

LOOKING TO THE FUTURE

Positive experimentation

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Asking nature the right questions!

This speech is not about how to avoid animal use in education, but on how we use living animals in experiments, beneficial for both science and the individual animals involved. The name 'positive experimentation' is taken from a speech by Rupert Sheldrake at the EuroNICHE conference in Bridport 1995, titled '*Positive experimentation with pets*'. Not only pets, but also free-living animals, and animals which normally live and work together with humans, e.g. dogs, can be made to reveal a great deal about themselves without any force. Humane and animal-friendly interactions between humans and animals are of course possible. Life science does not have to behave destructively or in a harmful way towards the experimental subjects, whether these are humans or animals. Positive experimentation makes it possible to identify the potentials and capacities held by these animals and is fully humane at the same time.

This speech will be dealing with this new approach to life science and how it can be made into a concept which can be institutionalised or made into a tradition replacing the present dominating tradition of harmful animal experimentation. Developing this concept I will define what is meant by the words *Positive experimentation* (Textbox 1).

Definition

Positive experimentation: an animal friendly and humane approach to experimentation, which follows and respects the premises given by the experimental animals themselves. Hence it follows not to hurt the animals participating the experiments. The only manipulation of these animals and their surrounding, which can be allowed, are those which have only a non-harmful or positive effect upon the animals in question.

Textbox 1: definition of positive experimentation

Results obtained from positive experimentation show us more about how the animals experience their external world, how they react to it, and which physiological capabilities they possess. The results from positive experimentation can be described qualitatively and quantitatively – just like in the ordinary mainstream life science experiments. This way positive experimentation offers the predictive power which is so valuable within science. And it helps us to come up with innovations based on life science which make (or should make) life a little bit easier for all of us. We now have a basic idea of what positive experimentation is, and what it is good for! Later on in this speech I will mention some concrete examples of positive experimentation, and how to use it.

First I will make a historical review of the relationship between positive experimentation and the tradition of harmful animal experiments. This approach may be helpful to solve some of the problems we will meet developing this concept in the future.

History and science theory

Positive experimentation is not new at all! Probably positive experimentation has always coexisted together with the tradition of harmful animal experiments (Figure 1). But the interesting part is the very basic question; why the tradition of harmful animal experiments became institutionalised, and positive experimentation not. It could be maintained that harmful animal experiments are just more efficient, but personally I do not think this is true. Other explanations do exist. Philosophers from the feminist, ecofeminist and deep ecology traditions within philosophy criticise the tradition of harmful animal experiments and give a very interesting analysis of how it has been established. Here I make a point of mentioning specially mention the book 'New ways of knowing -the sciences, society, and reconstructive knowledge' by Raskin, Marcus and Bernstein et al. They write about *reconstructive knowledge*. In spite of all its objectivity life science has never operated in an ideological vacuum. The English

philosopher Francis Bacon (1561-1626) was among the firsts to formulate the philosophy of harmful animal experiments. Francis Bacon wrote very directly in his book 'The New Atlantis' (1627), that Mother Nature, e.g. in the form of experimental animals, should be forced to reveal its secrets, no matter how painful it would be for her and the experimental animals. The treatment of women in the torture chambers by the Spanish inquisition became model also for the science laboratories. Please note how much this approach differs from the concept of positive experimentation! It will now become evident the good reasons why harmful animal experiments are disliked especially by the ecofeminists, but also by many other decent humans.

Later on the French philosopher and natural scientist Rene Decartes (1596-1650) reformulated the natural sciences' philosophical relationship to nature and animals. Mother Nature and animals were no longer associated with witchcraft, but now they were to be understood as pure mechanical beings. But as we all know this did not help the experimental animals!

Semiology

The purpose of this section is to show us the priorities of life science within another context. Semiology is the science which deals with signs and images and how they can be interpreted. Let us try to picture the difference between positive experimentation and harmful animal experiments (Textbox 2).

Two Pictures

1. Positive experimentation: photo taken from an article in the National Geographic magazine, showing Jane Goodall together with a very young chimpanzee. The context the African rain forest (field study), and what happens is that Jane Goodall and this young animal very careful reach out towards each others hands.
2. Harmful animal experiments: This is actually three photos: a. Monkey put into a physical restraint chair, screaming and with electrodes protruding out of its body; b. Cat with a apparatus and brain electrodes on its head. This cat is pictured with one pupil very much enlarged compared to the other and c. Frog dissection.

