

Factors influencing human attitudes to animals and their welfare

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Abstract

This paper reviews the literature on human attitudes to animals, and postulates the existence of two primary motivational determinants of attitudes labelled 'affect' and 'utility'. It also proposes that the relative strengths of these key attitude dimensions are affected by various modifying variables including the specific attributes of the animal, the individual characteristics and experience of the person evaluating the animal, and a range of cultural factors. The role of science as a cultural modifier of human attitudes to animals is also discussed.

Keywords: animal welfare, attitude psychology, attitude surveys, attitudes to animals, ethics, scientific values

Introduction

Human attitudes to animals are a matter of central concern to the field of animal welfare. At the individual level, it is known that negative attitudes to animals are associated with less humane behaviour towards them, and *vice versa* (Hemsworth 2003). At the level of society, changes in people's attitudes and opinions are usually the driving force behind improvements in animal-related legislation and public policy (Kirkwood & Hubrecht 2001). Furthermore, no amount of scientific evidence will ever be sufficient to bring about improvements in animal welfare unless this evidence also speaks to, and resonates with, public attitudes and values. Understanding the origins of such attitudes and values is therefore of fundamental importance.

This paper reviews some of the literature on attitudes to animals, and tries to address three main questions. First, is it possible to identify key or primary components of people's attitudes to animals? Second, what factors or variables are known to cause changes in these key animal attitudes? Finally, what role can science play in facilitating positive changes in attitudes, and in mitigating negative ones?

Primary attitudes

A number of studies have sought to characterise the different dimensions of animal-related attitudes, of which the survey research of Stephen Kellert and his associates at Yale University is certainly the best known and most widely cited.

During the 1970s, Kellert and colleagues developed and conducted a national survey of American attitudes to, knowledge of, and behaviour towards, animals for the US Fish and Wildlife Service. The authors pre-tested a large number of questionnaire items on various sample groups,

and then used a combination of "cluster and item-to-item correlational analyses" (Kellert & Berry 1980, p 129) to extract nine distinct attitude subscales whose original labels and definitions are provided in Table 1. These scales were then used as the basis for a telephone survey of a random sample of 3107 Americans that employed a questionnaire consisting of 65 attitude questions or items (mainly Likert scale responses of the strongly agree/agree/disagree/strongly disagree type) and 33 animal knowledge items (true/false responses to various animal knowledge statements). Kellert and Berry (1980) acknowledge that their *aesthetic* attitude dimension "did not yield a valid or reliable scale" (p 129), and that the prevalence of some attitude types — especially *scientistic* and *dominionistic* — in the general population was very small. They also note that many scales were statistically correlated with each other. In particular, the *naturalistic*, *ecologicistic*, *moralistic* and *scientistic* scales were all positively correlated, as were the *humanistic* and *moralistic* scales, and the *utilitarian*, *dominionistic* and *negativistic/neutralistic* scales (coefficients of +0.3 or greater). The *negativistic/neutralistic* scale was also, in turn, negatively correlated with the *naturalistic* scale (coefficient of -0.418). The presence of these 'higher order' associations suggested to Kellert (1980, p 89) the existence of a simpler, underlying attitude structure: "[I]n many respects these attitudes can be subsumed under two broad and conflicting dimensional perceptions of animals. The *moralistic* and *utilitarian* attitudes clash around the theme of human exploitation of animals ... the *negativistic* and *humanistic* attitudes tend to clash, although in a more latent fashion, around the theme of affection for animals." In other words, if one were seeking an underlying basis for American attitudes to animals, Kellert and Berry's (1980) findings would point to the existence of two primary motivational considerations: affection for animals on the one

Table 1 Kellert and Berry's (1980) original attitude scales, together with estimates of their prevalence in the United States population.

