

Anthropomorphism and anthropocentrism as influences in the quality of life of companion animals

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Abstract

Since animal minds are private, so their perception of their own quality of life (QoL) must be also. Anthropocentrism, the interpretation of reality exclusively in terms of human values and experience, has to be guarded against in any assessment of animal welfare; for domestic pets, misapprehensions about their olfactory and cognitive abilities appear to present the greatest challenge to their welfare. Anthropomorphism, the attribution of human qualities to animals, presents a particular problem when considering companion animals, since most bonds between owners and their pets appear to be based upon a perception of the pet as almost human. Many owners report that their dogs, cats and horses are capable of feeling complex emotions, such as pride and guilt, that require a level of self-awareness that has been difficult to demonstrate even in chimpanzees. Such beliefs appear to contribute to the development of behavioural disorders in pets; for example, clinical experience suggests that the application of punishment by owners who attribute 'guilt' to their animals may unwittingly lead to compromised welfare. Anthropomorphic owners are also likely to be poor proxies for reporting their pets' QoL.

Keywords: animal welfare, anthropocentrism, anthropomorphism, cat, dog, emotion

Introduction

From a purely evolutionary standpoint, animal domestication is easy to explain, since it gave human populations that practiced it a survival advantage (Diamond 1997), but pet-keeping is anomalous, since pets consume resources but provide little of biological significance in return; although pet-keeping may now provide some health benefits, these are unlikely to have produced a significant advantage during human evolution (Archer 2001). Currently, the most prevalent theory that accounts for this apparent imbalance (summarised in Serpell 2005) is that pets provide social support to their owners, essentially indistinguishable from that provided by positive relationships with other humans (Bonas *et al* 2000). The implication is, therefore, that pet owners interpret their pets' behavioural signs of affection and dependence as if they were coming from other humans, and surveys have indicated that this is almost universal: over 90% of dog and cat owners report that they can sense their pets' moods and emotions (Hills 1995 and references therein). "In other words, anthropomorphism — the ability, in this case, to attribute human social motivations to nonhumans — is what ultimately enables people to benefit socially, emotionally and physically from their relationships with companion animals" (Serpell 2005). Anthropomorphism therefore seems to lie at the heart of pet-owner relationships, and so must be taken seriously as a factor when considering the quality of life (QoL) of the pet. The ways in which owners treat their animals are profoundly influenced by their beliefs about how those

animals evaluate the world around them; if any of those beliefs are inaccurate, the possibility arises that the animal may be treated in a way that the owner thinks is compatible with its welfare, but is actually detrimental. This may arise from anthropomorphism, particularly the misattribution of human cognitive abilities or emotions to animals, or from anthropocentrism, a failure to realise that their animal perceives the world through a different set of senses to their own. We do not imply by this that owners only over-estimate the complexity of their animals' perceptive abilities, emotions and cognition; under-estimation may also lead to decrements in welfare.

Anthropomorphism and anthropocentrism can also derail attempts to evaluate an animal's QoL or welfare status. If owners are used as proxies for such evaluations, the anthropomorphism intrinsic in their relationship with their pet may make it difficult for them to disentangle their pet's real needs from their own emotional projections. Even 'experts', whether veterinary surgeons or animal welfare scientists, have to make subjective interpretations of their superficially objective data, because even they can only imagine what it is like to be the animal concerned. Anthropomorphism may unconsciously colour their interpretations; anthropocentrism may cause them to place the wrong emphasis on the animal's functioning or its situation. We suggest that there are two possible approaches to determining whether the subjective states of animals are similar or otherwise to human ones. One is an adaptive approach, in which each species' 'environment of evolutionary adaptation' (Barnard

& Hurst 1996) provides a rationale for predicting emotional capacities. The other is through comparative neuroanatomy and physiology: examining advances in this field can provide a rational basis for determining the ways animals are likely not only to perceive stimuli, but also 'feel' emotions, and interpret these 'feelings' cognitively.

In this paper we first define anthropomorphism and anthropocentrism in the context of companion animal welfare, and then explore two examples of how these affect interpretation of companion animal behaviour, and hence impact on their welfare: interpretation of reality in terms of human sensory abilities; and interpretation of emotions or 'feelings' based on behavioural responses. By 'companion animal' we primarily mean the dog *Canis familiaris*, the cat *Felis catus* and the horse *Equus caballus*, although our conclusions are likely to apply to other vertebrate animals kept as pets.