Textbox 2: Two pictures: These pictures illustrate a real contrast between positive and harmful interaction with animals. Both of the approaches represented by the pictures are called science, but one of them intuitively seems to be far more morally acceptable and beautiful than the others.

How did animal experimentation start in the first place? There were so many arguments against it even in that time: moral, emotional and our aesthetic sense. In the very beginning curiosity and the wish to develop new technologies to cure people are the main reasons for conducting animal experiments. In this early period people started to realise that there was much more to know and to discover about life.

Harmful animal experiments became institutionalised because of ideologies of persons like Francis Bacon and Rene Decartes, and later on by Franciesco Marcandi (1783-1855) and Claude Bernard (1813-1878). The two pictures in textbox 2 certainly tell us that the most morally unacceptable and the most invasive approach to life science became institutionalised because of an ideology. The origin can be found in the harmful treatment of people and animals which was prevailing in society in that time. But that society does not exist anymore. We even do not recognise the ideologies of the philosophers of that time any more. Nevertheless harmful animal experiments still exist.

History can tell us why the tradition of harmful animal experiments became institutionalised - but history can not tell us what was morally right, not even then! What I have been trying to establish is that history did not necessarily have to be so! History could have taken another path if things had been different. For example if society had different moral values, harmful animal experiments may never been institutionalised at all. Nowadays a lot of animal experimentation is carried out though sheer force of habit originating in a different society with different ideologies.

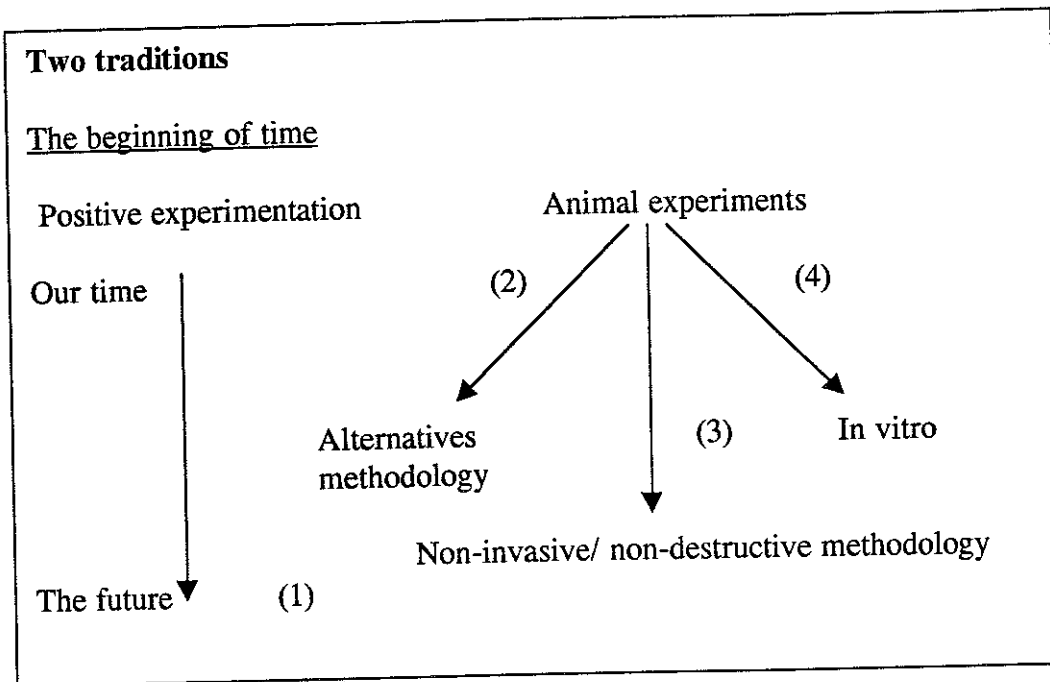


Figure 1: Two traditions: Positive experimentation and harmful animal experiments can be looked upon as two traditions, which have always existed together. In present time new more humane traditions or approaches have developed from the harmful animal experiment tradition, as scientists have become more aware that animals have feelings.

Figure 2 presents the very much ignored existence of positive experimentation together with the institutionalised tradition of harmful animal experiments. The tradition of harmful animal experiments can also be seen as the parent of some new traditions or approaches: arrows 2, 3 and 4. Most modern scientists today realise that animals are not only mechanical, but they also feel and think, and this is of course good for the animals!

But personally I am worried that these new approaches, in spite of the fact that they are much more humane, still share some of their ideological basis with their progenitor! We have to remember that these approaches, harmful animal experiments and positive experimentation, are always in competition with each other because of the limited resources given to life science.