Attitude	Description	% of US population strongly oriented
<i>Naturalistic</i>	Primary interest and affection for wildlife and the outdoors.	10%
<i>Ecologicistic</i>	Primary concern for the environment as a system, for inter-relationships between wildlife species and natural habitats.	7%
<i>Humanistic</i>	Principal interest and strong affection for individual animals, principally pets and large mammals.	35%
<i>Moralistic</i>	Primary concern for the right and wrong treatment of animals, with strong opposition to exploitation or cruelty towards animals.	20%
<i>Scientistic</i>	Primary interest in physical attributes and biological functioning of animals.	1%
<i>Aesthetic</i>	Primary interest in the artistic and symbolic characteristics of animals.	15%
<i>Utilitarian</i>	Primary concern for the practical and material value of animals or the animal's habitat.	20%
<i>Dominionistic</i>	Primary interest in the mastery and control of animals typically in sporting situations.	3%
<i>Negativistic/Neutralistic</i>	Active or passive avoidance of animals due to indifference, dislike or fear.	37%

hand, and economic and pragmatic considerations on the other.

A range of other authors has also sought less complex ways of representing or modelling people's basic attitudes to animals. As early as 1928, Dix Harwood characterised English attitudes to animals as being essentially bipolar, varying between anthropomorphism at one end of the scale, and anthropocentrism at the other (Harwood 1928). This idea was later taken up and developed by the historian Keith Thomas (1983), who argued that each of these two attitude extremes have their origins, respectively, in either emotional or pragmatic responses to animals, or in the interactions between these responses. Similarly, the present author (Serpell 1986) proposed a motivational framework for understanding animal-related attitudes based on two distinct dimensions characterised by *affection and sympathy* and *economic self-interest*. The former was depicted as the outcome of our empathic "inability to differentiate clearly between animals and ourselves", while the latter was viewed as a product of practical necessity or convenience. Although independent in origin, these motivations were seen as interacting and conflicting with each other in various ways, thereby giving rise to ethical concerns about animal exploitation. In his study of attitudes to laboratory animals, Arluke (1988) also emphasised the fundamental tension that exists between laboratory workers' simultaneous *identification* with laboratory animals (the result of caring for them) and their pragmatic *objectification* of them (so as to maintain a clear conscience about subjecting them to experimental procedures). Rowan (1989) expresses a similar idea when he refers to "the pet/object dichotomy" in people's relationships with animals. Most recently, empirical investigations by Hills (1993, 1995) have lent further support to the notion of a basic two-dimensional model of animal attitude motivations that she designates as

empathy/identification versus *instrumental self-interest*. However, she also detected a third dimension — *values/beliefs* about the nature and *status of animals* — that tends to be strongly influenced by prevailing cultural, religious and ideological norms.

In light of these observations, the present paper proposes a relatively simple model of human attitudes to non-humans that is best described by two primary motivational considerations: *Affect* — representing people's affective and/or emotional responses to animals, and *Utility* — representing people's perceptions of animals' instrumental value. As illustrated in Figure 1, each of these dimensions can be represented as a continuum between positive and negative poles, and any animal or taxon can be imagined as lying somewhere within this two-dimensional space depending on the relative strengths of the *affect* and *utility* considerations it evokes. Although they arise independently, these two dimensions are not independent in terms of their effects on attitudes, primarily because positive affect (or sympathy or identification) carries with it certain moral obligations, while strong utility considerations — either positive or negative — may tend to override such concerns. The net effect of these interactions is complex. For instance, while negative affect is entirely compatible (psychologically) with negative utility, and at least partially compatible with positive utility (in the sense that one does not need to like an animal in order to appreciate its utility), positive affect is potentially incompatible with both. Animals with either strongly negative or positive utility value often seem to be precluded from becoming the objects of people's positive affections, presumably because such animals are usually harmed as a result of their utility. This inherent clash between the affect and utility dimensions helps to account for many of the tensions and paradoxes that arise in our relationships with animals (Serpell 1986).

Attitude modifiers

Although affect and utility considerations may provide a general baseline description of human attitudes to animals, they can account for only a certain proportion of the enormous variance in people's attitudes. Clearly, an animal's precise location in the two-dimensional space described by these two variables will also depend on a range of other factors — some intrinsic to the animal itself, others extrinsic — that will have the effect of mediating or modifying these background orientations. For the purposes of this review, these additional factors will be referred to as 'attitude modifiers'. The term 'attitude modifier' is defined here as any factor or influence that produces changes in either (a) people's affective/emotional responses to animals, and/or (b) their perceptions of an animal's utility to humans. The following summary of various attitude modifiers is intended to be representative rather than all encompassing. For simplicity, it is divided into three main categories: animal attributes, individual human attributes, and cultural factors.

