The modern zoo: How do people perceive zoo animals?

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Abstract

Despite the recent growth in scientific attention focusing upon human–animal relationships, very little research has been conducted in relation to the human experience of, and relationship with, zoo animals. In order to assess how the general public perceive zoo animals, a street survey questionnaire was used (Study 1, n = 200). In addition, a second study was carried out within Edinburgh Zoo, during which 216 zoo visitors were interviewed to establish their perceptions of zoos and their animals. The results of Study 1 indicate that conservation is generally considered to be the main role of the zoo today, that the general public outside of the zoo environment have a number of negative perceptions of zoo animals, such as them being bored and sad, and that these perceptions are affected by age and sex of respondent. By comparison, actual zoo visitors, in Study 2, appear to have a more positive perception of zoo animals and a greater awareness of the value of environmental enrichment. It appears that zoo visitors are influenced by the visual messages that they receive as they move throughout the zoo environment.

Keywords: Zoos; Animals; People; Perceptions; Enrichment

1. Introduction

It is ironic that although zoos have always been one of society’s most popular institutions, there has been a scarcity of research devoted to studying the human experience of zoo animals. It is important to gain a more comprehensive understanding of the complexity of human–animal relationships in a range of environments where
animals are a fundamental element. This paper describes two studies which provide preliminary information about peoples perceptions of, and attitudes towards, zoo animals.

The metaphorical analogy between the modern zoo and the Ark is one that has been frequently cited (Jordan and Ormrod, 1978; Mallinson, 1984; Durrell, 1986), and has grown increasingly valid in recent years. Perhaps the only real difference between them, is that the Ark served the single purpose of conserving species, whilst it is generally accepted (Cherfas, 1984; Stevenson, 1988; Tudge, 1991), that there are actually four roles of the modern zoo, not just conservation, but also education, research, and for the paying public, entertainment. These roles are inter-related. The world’s zoos are said to have a capacity to conserve around 900 vertebrate species (International Union for the Conservation of Nature and Natural Resource, 1989), but conservation cannot be effective without good quality research, and this requires substantial resources. These resources come largely from the pockets of the paying zoo visitor. Such has been the recent debate over the right to keep animals in captivity (Jamieson, 1985), that education of the general public now plays a fundamental role within modern zoo policies, whilst entertainment is a factor for most visitors even if aspects of it are morally questionable.

However, despite the recognition of the crucial importance of zoo education (Schlegel, 1982), the educational impact that the zoo environment exerts on a typical visitors awareness and understanding of other animal species has been poorly explored. Perhaps the only major research to have been carried out in this area is the study of informal learning at the zoo, by Kellert and Dunlap (1989), who identified that most learning at the zoo is informal, unfocused and encountered in relatively unstructured and undemanding ways.

Thus, appraisal of the informal learning impact is complex. As a consequence, most studies have tended to focus upon the motivation of the typical zoo visitor (Whittall, 1992), with a tendency to conclude that zoo visitors are more socially or entertainment oriented than learning or goal-oriented.

More recently there has been a significant shift towards the development of more naturalistic exhibits, and with it, has come the realisation that this can have an informal educational impact upon the zoo visitor (Maple and Finlay, 1987; Burton and Ford, 1991). In addition to providing the visiting public with an insight into how wild animals live and behave, naturalistic enclosures, which often increase the activity of the animals, are thought to help stimulate the public’s awareness of, interest in, and empathy for, animal species (Birney, 1993). Indeed, results of studies which have investigated the potential of naturalistic enclosures for improving people’s perceptions of, and responses towards, animals, support the supposition that human perception of a species is affected by the environment in which the species is observed (Burton and Ford, 1991; Carlstead et al., 1991; Dellmeier et al., 1992).

In terms of education of the public, it is also important to consider the visual messages that people will receive as they move throughout the zoo environment. If the naturalistic approach is to achieve its aim of stimulating interest and positive attitudes towards zoo practices, and to provide the visiting public with a more accurate understanding of how animals naturally behave and live (Burton and Ford, 1991), it is important to consider how the public perceive enrichment devices such as, crates, cones,
old tyres, or any other man made toys provided for zoo animals. It is of vital importance that the captive animals welfare and needs, including those to show certain behaviours, are adequately provided for, and that their environments are appropriately enriched. If that commands the employment of man made devices and toys, then the public need to understand the reasoning behind it, if misinterpretation and misconceived negative perceptions of zoo animals are to be avoided.

