The Importance of Involving the Public as Stakeholders when Developing Animal Welfare Policy

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Summary

The public is a key stakeholder with regard to animal-based science: public monies fund animal-based studies, and the public often are beneficiaries. As new developments in biological research involving animals arise, public attitudes towards animal-based science may be shifting. It is important to explore public attitudes and values, and to involve the public as stakeholders during animal policy development so that any emerging societal concerns can be adequately addressed. There are several ways in which public attitudes and values can be qualitatively yet empirically evaluated and used to inform animal welfare policy. Two exemplary case studies are presented in this paper: 1) an online public engagement experiment, and 2) an interview-based study. The case studies provide examples of scholarly stakeholder strategies that can be employed to understand the conditions under which people consider the use of animals in research to be acceptable.

Keywords: animal welfare policy, genetically engineered animals, public attitudes, qualitative research, stakeholder

1 Introduction

Despite the recent attention given to the relationship between science and society (Mayer, 2003), little progress has been made on how to better engage members of the public as key stakeholders during animal policy development and on issues related to animal-based science. Given that members of the public often fund animal-based studies (directly or indirectly) and are often the beneficiaries, it is important to explore people's attitudes and values, alongside scientific knowledge and expert opinion, as part of the policy development process. Exploring attitudes and values may highlight key areas for focusing efforts in animal welfare science, and it also will work towards a policy framework in which societal concerns are adequately taken into consideration when science is translated into animal welfare policy. Investigating people's attitudes and values is a pertinent issue as new developments in biological research involving animals arise.

In recent years, the creation and use of genetically engineered animals in scientific research has more than doubled (Ormandy et al., 2009). However, studies on public attitudes towards the genetic engineering of animals suggest that public support for this practice may be low, particularly when genetically engineered animals are intended for use in food production (Macnaghten, 2004; Schuppli and Weary, 2010). Although animal-based science, including the development of novel genetically engineered animals, is overseen by guidelines and regulations that aim to address public concerns, methods that allow more robust public engagement need to be developed. Indeed, Hobson-West (2010, p. 48) called for "a more direct influence of public opinion on the direction of specific policies related to science and technology, including animal research."

The use of animals in science is an ethically charged subject, with attitudes ranging from complete support to complete opposition. Public opinion polls often are cited as evidence for the range of attitudes. However, care should be taken in citing the results of opinion polls: as pointed out by Hobson-West (2010), various stakeholders in contentious ethical debates (such as the animal research debate) – often with polarized and opposing views – will cite the results of the same opinion polls in attempts to add rationality, moral legitimacy, and democratic legitimacy to their claims. Traditional opinion polls and surveys typically do not provide insight into reasons underlying a given participant's responses to particular questions (Heijs et al., 1993). Providing participants with pre-classified response options, such as Yes/No or Agree/Disagree, can only tell us so much about the nuanced and often conditional or inconsistent values that people hold. As a result, there is a trend towards more qualitative participatory techniques for exploring public attitudes and opinions. There are several ways in which the nuances of public opinion can be qualitatively yet empirically evaluated. Two specific case studies, presented below, discuss the use of online public engagement and interview-based studies as mechanisms for exploring public attitudes towards animal-based science and, in particular, the creation and use of genetically engineered animals. The paper closes with a discussion of how the findings from these case studies might be used to inform animal welfare policy by identifying areas where 3Rs implementation may be lacking, particularly the implementation of Reduction and Refinement.

2 Online public engagement

An online platform was designed to host experiments that examine people's responses to a range of different ethical issues, including people's views on animal-based research. The online platform provides easily accessible public engagement tools

that can be used to empirically evaluate normative decisions regarding social and technological change and social pressure (Ahmad et al., 2006). The public engagement tools offered by the online platform also provide greater depth to the analysis of public opinion than typical surveys or opinion polls via the collection of open-ended (qualitative) comment data alongside pre-classified Yes/No or Likert scale response options.

Using this online platform, two public engagement experiments were created, one focusing on agricultural research and the other on biomedical research. These studies aimed to elucidate how the concepts of genetic engineering and regulation affect people's willingness to accept animal-based research. These particular experiments had an underlying experimental framework that utilized contingency logic. During the experiments, participants were presented with a series of animal-based research scenarios and were asked about their level of support. For each scenario, participants were given binary, pre-classified response options to each question: either "Yes" or "No." These pre-classified response options were complemented by the simultaneous collection of qualifying data in the form of participant comments. The specific scenarios that participants were presented with were contingent upon whether they had answered "Yes" or "No" to the previous question. This framework "stress-tested" participants: by manipulating certain variables it was possible to establish when people switched from "Yes" to "No" and vice versa.

Details of the methods and results of these two online public engagement experiments will be described in detail in two forthcoming papers. The main findings have been presented at previous conferences (Ormandy et al., 2010, 2011a) and are summarized below.