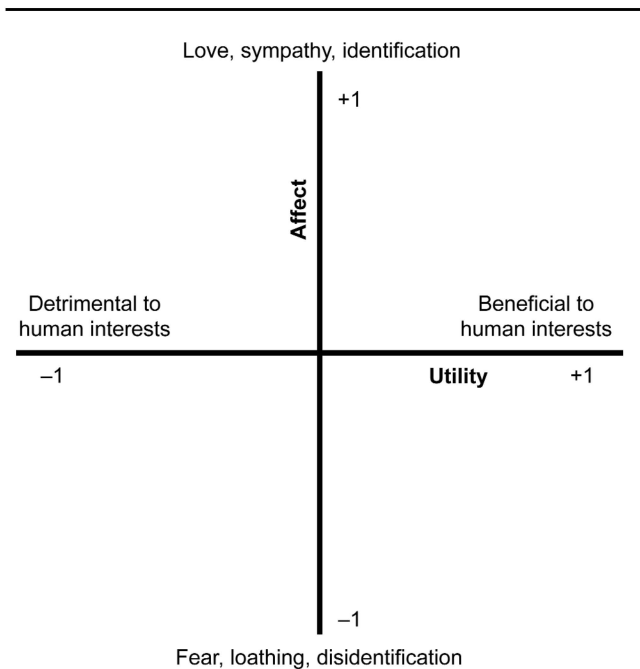
Animal attributes as attitude modifiers

Animals obviously come in a great variety of shapes and sizes, and an equally large array of different behavioural dispositions, and uses. People are far from indifferent to these attributes of particular animals and are prone to judging or evaluating them on the basis of such traits. Also, because such attributes are at least to some extent intrinsic to the animal, they often seem to form the initial basis for people's attitude discriminations.

Characteristics of animals that are known or believed to influence people's affective responses towards them can be summarised briefly as follows. Animals that are close phylogenetically to humans, or that are physically, behaviourally or cognitively similar to them, tend to evoke more positive affect than those that are phylogenetically distant or dissimilar (Kellert & Berry 1980; Burghardt & Herzog 1989; Driscoll 1992; Eddy *et al* 1993; Plous 1993; Gunthorsdottir 2001; Kirkwood & Hubrecht 2001; Nakajima *et al* 2002). Those perceived as 'cute' or otherwise aesthetically appealing or admirable also tend to be preferred (Gould 1979; Kellert & Berry 1980; Kellert 1983; Serpell 1986, 2002; Herzog & Burghardt 1988; Burghardt & Herzog 1989; Lawrence 1989; Glickman 1995; Gunthorsdottir 2001; Myers 2002), as are those that are seen as especially vulnerable in some way — rare, fragile, sensitive, and so on (Gunthorsdottir 2001). Human responses to these traits are generally immediate and spontaneous, and are often assumed in the literature to be the result of some kind of biological predisposition.

Although animals that are perceived to be useful or beneficial to humans are sometimes regarded more positively than those perceived as useless or detrimental (cf honey bees and cockroaches), there are many exceptions to this general rule (Kellert 1980; Serpell 1986; Herzog & Burghardt 1988). Despite being the mainstay of biomedical research, for instance, laboratory mice and rats evoke relatively little if

Figure 1



Diagrammatic representation of the postulated relationship between the primary *Affect* and *Utility* attitude dimensions.

any positive affect, and, in the USA, are exempt from protection under federal animal welfare laws that apply to all other mammals (Rowan & Loew 2001). At the opposite end of the spectrum, over-abundant white-tailed deer (*Odocoileus virginianus*) in the eastern United States are economically damaging and pose significant health and traffic hazards, yet public affection for these animals sometimes protects them from lethal control measures. The possible reasons for these seemingly paradoxical responses have been discussed earlier.