How then does the general public actually perceive zoo enclosures and their inhabitants? How well-kept does the general public consider zoo animals to be and what role do zoos play within modern society? These are the types of questions that this study has addressed, for little is known about how the general public actually perceive zoo animals, and probably even less is known about peoples understanding of the needs of animals and the difficulties of providing for them in captivity.

2. Materials and methods

2.1. Study 1

In order to obtain random data and to sample the views of those who were not in a zoo, a street survey using a 21 point questionnaire was carried out in and around Edinburgh. Interviews were conducted in the street using the every tenth person method (Oppenheim, 1986). Two hundred interviewees were asked to give their responses to 21 questions which addressed issues such as public perception of captive animals and the role of zoos in society. All responses were recorded by the interviewer and interviews lasted between 6 and 12 min.

2.2. Study 2

In order to identify zoo visitor perceptions and expectations, a second survey was carried out within Edinburgh Zoo. Two hundred and sixteen visitors were approached using the every tenth person method, and were asked to answer a 27 item questionnaire. In this questionnaire, there were more questions that related to the visitors experience of the zoo. Interviews lasted between 10 and 20 min, and all responses were recorded by the interviewer.

In both studies, interviews were carried out throughout the week and interviewees were approached in a standardised manner by the same interviewer. In Study 1, interviews were carried out at the rate of approximately 20 per day, and in Study 2, 16 per day. Both questionnaires were developed and carefully piloted during June 1993, and re-piloted following changes. Questionnaires were designed to identify the general public's perceptions of captive animals. Each was divided into a number of sections, requesting information on the following.

1. Socio-economic and demographic characteristics of the respondent.
2. The perceived roles of today's zoos. This considered respondent's views on the conservation, research, entertainment and education roles of zoos.
3. Respondent’s perceptions of captive animals. Interviewees were asked to rate how bored or occupied, how happy or sad, how well or poorly kept, how attractive or unattractive, and, how dull or exciting they perceived zoo animals to be. Their responses were rated on a 1–5 scale.

4. Respondent’s views on the importance of the enclosure design for zoo animals.

5. Zoo visitors motivation to visit the zoo.

6. Respondent’s desire for greater interaction with the animals.

7. Respondent’s preferred type of interpretative material.

Questions requiring respondents to give a rating on a scale of 1–5 (where 1 is very important and 5 is not important), were incorporated to try to gain more of a feel of the strength of a respondent’s point of view. This style of question was used to assess how respondents perceive zoo animals, for example, how well or poorly kept they considered zoo animals to be. Additionally, the questionnaires included some open-ended questions, based on qualitative issues, allowing the respondent to answer spontaneously and to express the greatest possible range of opinions regarding some issues. For example, respondents were asked which, if any, species they felt should not be kept in zoos, and why they felt some species should not be kept in zoos. For more details of the methodology, refer to Reade (1993).

2.3. Statistical analysis

The percentages for each answer were calculated, and cross tabulations were performed on selected variables. Chi-square analysis (Siegel and Castellan, 1988), was used to test any associated factors. For questions that requested rated answers, the Kruskall–Wallis test (Siegel and Castellan, 1988), was employed. Comparisons were made between Study 1 and Study 2 responses on selected attitude attributes through descriptive statistics.

3. Results

3.1. Perceived roles of today’s zoos

Study 1 respondents only were asked to rate on a 1–5 scale their perceived importance of the four roles of the modern zoo. Table 1 shows that most respondents

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td>Perceived importance of the four roles of today’s zoos. The results are expressed as the percentage of respondents allocating a rating of 1 (very important) to 5 (not important) to each of the four roles</td>
</tr>
<tr>
<td>Role</td>
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<tr>
<td>Entertainment</td>
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<td>Research</td>
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<tr>
<td>Conservation</td>
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<tr>
<td>Education</td>
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(74.1%), were inclined to perceive the conservation role as very important (rating 1). The education role and the research role were also considered to be very important by 41.7% and 49.1%, of respondents, respectively. Surprisingly, of the four roles, entertainment had the highest percentage of not important ratings (13.9%). However, the entertainment role was considered to be more important by those that visit zoos more often \((P < 0.01)\), as indeed was the education role \((P < 0.05)\). The education role differed significantly with age \((P < 0.05)\), and was considered to be more important in the very young (10–19 years) age group, and in all those above 40 years of age. The importance of the research role also differed significantly with age, being much more important within the 10–49 year olds, and being perceived as less important in those over 50 \((P < 0.05)\).