2.1 Agricultural research and genetic engineering

The first iteration of the online engagement experiment asked participants about their willingness to support the use of pigs in research that aims to reduce agricultural phosphorous pollution. The research was presented in the form of specific research proposals, presented as lay summaries. Three primary variables were tested: 1) regulation – the research proposals presented were either unregulated or regulated. The definition of "regulation" was fashioned from the common components of international regulatory systems, namely: ethical review of research protocols, third party inspection of animal care and use programs, and accurate reporting of animal numbers. This definition was made clear to participants; 2) invasiveness – the proposed research was either non-invasive (pigs fed two different diets) or invasive (pigs surgically implanted with a fistula); and 3) genetic engineering – the research proposals specified the use of either commercial farm pigs or genetically engineered pigs, each genetically altered to reduce their phosphorous output.

The main finding was that regulation was a significant predictor of support for invasive research but not for research involving genetically engineered pigs. Analysis of the qualitative data (participants' comments) showed that many participants in the invasive treatment group used a weighing up of costs and benefits when they were deciding whether to support or oppose the research. In contrast, participants in the genetic engineering treatment group that were unsupportive of the research tended to use more rule-based decision-making frameworks. Since most regulatory frameworks that oversee the use of animals in science employ a utilitarian framework that weighs up costs and benefits, it follows that regulation was a predictor of support for the invasive treatment group (in which participants seemed to use utilitarian framework to make their decision), but not the genetic engineering treatment group (in which many participants did not seem to use a utilitarian framework to make their decisions).

Additional comments included a focus on the 3Rs, particularly Refinement, for both the invasive and genetic-engineering treatment groups.

2.2 Biomedical research and genetic engineering

The second iteration of the online public engagement experiment asked participants about their willingness to support the use of zebrafish or mice in biomedical research in which the use of animals as models of skin cancer was proposed. The primary variables tested were: 1) regulation – the research proposals presented were either unregulated or regulated, 2) species – the research proposed the use of either zebrafish or mice, and 3) genetic engineering – the research proposals specified the use of either conventional zebrafish or mice used in a chemical mutagenesis procedure (using ethyl-N-nitrosourea (ENU)), or genetically engineered zebrafish or mice that are predisposed to tumor development as a result of their genetic alteration.

The main finding was that support for ENU mutagenesis, for both zebrafish and mice, was low. However, for those who did support ENU mutagenesis, there was no species effect: participants were just as likely to support the ENU procedure on mice as they were for zebrafish. Interestingly, some participants in the genetic engineering treatment group indicated that they actually found it preferable to genetically engineer the zebrafish or mice, rather than subject them to ENU mutagenesis. The primary reason was that participants perceived genetic engineering to cause less pain and distress than ENU mutagenesis. This indicates that participants value the principle of Refinement.

3 Interview-based public engagement

Preliminary results from this study are described in Ormandy et al. (2011b), and a full research paper is in preparation. In brief, Canadian stakeholders, representing researchers, animal technicians, animal care staff, and members of the public were interviewed and asked about their views on the creation and use of genetically engineered animals for scientific research.

The main themes expressed by participants were as follows: a) genetic engineering of animals in science is more acceptable than the genetic engineering of animals for food production, b) in some cases genetic engineering is preferred to methods that are deemed to cause pain and distress, c) more effort is needed to implement the 3Rs when creating genetically engineered animals for scientific purposes, d) limits to genetic engineering should be put in place, especially limits to the pain and distress animals experience as a result of their genetic alteration, and e) much better public engagement on the topic of genetic engineering is needed.

4 Implications for policy

The findings from the public engagement experiments described above have specific policy implications. First, evidence of societal opposition over the genetic engineering of food production animals underscores the need for effective public engagement strategies during animal policy development, and as part of granting decisions and ethical review of research protocols, to ensure that science is in step with societal values. If there is no demand for genetically engineered animals once they leave the research domain and enter the commercial domain, then the value of using animals and research funds to develop these animals is called into question.

Second, the evidence of concern over ENU mutagenesis highlights the need for robust welfare assessment schemes to be in place to ensure that any welfare concerns that arise are appropriately addressed. This finding also highlights the need for effective public engagement; the lack of support for this procedure was based on the perceived level of pain and distress that animals may experience. Some participants felt that genetic engineering would be a preferable option to create the animal models required for the proposed research.

Finally, there was evidence of concern over 3Rs implementation, particularly Reduction and Refinement, with regard to the creation and use of genetically engineered animals. Such concerns might be valid: in 2003, a paper was published by the UK Joint Working Group on Refinement that specifically discussed Reduction and Refinement in the production of genetically engineered animals (mice in particular) (Robinson et al., 2003). However, in a recent Canadian workshop held with Animal Care Committee members (Ormandy, 2010), participants indicated that some key recommendations put forward by Robinson et al. (2003) may not have been implemented. Workshop participants identified cost, convenience, and confidentiality as the major challenges to the implementation of Reduction and Refinement. This highlights a key message for animal policy makers and granting agencies: Reduction and Refinement should be made a priority for the creation and use of genetically engineered animals.

5 Conclusion

Robust mechanisms for engaging the public as key stakeholders are important during both the development of animal welfare policy and the decision-making process regarding the funding and acceptance of research proposals. Empirical methods for conducting public engagement include online public engagement experiments and interview-based studies.

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