Anthropocentrism

Anthropocentrism, which we will define as "interpreting reality exclusively in terms of human values and experience", is a potential trap for any subjective assessment or interpretation of QoL. A dog's 'experiences' depend upon its ability to perceive sensory stimuli, compare these with previously experienced events, and attach an 'emotional' value and valence which will drive an appropriate behavioural response. These abilities are undoubtedly sophisticated, or we would not, for example, be able to train them as guides for disabled people. The evolutionary history of the dog as a social predator would suggest that they are well equipped to give and interpret complex social signals, including those produced by humans (Hare & Tomasello 2005), and to evaluate social relationships (Rooney & Bradshaw 2006), but this evidence does not necessarily indicate that all of their cognitive abilities are qualitatively the same as those of humans.

Anthropomorphism

Scientists describing the behaviour of animals have argued for over a century about the role of anthropomorphism, which we use here in the sense of unjustified attribution of human qualities to animals (see Wynne 2004 for an overview). Some, such as behavioural ecologists, are still reluctant to use it (eg Brown *et al* 2005), while others, especially primatologists, embrace it; de Waal (2005) has even coined the term 'anthropodenial' to describe those who ignore the human-like characteristics of animals. Within animal welfare science, there have been proposals that it would be more efficient to base welfare assessments on qualitative descriptors, rather than objective observations of behaviour patterns or physiological parameters (Wemelsfelder 2001). While these descriptors need not necessarily be anthropomorphic, observers are encouraged to use their own vocabulary (Wemelsfelder 2001) and usually choose words that describe human emotions or characteristics. For example, terms used widely in the literature to describe aspects of the welfare of sheep include pain, agitation, fear and timidity (Wemelsfelder & Farish

2004). However, each of these four terms describes a different level of behavioural organisation: pain could refer to a physiological process, or possibly its subjective counterpart, the sensation of pain; agitation is a behavioural state of arousal that may be associated with the emotion of anxiety, but could also relate to simple arousal; fear is a primary emotional state (see below); and timidity is generally used to describe a dimension of behavioural style or 'personality' (Gosling & John 1999) which may include a propensity to be fearful. Therefore, such descriptors may overlap, refer to different timescales, and, because they are all words used routinely to describe human sensations or behaviour, are prone to anthropomorphic interpretation. They may therefore be practically useful, but offer little explanatory insight.

Such problems may be even harder to surmount when considering companion animals. It has been proposed that anthropomorphic thinking is an essential component of human nature, in that it enabled our ancestors first to hunt more effectively, and then to bring animals into domestication, both for food and as pets (Mithen 1996 pp 224–226). Anthropomorphic thinking may cloud our every judgement about companion animals: as Serpell (2005) has pointed out, if the English Bulldog, a breed which has difficulty in both breathing and moving because of the congenital defect chondrodystrophy, were produced by an agripharmaceutical corporation, rather than by animal-loving breeders selecting for the anthropomorphic characteristic of a flat face, there would be a public outcry.

Sensory abilities

Our reliance on colour vision and hearing as the main senses whereby we gain information about the world gives us a different version of our surroundings to that perceived by most other animals. Ethologists have long been aware of this, emphasising that each species has its own distinctive sensory world or 'umwelt' (Von Uexküll 1926). New sensory abilities are still being discovered even in familiar animals, such as the use of ultraviolet vision by passerine birds (Cuthill *et al* 2000). However, these differences between species seem to have been under-emphasised in animal welfare science.

The sensory worlds of companion animal species such as the domestic dog and cat overlap substantially with our own (Bradshaw 1992), this being fundamental to communication and presumably domestication. However, there are important differences between our sensory abilities and theirs, some of which, if ignored, may introduce significant distortions to our perception of their welfare needs, and can be a significant factor in owner–pet miscommunication and the development of 'behaviour problems'. Their sensitive hearing, and their ability to hear higher frequencies than we can (Bradshaw 1992), may have an impact if housing is designed with human levels of sound sensitivity in mind; it has been suggested that the levels of noise in some kennels, especially if they are constructed largely of metal, may cause hearing damage in dogs (Hubrecht *et al* 1997), as may high levels of barking caused, in part, by high densities of housing

and sound-reflective surfaces (Sales *et al* 1997). The hearing of cats is equally sensitive, and so noisy environments may equally cause welfare problems for them, although little attention has been drawn to this in the literature.