Evaluation

We must be honest to ourselves: which kind of life science is it that we want to practise? During this EuroNICHE conference and many EuroNICHE conferences before, we have seen a lot of very good and highly technical alternatives (Figure 1, arrow 2); which I think can function as a very valuable bridge between the old harmful tradition and the new non-harmful life science tradition of the future. Non-invasive/non-destructive methodologies have also been widely accepted and are progressing especially within medicine and toxicology. In vitro methodologies (Figure 1, arrow 3) are being more and more successful. And I really think we should ask ourselves why we do not give this approach a higher priority? I think we should definitely continue to work with alternatives for the time being! But most of all I think we should use much more time and effort to investigate this huge body of potential humane research and students' projects, which could be found in the hardly-developed field of positive experimentation.

Examples

Having thought about for some time and discussed it with people who have found positive experimentation interesting, the conclusion must be that there can be given an almost countless list of examples of positive experimentation from most or every field within the life sciences. For that reason the list given below is a very subjective choice based on my limited knowledge, my imagination and the fact that there is also only limited time and space to present it:

1. Animal cognition: In operant conditioning animals can be rewarded for choosing the right solution to a certain problem. These experiments could very well be designed also to be fun for the animals participating.
2. Animal perception: Dogs are used, by the police, to smell whether a certain person has been in contact with a certain object e.g. a murder weapon. This method of identification could perhaps be optimised (photo).
3. Perception: "Froy" is the name of a dog (an Alsatian), which has been trained by the Swedish Environmental Agency to detect mercury. What potential exists to let the fine senses of animals help us to fight our common environmental problems by their ability to detect toxic substances (photo)?
4. Behavioural enrichment: This example was originally represented by a picture showing two chimpanzees occupied by searching for food in an artificial termite nest. Zoos are in general very interested in having experiments done on how they can enrich the lives and welfare of the animal they have in captivity. - And why not also make some research on how we could enrich the lives of our many farm animals?

The following examples are included to stress that life science and positive experimentation do not necessarily have to deal with animals only:

5. Micro-organisms: How can we make use of the naturally existing capability certain micro-organisms have to biodegrade dangerous environmental pollutants. It is a question of how we can optimise this natural process by offering the micro-organisms the right conditions, e.g. following an oil spill.
6. Plant movement: The principles of how plants move, e.g. nastic movements (photo) can be transferred to the construction of *smart materials*, which could have a capacity of unfolding under certain conditions or by certain signals. This form of knowledge can be employed in new technology, e.g. satellites, tents and lifeboats.
7. Plant mutualism: If certain plant species are grown together, it can both increase yield and prevent problems from pests. This approach to sustainable agriculture could spare us from the use of artificial fertilisers and dangerous pesticides!

Why this speech and positive experimentation is interesting for EuroNICHE and why it is put under the title: "Looking to the future"!

If we look again at Figure 1 (above), EuroNICHE and the animal welfare and animal rights movements, in general, have used a lot of resources and time on alternatives to harmful animal experiments, in spite of the fact that many of these do no more than simulate those harmful animal experiments we dislike! EuroNICHE is now almost professional with all the alternatives. These alternatives have shown to be able to replace a lot of harmful animal experiments and prevent a lot of suffering. But looking to the future, I think we can do even better if we adopt a more expanded strategy!

Two arguments against alternatives:

1. People who do not believe that animal experiments have any scientific value of course therefore neither believe in alternatives, which do no more than simulate those animal experiments they do not believe in. These critics can in some situations, with some right, proclaim that we are taking an unscientific approach!
2. People who do actually believe that real animal experiments have a true scientific value could state that these alternatives, which do no more than simulate, would never be as good as the real thing. These critics can also in some situations, with some right, proclaim that our approach is unscientific.

To meet these objections (1 and 2) I think that EuroNICHE should work not only to promote new and better alternatives. We also have to research humane in vitro and other non-invasive/ non-destructive methodologies, and positive experimentation. This will also help us get rid of any bad image of us as people who say no or as those with an unscientific attitude. And it will show people that we are constructive thinking scientists who can conceptualise what we mean by humane education.

If we try to follow the tracks of the humane approaches and positive experimentation I think we can get rid of far most of these harmful animal experiments – in a future not so far away. And I am sure that this new form of humane and animal friendly institutionalised life science will be worth all the work, both for the experimental animals and us as humans and scientists.

- Let's keep up the good work!

I did not necessarily want to learn about them [animals], so much as I wanted to learn from them.

Jim Nollman, 1985

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