Study 2 respondents were asked to select their main motivation for their visit to the zoo that day. As revealed in Figure 1, somewhere to go with friends and relatives was selected as the main reason for visiting the zoo by 36% of respondents. Twenty-seven percent of respondents visited the zoo for the fun of it, and 12% stated that the main motivation for their visit was entertainment. It was notable that only 4% of respondents visited the zoo to learn more about animals and only 5% stated that their main reason for visiting was to see rare and exotic species.

3.2. Perception of captive animals

This question focused upon visitor perceptions of animals within zoos. Both Study 1 and Study 2 respondents were asked to rate on a 1–5 scale the way in which they perceived zoo animals with respect to five criteria: (i) how well or poorly kept, (ii) how happy or sad, (iii) how occupied or bored, (iv) how attractive or unattractive, and (v) how exciting or dull the animals are to observe (see Tables 2 and 3, respectively).

The overall results gained from the two samples varied greatly; for example, 77% of zoo visitors felt that zoo animals were well to very well kept, compared with 50% of Study 1 respondents. Moreover, 77% of zoo visitors interviewed felt that the animals were happy or very happy, compared with just 13% of Study 1 respondents. Similarly, more zoo visitors appeared to feel that zoo animals were well occupied, attractive to look at, and lively and exciting to watch than did Study 1 respondents.

<table>
<thead>
<tr>
<th>Positive perception</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Negative perception</th>
</tr>
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<tbody>
<tr>
<td>Well kept</td>
<td>12.0</td>
<td>38.8</td>
<td>35.1</td>
<td>7.4</td>
<td>6.4</td>
<td>Poorly kept</td>
</tr>
<tr>
<td>Happy</td>
<td>0.9</td>
<td>12.9</td>
<td>44.4</td>
<td>23.1</td>
<td>19.4</td>
<td>Sad</td>
</tr>
<tr>
<td>Occupied</td>
<td>1.8</td>
<td>9.2</td>
<td>40.7</td>
<td>25.0</td>
<td>23.1</td>
<td>Bored</td>
</tr>
<tr>
<td>Attractive</td>
<td>9.2</td>
<td>32.4</td>
<td>40.7</td>
<td>12.0</td>
<td>5.5</td>
<td>Unattractive</td>
</tr>
<tr>
<td>Exciting</td>
<td>4.6</td>
<td>16.6</td>
<td>46.2</td>
<td>22.2</td>
<td>10.1</td>
<td>Dull</td>
</tr>
</tbody>
</table>

Table 2
The perception of captive animals within society. The results are expressed as the percentage of respondents allocating ratings 1–5 to issues of whether animals in zoos are well kept, happy, occupied, and attractive and exciting to look at.
Table 3
Zoo visitors' perceptions of captive animals. The results are expressed as the percentage of respondents allocating ratings 1-5 to issues of whether animals in zoos are well kept, happy, occupied, and attractive and exciting to look at.

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<tbody>
<tr>
<td>Well kept</td>
<td>43.0</td>
<td>34.0</td>
<td>15.0</td>
<td>5.0</td>
<td>3.0</td>
<td>Poorly kept</td>
</tr>
<tr>
<td>Happy</td>
<td>34.0</td>
<td>43.0</td>
<td>10.0</td>
<td>10.0</td>
<td>3.0</td>
<td>Sad</td>
</tr>
<tr>
<td>Occupied</td>
<td>15.0</td>
<td>41.0</td>
<td>21.0</td>
<td>10.0</td>
<td>13.0</td>
<td>Bored</td>
</tr>
<tr>
<td>Attractive</td>
<td>53.0</td>
<td>23.0</td>
<td>19.0</td>
<td>3.0</td>
<td>2.0</td>
<td>Unattractive</td>
</tr>
<tr>
<td>Exciting</td>
<td>37.0</td>
<td>22.0</td>
<td>25.0</td>
<td>6.0</td>
<td>10.0</td>
<td>Dull</td>
</tr>
</tbody>
</table>

3.2.1. Study 1
The perception of Study 1 respondents in terms of how well kept zoo animals were, differed significantly with age of respondent \((P < 0.005)\), with many more people in the 20–29 and 30–39 age groups perceiving zoo animals to be poor to very poorly kept. Similarly, there was a significant association \((P < 0.001)\), between the ages of Study 1 respondents and how happy or sad, and how occupied or bored they perceived zoo animals to be. Compared with other age groups, the 20–29 age group were more likely to state that zoo animals are sad or very sad, and bored or very bored. The 20–29 and 30–39 age groups were also more likely to consider zoo animals as dull and boring to watch \((P < 0.001)\), and the 20–29 age group to consider zoo animals as more unattractive or very unattractive to look at \((P < 0.05)\). Though there was a tendency for females to perceive zoo animals as more poorly kept and more sad than males did, these differences were not significant. However, females were more likely than male respondents \((P < 0.01)\), to perceive zoo animals as very bored.