Individual human attributes as attitude modifiers

Even when considering people's views of a single animal species, it is clear that there are large individual differences in human attitudes that are independent or semi-independent of the animal's intrinsic attributes (Kellert & Berry 1980; Serpell 1995, 2000). A growing body of literature has begun to document the sources of these individual differences in people's attitudes to animals. Briefly, the most important trends detected thus far are that women tend to show stronger affective and weaker utility orientations than men (Kellert & Berry 1980; Bowd & Bowd 1989; Burghardt & Herzog 1989; Herzog *et al* 1991; Driscoll 1992; Hills 1993; Pifer *et al* 1994; Wells & Hepper 1995; Bjerke *et al* 1998; Galvin & Herzog 1998; Kruse 1999; Paul 2000; Nakajima *et al* 2002), and that young adults contrast similarly with seniors — probably a cohort rather than a maturational effect (Kellert & Berry 1980). Higher levels of education are associated with more positive affect and less positive or negative utility orientations (Kellert & Berry 1980), and the same is true of urban versus rural residence

(Kellert & Berry 1980; Bjerke *et al* 1998; Reading *et al* 1999). The nature of people's current interactions with animals also exerts an effect on attitudes, such that positive affect is weakest and utility concerns strongest among those who are engaged in consumptive/coercive rather than non-consumptive/affectionate interactions with animals (Kellert & Berry 1980; Kafer *et al* 1992; Hills 1993; Reading *et al* 1999). Similarly, early (childhood) exposure to affectionate/affiliative relationships with animals (eg pet keeping) appears to predispose people to develop more positive affect and weaker utility orientations, while the obverse seems to apply to those exposed to consumptive/coercive or abusive childhood interactions with animals (Ascione 1993; Paul & Serpell 1993; Serpell & Paul 1994; Paul 2000; Bjerke *et al* 2001; Miura *et al* 2002). These effects may be due to the suppression of affective/empathic responses to animals among animal-users or abusers, and/or the waning of utility orientations among those not directly involved in the economic or recreational exploitation of animals (Serpell 1986; Ascione 1993; Hills 1995). In practice, however, it may be hard to isolate the direct developmental effects of animal exposure from the influence of parental attitudes and modelling (Ascione 1993; Paul & Serpell 1993; Schenk *et al* 1994). Religiosity (both religious fundamentalism/conservatism and frequency of attendance at religious services) has been shown to be linked with stronger emphasis on animal utility and less positive affective responses, although most such studies have focused exclusively on western (Judaean-Christian) religions (Kellert & Berry 1980; Bowd & Bowd 1989; Driscoll 1992). Two studies have found evidence of more positive affective responses to animals and less emphasis on utility among "intuitive/feeling" and "sensitive/imaginative" personality types compared with their opposites (Broida *et al* 1993; Matthews & Herzog 1997). These associations may, however, be confounded by the fact that these personality types tend to be more prevalent among women (Matthews & Herzog 1997). Indeed, the extent to which any of these human attitude modifiers is truly independent of the others is largely unknown, and present evidence suggests that none of them, either individually or combined, accounts for more than a relatively small proportion of the variance in individual attitudes to animals (Herzog *et al* 1991; Driscoll 1992). As Herzog and Burghardt (1988) have emphasised, individual attitudes to animals tend to be highly idiosyncratic. Nonetheless, it is striking how the affect and utility attitude orientations seem to co-vary in predictable ways when examined at the individual level, presumably because of the cognitive difficulty people have reconciling the inherently incompatible aspects of these two perspectives.

A somewhat complex relationship seems to exist between knowledge of animals and people's attitudes and behaviour towards them. Kellert and Berry's (1980) findings suggest that less knowledgeable individuals/groups tend to be young or elderly, female and urban, and to show predominantly negative or indifferent affective responses to animals

and relatively utilitarian orientations towards them. Involvement in any kind of animal-related activity (including consumptive ones) is associated with higher knowledge scores, especially if these activities are recreational (eg bird-watching, hunting, fishing, etc) rather than occupational (eg farming). It is unclear, however, from these associations whether increased animal knowledge is a cause of attitude change, or whether both knowledge and attitudes are products of the influence of some other factor such as overall interest in, or attention to, animals. The so-called 'Biophilia Hypothesis', first outlined by Wilson (1984), may perhaps be invoked in this context. The biophilia hypothesis postulates the existence of a biological predisposition to attend to, and be attracted by, the activities of animals and other living things that modern humans have supposedly inherited from their hunter-gatherer ancestors (Kellert 1993a). Although empirical support for the existence of this biophilic predisposition is still very limited (Kahn 1997), it is nonetheless an intriguing idea that may help to explain at least some of the observed individual differences in people's attitudes to, and behaviour towards, animals.