However, it is in the acuity of their sense of smell that dogs and cats differ most from humans (Thorne 1995). Dogs can detect odorous molecules at concentrations between a thousand and more than a million times lower than the corresponding human thresholds, and can resolve differences between odours that would seem identical to us. They can use minute spatial differences in deposited odours to resolve the direction in which odour tracks have been laid (Hepper & Wells 2005), and can distinguish between other individuals on the basis of multiple olfactory cues (Brisbin *et al* 1991; Millot *et al* 1987). Such abilities are so counter-intuitive to most humans that a discussion of the function and mechanisms of scent communication systems is worthwhile.

Scent communication has several advantages over other modalities; of most significance is its usefulness for communication where two animals, the producer and the recipient of the signal, are likely to coincide in space but not in time. Hence many solitary mammals, including the small wildcats from which the domestic cat is descended, mark their territories with scent signals; packs of wolves, the ancestral species of the domestic dog, do the same. Moreover, scent communication, since it does not necessarily involve the two animals coming into close proximity, is a comparatively risk-free way for well-armoured carnivores to avoid one another. Although the olfactory abilities of dogs and cats probably evolved for prey detection, it is logical that they would then become extensively used for communication. However, in social carnivores, odour communication is not restricted to the use of long-lasting scent marks (Gorman & Trowbridge 1989). It is also frequent within social groups, including wolf packs (Asa *et al* 1985), and domestic dogs sniff one another during the course of the majority of encounters (Bradshaw & Lea 1992). Its function in this context is not entirely clear, but, at least in dogs that do not live in the same household, one goal of encounters appears to be to gain olfactory information about the other dog while preventing that dog from doing the same (Bradshaw & Lea 1992). It may therefore include elements of 'eavesdropping' (McGregor & Peake 2000), in which each dog is trying to gain information about the other's recent activities that might be betrayed by olfactory cues, such as food consumed, environments visited, and possibly even other conspecifics that it has recently encountered. The social significance of scent-marking by cats is less well studied, but they do mark frequently, using several different secretions, and pay great attention to olfactory information from their surroundings.

In common with most mammals, many of the secretions that contain or carry the olfactory information are standard body products such as urine, faeces and saliva (Gorman & Trowbridge 1989). Normal procedures of hygiene, for example as practiced in kennels and catteries, therefore

cause considerable disruption to the olfactory environment. Moreover, the odours emitted are not entirely under the control of the animal, but are often produced or at least altered by micro-organisms living in the scent-producing structures. If such odours code for individual identity, as seems possible in dogs (Bradshaw *et al* 1990) and probably other domestic mammals, then disruption of the micro-organisms by externally or internally applied chemicals or pharmaceuticals could disrupt social identity and communication in the animal affected. Anecdotally, evidence for this is seen where one cat from a social group returns to the household from a trip to the veterinarian: other members of the group appear not to 'recognise' the returnee, possibly because of the unfamiliar scents that it carries.

Applications to animal welfare

Concerns that ignoring the olfactory abilities of dogs and cats may have detrimental effects on their welfare are only just beginning to surface in the literature (Sommerville & Broom 1998). For cats, Rochlitz (2005) discusses olfactory enrichment, and recommends that "surfaces for the deposition of olfactory signals ... should be provided", but does not address the likely value of olfactory continuity: some charities now re-home cats in boxes that they have already occupied in their pen, ensuring that something in their new environment smells familiar. The use of the synthetic 'facial pheromone' "Feliway" has been recommended as an olfactory 'stabiliser' to reduce anxiety (Bowen & Heath 2005). Prescott *et al* (2004), making recommendations for housing for laboratory dogs, point out that "it is frequently overlooked that dogs are very exploratory animals whose world is dominated by smell and not sight", and call for more research into "economical and practical ways of enriching the pen environment, which take into account dogs' needs *and sensory modalities*" (our italics).

Emotions

Arguably, QoL depends upon emotional health. The way that owners and welfare experts alike interpret the behaviour of companion animals in emotional terms is therefore crucial to their QoL; if we wrongly interpret a cat's behaviour so that we think that it is suffering when it is not, or *vice versa*, then we may make the wrong decisions on its behalf. Attribution of human emotions to animals, especially companion animals, is commonplace, and depends upon a simple but not necessarily accurate analogy: I behave in a particular way when I feel guilty; my dog behaves in a similar way in equivalent circumstances; I know intuitively that my behaviour is motivated by guilt; therefore the behaviour I see in my dog is also accompanied by feelings of guilt (see Povinelli 2000 p 13 for the original analogy, as applied to chimpanzee behaviour).