3.2.2. Study 2
No significant associations were found concerning either age or sex of Study 2 respondents and how well kept they perceived zoo animals to be, with most considering zoo animals to be well to very well kept. However, female respondents perceived zoo animals to be more happy than did male respondents \((P < 0.05)\), and the sex difference concerning how bored the animals appeared to be, as observed in Study 1 respondents outside the zoo environment, was not observed in zoo visitor's perceptions. However, there was a significant association between age of zoo visitor and how occupied or bored the animals were perceived to be, with the 20–29s and 30–39s being significantly more inclined to perceive the animals as bored \((P < 0.001)\). Similarly, how attractive zoo animals were perceived to be was influenced by age \((P < 0.05)\), but not by sex, the 20–29s being more likely to perceive zoo animals as very attractive to look at. Correspondingly, how exciting the animals were considered to be was also associated with age \((P < 0.05)\), but not with sex of respondent, the older age groups being more likely to view zoo animals as very exciting to observe.
3.3. Environmental enrichment

Questions covering knowledge of animal's needs in terms of enclosure design were included to try to assess any differences in the perceived needs of zoo animals between Study 1 and Study 2 respondents. In both Studies 1 and 2, most respondents, 81% and 95% respectively, considered that it was very important that the enclosure was made as much like the animal's natural habitat as possible. However, only 62% of Study 1 respondents rated the provision of apparatus for the animals to play with or to work, as very important to the welfare of the animals, compared with 96% of zoo visitors. Furthermore, it is surprising that only 55% of Study 1 respondents, compared with 98% of Study 2 respondents, thought that it was very important that more apparatus should be provided for zoo animals to play with or to work, when one considers that only 11% of Study 1 respondents felt that zoo animals were well to very well occupied (Table 2).

4. Discussion

The four categories offered to respondents represented the four main roles of the modern zoo: entertainment, research, conservation and education, and of these, entertainment, the traditional role of the zoo was regarded as being least important. This result, coupled with the importance attached to the conservation role of zoos, suggests that the public in general, are now beginning to recognise the role of zoos as a replenisher of endangered species, and hence as important conservation institutions. Possibly associated with the importance of the conservation role, is the perceived educational importance. In that, as people recognise the need for conservation, so they look towards the zoo to fulﬁl their conservation and environmental education. In the same vein, the resulting importance attached to the research role may indicate that the growth in interest in conservation and education has brought with it the realisation that it is important that zoos undertake research in order to be able to fulﬁl these roles.

However, on asking Study 2 respondents, actual zoo visitors, their main motivations for visiting the zoo (Fig. 1), a very different scenario is observed: the three main motivations for visiting the zoo are entertainment based. Only 4% visited to be educated,

![Fig. 1. Main motivations for visiting the zoo.](image-url)
and despite conservation being perceived to be the main role of zoos today, no-one specifically stated that they visit the zoo to support conservation. Rather, the three most common reasons given for a visit to the zoo were entertainment based. One might conclude therefore, that whilst entertainment was not considered to be a major role of the zoo by respondents in Study 1, in practice, it actually forms the predominant stimulus behind a zoo visit. This finding agrees with the study of Kellert and Dunlap (1989), which revealed that family enjoyment was one of the primary motivations for visiting zoos. One might also postulate that Study 1 respondents made value judgements based upon what they felt they should say, whilst in practice it appears that zoo visits are motivated primarily by the prospect of a good family day out.

It is possible that the persistently negative impression held by the 20-39 age group in both studies, may be attributed to their increased likelihood of being influenced by the media and hence their ability to make value judgements. By comparison, it appears that other age groups are perhaps less aware of the issues regarding captive animals, and may be influenced by the traditional view of zoos as merely places of entertainment. The results from Study 1 are also indicative of a tendency for females to respond to animals with greater empathy, since they regarded captive animals as more bored or sad. Indeed, Burton and Ford (1991) found that adolescent females are characteristically more sympathetic to animal welfare problems than adolescent males, and historically the campaign against cruelty to animals was the concern of the ladies of the 18th and 19th century (Tester, 1991).

