue, and clinical learning opportunities with animal patients. Practical classes can benefit considerably from informed curricular design that uses a combination of these non-animal alternative tools and animal-based alternative approaches. Together they can achieve full replacement of harmful animal use while enhancing the quality of education and training.

The conference brought together speakers from Brazil, Colombia, Mexico, Peru and the UK to report on their experience of developing and implementing innovative methods and technologies, and to explain how they can better meet teaching objectives. A round table and questions allowed for further exploration of these pedagogical issues.

The conference presented an extended Multimedia Exhibition of alternatives brought from the InterNICHE Alternatives Loan System, a free-access library of learning tools. Models and mannekins developed by teachers in Brazil and elsewhere were also demonstrated. Basic training for teachers, students and campaigners in a range of these alternatives was provided at the event.

As the speakers explained, the development of alternative tools and approaches reflects a creativity motivated by the need to not only meet teaching objectives better, but to achieve more. Harnessing the power of technology to support the learning process was also recognised as an important practice in cutting-edge education and training. Whole faculties and departments are now alternatives-based, and examples of practical classes involving only alternatives can be found within all disciplines. Indeed, for many teachers, alternatives are now the norm. All these changes are informed by the published studies that assess the performance of students and trainees who use alternatives and that demonstrate their pedagogical superiority. While there are still some universities whose life science practical classes are based on harmful animal use, there is a growing momentum for replacement.

Alternatives can also obviate the negative lessons of the hidden curriculum of harmful animal use - such as the 'acceptability' of harm, and teaching conformity to convention. Humane methods can help avoid the process of desensitisation of students and trainees. Graduates whose critical thinking, emotional and ethical literacy, and sense of responsibility have been validated and nurtured - rather than dulled - are better prepared for careers in humane science.

Ethics and laws were also addressed at the conference. Increasingly, national laws and other regulations state that alternatives should be used where possible. Ethics committees should disallow requests for harmful animal use where it continues, and encourage more progressive methods. Increasing investment in education and training through the use of alternatives can help ensure the growth of a new generation of competent professionals. It can also smooth the pathway leading to a humane science.