Despite their importance for welfare, the attribution of emotions to companion animals has received little study. Fidler *et al* (1996) found that pet owners were more anthropomorphic than non-owners, but this was not confirmed by Bahlig-Pieren and Turner (1999). A recent study by Morris *et al* (2007) has compared attribution of emotions by

Table 1 Percentages of pet carers reporting primary (fear, anxiety) and secondary (jealousy, guilt, pride) emotions in their pets, in three species. Data from Morris *et al* (2007).

Emotion	Dog	Cat	Horse
Fear	93	96	100
Anxiety	77	72	94
Jealousy	81	66	79
Guilt	74	35	36
Pride	58	62	81

owners of several species of companion animal. The emotions most commonly ascribed to all species were 'primary emotions' that are thought not to require self-awareness, such as fear, affection and curiosity. However, secondary emotions, thought to require self-awareness, were also widely reported (Table 1), more so in dogs, cats and horses than in rabbits or small rodents. Almost three-quarters of dog owners thought that their dogs could feel 'guilt', and over three-quarters of horse owners thought that their animals could feel 'pride'. Both of these are categorised as self-conscious evaluative emotions, which require not only self-awareness but also the ability to construct internalised rules against which one's behaviour can be compared. At present, there is no unequivocal scientific evidence for such abilities in dogs, or even in chimpanzees (Mitchell 2005). Morris *et al* (2007) went on to investigate dog owners' attribution of 'jealousy' in more detail; two-thirds could think of no other explanation for their dog's behaviour. When described, this was usually some form of social interaction that clinical behaviourists would class as 'attention-seeking', thereby avoiding the connotations of envy or resentment, for which we have no evidence in dogs, that are conveyed by 'jealousy'.

Using carefully edited video footage, Bahlig-Pierson and Turner (1999) showed that owners were able to agree on facial expressions of dogs and cats that indicated 'curiosity', 'fear' and 'stress', but were inconsistent in applying some secondary emotions such as 'jealousy' and even some primary emotions such as 'anger' and 'affection'. When a dog showing 'disappointment' was shown with its owner, who had made preparations for taking it for a walk but had not done so, the causes of the dog's behaviour were attributed plausibly, but when the context provided by the owner was omitted from the footage, explanations for the dog's behaviour were much less plausible. Owners may therefore tend to interpret their pet's behaviour based on their own imagined reactions to the situation to which the pet is responding, rather than the behaviour itself; this explanation requires further research, but is entirely consistent with the social support hypothesis (see Introduction). However, further pointers as to the ability of animals to experience emotional states can be obtained through examination of comparative neuroscience.

Advances in neuroscience have led to an appreciation that emotional responses play a central role in the unification of a whole range of central nervous system (CNS) functions, such as the generation of motor outputs, the perception of sensory inputs, the generation of neuroendocrine responses, the control of attention and focus, and the generation of subjective feelings and mood states (Panksepp 2003). Furthermore, it is recognised that the centres involved in the generation of primary emotional responses, such as fear, lie in the relatively phylogenetically older parts of the CNS that are present in a wide range of species (LeDoux 2000). The relationship between emotions and consciousness is complex. Panksepp (2005) describes three 'levels' of emotions, and it is the presence of these different 'levels' that determines the degree to which there is awareness of emotional state: the presence of anatomical structures and pathways involved at each level, therefore, gives us clues as to the likelihood of emotional awareness in different species.

The first of these levels is primary consciousness, which is produced from the phylogenetically oldest pathways, where the individual responds to motivational 'needs' such as hunger by performing behaviours that return it to a physiological homeostatic state, without the individual being aware of a response occurring. The second level is secondary consciousness, where the individual experiences emotional responses about specific external events that might predict good or bad outcomes, and relates external events to internal 'feelings' — animals with this ability have a selective advantage over those with the first 'layer' alone. There is strong evidence from their ability to show flexible behavioural responses to predictive stimuli, and their possession of the appropriate neural pathways, that companion animals have this level of 'conscious' awareness of feelings.