Cultural factors as attitude modifiers

Substantial intercultural differences in attitudes to animals have been amply documented in the literature (Douglas 1966; Kellert 1993b; Serpell 1995; Noske 1997; Morris 1998). Animals, both specifically and as a group, are encumbered by quantities of cultural and symbolic baggage that greatly influence how people regard them and treat them. For convenience, these cultural factors can be divided into four main, overlapping categories: history, cultural/religious beliefs and values, culturally defining practices, and cultural representations.

Historical analyses of people's attitudes to animals suggest that, although attitudes change over time, they may also persist in some form long after they have ceased to be culturally or practically relevant. Modern attitudes sometimes reflect these historical legacies. For example, although the wolf (*Canis lupus*) has long since ceased to be a significant threat to human life and livelihood (ie negative utility), in most of the northern hemisphere, wolves — or at least the idea of wolves — still inspire dread (negative affect) for many people (Serpell 1986). Religious and cultural beliefs and values may promote particular attitudes towards animals — both generally and specifically — for reasons that are frequently obscured by the passage of time (Noske 1997). The Judaean-Christian idea that animals were divinely created to serve human interests represents an example of a general utility orientation imposed by religion (Serpell 1986). The special sanctity of cows among Hindus in India, and the unclean 'taboo' status of pigs among Islamic and Judaean cultures (Douglas 1966; Harris 1978), provide examples of specific religious effects on affective responses to animals. Animals also acquire peculiar significance through their association with culturally defining practices or rituals. The unusually positive status of bulls in Spain, for instance, derives from their central role in the

definitively Spanish bullfight or *corrida*, and all of the various social and cultural meanings that this highly ritualised activity embodies (Marvin 1988).

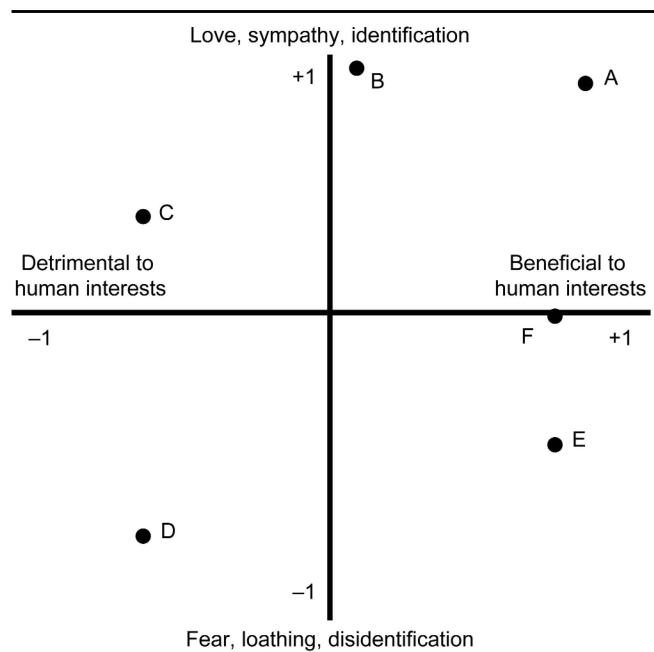
Finally, as postmodernists, deconstructionists and their allies are keen to emphasise, the different ways in which animals are represented (or misrepresented) in art, language, literature, science, the media, and so on, are, at least to some extent, cultural constructs (Baker 1993). The symbolic and metaphorical potency of animals as exemplars of human attributes and behaviour has long been recognised by social scientists (Leach 1964; Douglas 1966; Levi-Strauss 1966), and there can be little doubt that they continue to exert powerful effects on the ways in which people think about animals and their exploitation. Even the language used to describe animals tends to reinforce culturally constructed roles (Dunayer 1997). Classifying cows, pigs and poultry as 'food animals' or 'production animals', for instance, inevitably constrains people to thinking about them from an instrumental perspective. In this regard, the print and broadcast media seem to exercise inordinate influence on public perceptions of animals, as can be seen in the strikingly rapid demonisation of certain breeds of dog in the UK and elsewhere due to sensational media coverage of relatively small numbers of dog attacks (Podberscek 1994).