A number of explanations may be used to interpret the wide discrepancy that was observed between Study 1 and 2 respondents regarding how well-kept zoo animals are perceived to be. Study 1 results take into account the views of those that do not visit zoos, and therefore, may represent a greater number of people with negative perceptions of zoo animals. This is supported by the finding that 68% of Study 1 respondents either visit less than once every 3 years, have never visited a zoo, or have never been again after having visited once, which may well have been a long time ago (Reade, 1993). Those Study 1 respondents who visit zoos infrequently or not at all, are more likely to be unaware of the ongoing improvements that are being made in many reputable zoos in terms of environmental enrichment, and optimising care for their captives. It may have been that they were more influenced by adverse media attention and the increasingly strong moral stance against captivity in general. By comparison, the results from Study 2 suggest that perceptions are positively affected by the zoo visit, in that visitors can witness for themselves that in general the animals are well-kept, enclosures have become more naturalistic, and at Edinburgh Zoo at least, there is a general absence of the traditional barred cage approach.

A further reason for the differences between the two survey samples, may have been that few zoo visitors were willing to acknowledge any negative aspects of the zoo, for fear of spoiling their day out. It is possible that the impact of the enclosures designed to allow a full range of behaviour (of the major exhibits, for example, the primates and the penguins), overshadowed any obvious welfare problems, such as stereotypic behaviour, which is considered to be an indicator of poor welfare, and is sometimes observed in the sub-optimal enclosures of zoos.

The most noteworthy aspect of the results of Study 1 concerning environmental
enrichment is the apparent inconsistency between the high proportion of those people perceiving animals to be bored, and the relatively low number who considered provision of apparatus as being very important. This would tend to suggest that the general public, in the main, is unaware of the concept of environmental enrichment, and thus, unaware of the positive impact that it can have upon the physiological and psychological welfare of captive animals. Most people, however, did feel that it was very important to try to re-create as natural a habitat as possible for zoo animals, which adds further weight to the conclusion of Burton and Ford (1991) that a naturalistic setting leads to the generation of more positive responses towards captive animals.

It is clear, however, that the role of environmental enrichment is considered to be more important by those within the zoo environment than those outside of it. It is possible to offer a number of explanations as to why zoo visitors should appear more concerned about environmental enrichment for zoo animals: (i) that zoo visitors have formally read about enrichment, either in the zoo guide, or on some of the more recent interpretation boards; (ii) that they have informally picked up the visual signs of enrichment from the major exhibits as they walked around the zoo, and therefore recognise its importance; (iii) that being able to see the animals, zoo visitors experience greater empathy with the animals, and therefore, are inclined to have a greater awareness of what they perceive the animals needs to be; (iv) it could also be proposed that visitors find more naturalistic enclosures display the animals in a manner which is both more aesthetically pleasing for themselves, and less demeaning (than stark barren cages, for example), for the animals. This accords with Kellert and Dunlap (1989), when they note that an appreciation of the naturalness of an enclosure leads to its inhabitants being considered to be more attractive.

5. Conclusion

In conclusion, the results described in this paper suggest that conservation may generally be considered by the general public to be the main role of the modern zoo, but many people have some negative perceptions of zoo animals, and further, that the 20–39 age group and females in particular, respond to zoo animals with greater compassion and empathy. By comparison, zoo visitors tend to perceive zoo animals as more well-kept, happy, exciting, and attractive to look at, and less bored than do those outside of the zoo environment. The results also suggest that people who visit zoos are more aware of the importance of the concept of environmental enrichment. However, naturalness of zoo animals enclosures was generally considered to be very important by both study groups. This finding is in concordance with the results of previous studies (Burton and Ford, 1991; Dellmeier et al., 1992), that have sought to identify how human perceptions of other animal species are shaped. If substantiated, this finding could have important implications particularly in relation to how captive animals continue to be housed. However, it is vital that in the desire to appeal to the general public, and to foster more positive perceptions of zoos and their animals, that animal keepers do not risk adverse effects on the welfare of zoo animals, by providing aesthetically pleasing enclosures designed solely for human appeal.
These results reveal something of the complex nature of the relationship between members of the general public and zoo animals, and they serve to highlight public perceptions of how zoo animals are housed, and how much people continue to support the concept of zoos.

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References