Tertiary consciousness is a third 'layer' of evolutionary adaptation, which is present in humans and has required a massive expansion of the neocortex that enables words or symbols to be associated with external or other internal events. It is this additional capability that leads to substantial differences in how humans and companion animals interpret the same events. An owner might, for example, think that a dog has chewed up a sofa as 'revenge' for something that happened the day before. The dog, receiving the punishment, will only be able to associate the emotion (fear) with predictive events that have happened contiguously with it (which may be something to do with the owner, such as their 'angry' facial expression). Hence, in the examples discussed by Morris *et al* (2007), it may be possible to argue that dogs will feel a negative emotional state in response to non-reward (ie not getting something that they were anticipating), which a human would label 'disappointment' or 'jealousy'. However, the dog would not have the capacity to feel 'jealous' about things that were not occurring in the present, such as the fact that their owner gave another dog a biscuit yesterday.

Implications of the interpretation of animal emotions for welfare

It is important to recognise that the anatomical structures in the CNS of companion animals suggest that their emotional lives are likely to be similar to ours, in the sense that they respond emotionally to external contexts and events, and it is this emotional response that drives the consequent behaviour. Underestimating this ability to 'feel' is likely to compromise their welfare in obvious ways; thus, unless there are indications to the contrary, it may be reasonable to give animals the 'benefit of the doubt' that they can experience simple emotions, both positive and negative (Bekoff 1994). However, the welfare of companion animals is often also compromised through the assumption that their emotional states can become associated with abstract ideas, or stimuli that are not temporally related. There is no evidence that dogs and cats possess the cortical capacity to perform such associative links, and the assumption that they can make these links can often lead to actions that compromise welfare, such as inappropriate punishment: such misconceptions about the abilities of companion animals lie at the heart of many clinical behaviour problems.

The effects of anthropomorphism and anthropocentrism on the assessment of quality of life

Apart from self-assessment, any evaluation of QoL must inevitably involve the evaluator attempting to place himself or herself in the shoes of the subject to be evaluated. When the subject is human, and therefore shares many of the sensory and mental abilities of the evaluator, intuition suggests that the process should be relatively straightforward, resulting in an evaluation that corresponds well with the subject's own self-evaluation. However, research indicates that this is actually only true for observable phenomena, such as level of functioning, or physical symptoms; internal experiences, such as depressive symptoms, or QoL, often show serious discrepancies between self- and proxy-evaluations (Snow *et al* 2005). When we attempt to assess an animal's QoL, the difference in species between assessor and assessed adds an additional level of complication, because the assessor has to make a set of assumptions about the subject's mental life. These assumptions are inevitably coloured by anthropocentrism, since it is impossible for us to be sure what, for example, a dog is perceiving or thinking at any given moment, and open to anthropomorphism, since the temptation will always be to assume that dogs have similar feelings and emotions to our own. Thus Wojciechowska and Hewson (2005) propose that because of the difficulties in assessing feelings in dogs, "objective list theory may be the most useful for QoL assessment in dogs at present". Yet objective list theory is based on the concept that there are things that are objectively good or bad for animals "whether they realize it or not" (Wojciechowska & Hewson 2005), a definition that most veterinary surgeons would probably subscribe to. Without being made explicit, such an approach is intrinsically anthropocentric. The list may be assessed

objectively, but decisions about what to put on the list and what to leave off are inevitably subjective, and therefore open to both anthropocentrism and anthropomorphism. Likewise, the apparently objective behavioural and physiological measures preferred by the animal welfare scientist (see Hewson *et al* 2007, pp 89–95, this issue) still have to be interpreted in terms of some measure of well-being, and so also end up being subjective. For example, Barnard and Hurst (1996) have pointed out that there is no reason to assume a direct correspondence between stress, as measured by plasma corticosteroids, and subjective feelings of well-being, in any animal, and especially not in a domesticated species. Thus whatever approach is taken, species differences in mental functioning can never be entirely avoided.

Implications for animal welfare science and quality of life measurement

In his attempts to understand human nature, man has lavished resources on understanding the cognitive abilities of chimpanzees. Meanwhile, despite the existence of a self-evidently illogical folk psychology about their emotional and cognitive abilities, science has paid little attention to the same phenomena in dogs, and almost none to cats, horses and other common companion animals, so further research in this area is long overdue. For the time being, information from other fields, such as cognitive neuroscience and evolutionary biology, can and should be used by animal welfare scientists and clinicians to make reasoned assumptions about the cognitive and emotional lives of these species, and to act accordingly.

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