Using dogs as examples, Figure 2 illustrates some of the ways in which these different attitude modifiers can affect basic attitude orientations.

Science as a cultural modifier of attitudes

Beginning with the earliest explorations of comparative anatomy and psychology, and throughout the early modern period, science has played a major and, for the most part, positive role in influencing western attitudes to animals (Serpell 1993; Maehle 1994). This process has continued and accelerated during the last two centuries primarily via successive scientific challenges to the supposed uniqueness of humans. Recent studies of animal behaviour, cognition and consciousness, for example, have tended to increase the overall level of perceived similarity between humans and at least some non-human animals (DeGrazia 1996), thereby promoting more positive affective attitudes to the latter. Similarly, animal welfare research has generally pointed to animals being more sensitive and vulnerable to stress and suffering than they were previously thought to be (Dawkins 1980; Broom & Johnson 1993; Webster 1994), while ecological studies have provided convincing evidence of their vulnerability to habitat destruction, over-exploitation, and other environmental insults (Loh 2000). The perceived utility of animals has also been altered by the use of scientific findings. For example, the perceived negative agricultural utility of prairie dogs (*Cynomys* species) in the American west has been successfully counteracted to some extent by scientific evidence of this animal's positive ecological utility as a 'keystone species' upon which the lives of many other wildlife species are known to depend (Reading *et al* 1999).

Figure 2



Diagrammatic illustration of the ways in which various attitude modifiers may influence the location of dogs within the two-dimensional space described by the affect and utility dimensions: A = Guide dog as perceived by a blind person; B = Pet dog in North America; C = Stray (free-roaming) dog in North America; D = Stray dog in Saudi Arabia; E = Inuit sled dog; F = Korean 'farmed' dog (for meat). (For detailed references see Serpell 1985, 1995.)

Scientific research has, in addition, fed the public's appetite for detailed, popularised accounts of animal life histories. Although it is obviously hard to gauge the impact of these literary or televised portrayals of animals' lives on individual attitudes, it seems reasonable to suggest that the resulting increases in knowledge and familiarity would promote more positive affective perceptions, if only by helping to overcome indifference or dislike. Science also serves an important role in counteracting negative cultural representations of animals. Such representations, generally perpetuated by a mixture of ignorance and vested interest, contribute directly to public indifference to animal welfare, and scientists are uniquely situated to challenge them. Through the medium of systematic observation and objective study, science ideally brings us closer to seeing animals as they are, rather than as we imagine them to be.

Despite the value of science as an instrument of positive attitude change, it needs to be recognised that it is also a double-edged sword. Scientific evidence can be used to demote non-human animals as well as promote them in terms of their utility, vulnerability, sensitivity or similarity to humans. Public acceptance of scientific findings (even positive ones) may also be hampered by scientist's understandable emphasis on detached 'objectivity'. To those whose animal attitude orientations are primarily affective/emotional and therefore subjective, this unavoidably dispassionate approach to animals may, on occasion, provoke distrust and suspicion.

Conclusion

Although it seems to fit with existing evidence, the basic, two-dimensional, affect and utility model of human attitudes proposed in this paper is largely hypothetical and needs to be thoroughly tested, both to confirm its general validity, and to determine whether its two constituent dimensions can be reliably measured. Hopefully, future studies of variation in attitudes to different animals both within and between human cultures and subgroups will help to clarify its heuristic and practical value. It should also be emphasised that the model, as stated, refers specifically to people's attitudes to animals rather than their attitudes to the particular ways in which animals are used, exploited and disposed of. While the two are obviously related, to properly understand the latter we need to add a further dimension to the model that addresses people's perceptions of harms and risks (to animals, humans, the environment, and so on), and the various ethical concerns raised by these harms and risks. Clearly, science has a major role to play in risk evaluation in this context, and in setting the terms of the ethical debate.

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