

Openness of animal research as a limitation to scientific endeavour

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Science without openness can create a media driven whirlwind of theories and assumptions about animal use in research between scientists themselves and the public. Animal research has contributed significantly to scientific and biomedical advancements within society today (Festing & Wilkinson 2007; MacArthur Clark et al. 2019). However, there is an increasing awareness of where scientific method has previously failed ethically when using animals for research, teaching or testing (Festing & Wilkinson 2007; Pound & Blaug 2016; MacArthur Clark et al. 2019). When critically analysing animal research, we must evaluate whether scientific discovery will in turn become hindered by the scrutiny of publicity through openness. Increasingly, popular science features researchers advocating for openness in animal research, however, it is also important to critically evaluate objections to openness. The concept of openness has been previously defined as the action of communicating valid and relevant information willingly, with trust that openness should provide mutual benefit; for example, between researchers and people who exist outside scientific animal research lab groups (“the public”) (Reed 2012; MacArthur Clark et al. 2019).

Disentangling the complex topic of openness is readily challenged due to the variety of expertise, preconceived ideas, and opinions of people, which are informed by cultural, societal or religious systems (Nickerson 1998). As an example, vegetarianism and religion are significant predictors of responses to animal research, as well as the capacity to engage in meaningful pet ownership (Furnham et al. 2003; Hagelin et al. 2003). Whether for or against animal use in research, there is a tendency for information similar to an existing belief to be considered more meaningful and any conflicting information may be discredited or dismissed (Nickerson 1998). A significant limitation to openness arises when communication is no longer between two similar groups of people but is spread across varying levels of expertise (Reed 2012). This may lead to different information being given to different groups of people, effectively creating a selective openness (Holmberg & Ideland 2010).

Misinformation and openness

Arguably one of the biggest threats science and researchers face today is the mass media-driven campaign of misinformation (Kruse 2001). In general, we can assume increased openness will primarily occur through social media and various news agencies that report online. Without a universal system for openness, meticulous and brief explanations to justify why the use of animals was necessary, will enforce the distrust so often affiliated with researchers using animals. Such public releases of information will likely be selective and be limited by various privacy and academic ownership concerns. Ultimately, the perceived benefits gained from the costs of animal research will vary between the public, with each targeted group requiring varying levels of engagement and explanation (Reed 2012). Openness will be challenged by no two studies being the same, and therefore a blanket rule cannot be applied, unless animal research can be scientifically validated on a case-by-case basis (Festing & Wilkinson 2007).

Promoting trust surrounding animal research should and will fall upon researchers themselves, as well as the veterinarians and technicians who manage animal care (Buckmaster 2015; MacArthur Clark et al. 2019). Relying on public approval following a media release on a research project using animals, may result in understanding or misunderstanding that causes retaliations or threats against the researchers (Holmberg & Ideland 2010). However, public opinion will heavily influence

regulation and funding which further complicates the concept of openness in animal research (MacArthur Clark et al. 2019). Scientists may become tempted to provide a brief explanation of what it is they are working on and expect people or the media to explicitly understand. Openness and a willingness to communicate should most importantly be about expressing a point, not proving a point. Promoting faith in animal research and ethics committees will ultimately fall to the public themselves and the media. As mass media informs social movements, it is critical to establish an environment that sees the public becoming more open towards scientific endeavours (Kruse 2001).

An ethical dilemma

Openness surrounding the use of animals in research will need to be supported within a robust framework of predetermined guidelines that can withstand the variety of factors deemed important to various individuals surrounding the use of an animal in research. Despite scientific methods becoming increasingly more sophisticated with technological advancements and implementation of extensive protocols, there is still a dependency on the use of animals for research (Festing & Wilkinson 2007). Often people will evaluate and form an opinion based on the species of animal that has been used and the type of manipulation the animal has been exposed to (Reed 2012; Roten 2012). For example, research using mice is often accepted, whereas depending on the country, dogs or monkeys are less accepted as animals for research (Roten 2012). There is considerable doubt surrounding the value of animal research, specifically in science for the sake of science. For example, in the absence of suffering, the killing of mice is often deemed acceptable when testing a new drug with medical value, however not for a non-essential product even if the same level of animal manipulation is inflicted (Morris 2000).

Often the public will accept the benefits obtained from research involving animals while simultaneously being suspicious of animal use in science (Morris 2000). People's interpretation and reaction to animal use in research often varies significantly when considering the limits people will accept as justified or valid. There will likely always be a public group within society that will never shift their stance on animal contributions in scientific and medical research regardless of new information and communication via openness (MacArthur Clark et al. 2019). Most researchers who use animal models will follow appropriate regulations set by legislation surrounding what can be done ethically while maximising the quality of life of the animal or animals involved (Balls 2014). Ethics committees are obligated to meet certain guidelines that focus heavily on the 3Rs principle of replacement, reduction and refinement and public trust should fall to them (MacArthur Clark et al. 2019). Demanding accountability from researchers that have trained extensively to ensure quality of life for animals used in research is fundamental, but openness should not be considered synonymous with accountability.

Remaining behind closed doors

Arguments that favour openness surrounding animal research will all, to some degree, centre around the idea that science has previously been secretive (Buckmaster 2015; MacArthur Clark et al. 2019). The consequence of this now is that the available resources describing animal use in research most often have come from organisations and groups of people who are opposed to animals being used in any research (MacArthur Clark et al. 2019). The lack of communication from the research community surrounding animal use has created a whirlwind of assumptions and misinformation. Without knowing the overall aims indicating why a given research project is advantageous in a broader sense, it becomes very easy for a person to make misinformed assumptions about a project. Public opinion is often motivated to think that science is secretive which may therefore indicate

sinister animal experimentation with no relevant benefits to society (Pound & Blaug 2016; MacArthur Clark et al. 2019; Festing & Wilkinson 2007). Public opinion polls have also found that a majority of people assume that some animal experimentation likely occurs without prior approval or regulation (MacArthur Clark et al. 2019).

We cannot expect that science and research will be blindly supported (Buckmaster 2015). Openness will fail science if openness is implemented from a place of fear. Promoters of openness state that open communication will promote public understanding (MacArthur Clark et al. 2019), however, as earlier stated, communication is not about proving a point, it is about expressing a point. It is not realistic to expect that after years of avoiding the conversation, researchers will suddenly be understood within an environment that has been moulded by popular media, which has not merely reported but constructed news and by animal welfare groups opposed to animal contributions to research (Kruse 2001). However, perhaps attempting to implement a more open framework surrounding the way science and research operates is the best option we have currently to finally contribute to the conversation (MacArthur Clark et al. 2019).

Concluding remarks

Given the benefits and perceived costs of research, how we provide a system that promotes openness will vary depending on people's viewpoints and concerns. In critically analysing the debate surrounding openness in animal research, it is important to consider whether openness will create a shift in the way we as scientists conduct research and the way the consumer engages with purchasing products or receiving medical treatments. It is important to acknowledge that while openness in animal research may further the field through collaboration and conversation, openness would fail researchers if the public have an overwhelming sway over scientific endeavour.

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