

Research article

## Examining a general audience's perception of cheetahs *Acinonyx jubatus* in education programming: A pilot study

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**Abstract**

The use of cheetahs *Acinonyx jubatus* as animal ambassadors has increased in popularity within the United States. These programmes help the zoo deliver unique experiences to guests while delivering conservation messaging. This study examined a general audience's perception of these ambassador-style programmes involving cheetahs. Through use of an online survey, study participants were asked to view images and videos of cheetah programmes. Responses were analysed using thematic coding as well as statistical analysis to observe trends in participant responses. Findings from this study show a preference for programmes with interpretation and an animal that can demonstrate 'wildness'. There is an observed difference in perceptions between those who frequently visit a zoo compared to those who do not. Other participant factors appear to be less influential than the frequency of annual zoo visits.

### Introduction

Experiences with an animal ambassador are often deemed valuable by zoo visitors because they allow for up-close viewing and offer a unique experience. While not used as commonly as small-bodied animals, the utilisation of large-bodied animals for encounter-style programmes has been notably increasing (Spooner et al. 2021). The utilisation of specially trained cheetahs *Acinonyx jubatus* for the use of animal ambassador-style programming has been an increasingly popular offering in zoos (Rapp et al. 2017).

#### **Benefits of ambassador animals**

It is believed that having up-close encounters with animals has the most significant positive effect on the visitor experience

(Luebke et al. 2016). The ability to participate in an animal presentation facilitated by the animal care staff has been shown to not only increase overall satisfaction but also foster a positive overall perception of the facility (Anderson et al. 2003, Price et al. 2015, Shani and Pizam 2010). It is also believed that these encounters provide an opportunity for visitors to engage in learning experiences (Fuhrman and Rubenstein 2017, Heinrich and Birney 1992, Povey and Rios 2002, Roe et al. 2014). Since visitors report a preference for learning from a live interpreter compared to exhibit signage or videos (Ogle 2016a), narrated animal demonstrations can provide the zoological team with the perfect opportunity to educate, engage and entertain their audience (Anderson et al. 2003).

When educational messaging during animal encounters is carefully crafted, the messaging will not distract from the

experience but can potentially enhance it (Mann-Lang et al. 2016). When appropriately implemented, these encounters serve as a means for fostering a connection with these animals. Kreger and Mench (1995) argue that these encounters could be the most effective means of delivering educational messages since visitors value these interactions so much that they are willing to pay additional fees to experience wild animals up close and personal. In fact, the increased interest in the animal coupled with the fees for participation have the potential to generate revenue to support conservation programmes. The Columbus Zoo was able to raise \$250,000 for cheetah conservation through the sale of cheetah-specific merchandise and fees for cheetah encounter programmes (Rapp et al. 2017).

There is evidence to suggest that the use of animal ambassadors has the potential to positively affect the amount of information retained by visitors (Anderson et al. 2003, Fuhrman and Rubenstein 2017, Heinrich and Birney 1992, Povey and Rios 2002). It has also been revealed that repeated interactions with animals have the potential to increase visitor knowledge and awareness of conservation (Ogle 2016b).

#### **Evidence of ambassador animal effectiveness**

It is important to note that despite the evidence of success with animal ambassador programmes in regard to educational messaging, these studies often examine a single species or a single programme, making it difficult to generalise findings (Spooner et al. 2021). Studies that have examined cheetah encounter programmes directly have noted that there is not a significant learning gain in visitors because of their participation in a programme (Whitehouse-Tedd et al. 2021). Preliminary research also suggests that visitors choose to participate in animal-based programming due to their existing beliefs and values prior to attending the zoo (Caplow 2018).

#### **Influences on guest perceptions**

Education is often not a primary motivator for visitors in electing to participate in a cheetah encounter programme (Whitehouse-Tedd et al. 2021). Although most zoological facilities state that their mission and activities centre on conservation and education

(Patrick et al. 2007, Patrick and Caplow 2018), the reality is that entertainment and recreation are the primary motivation for visits to the zoo (Clayton et al. 2009). Nevertheless, it does not mean the visitor has no intention of learning during a visit, nor do they leave the zoo without learning (Clayton et al. 2009, Roe et al. 2014). It is advantageous for zoos to take a targeted approach to deliver their messaging that caters to the primary objective of the audience's visit (Whitehouse-Tedd et al. 2020). Resolving this conflict between visitor motivations and mission-oriented goals is often achieved by integrating animal ambassadors (Hacker and Miller 2016).

It must be stated that the presentation of these animals is crucial. Visitors expect zoos to display a standard of excellence in animal welfare and conservation messaging (Kellert 1996, Roe et al. 2014) during their visit. These expectations depict a mismatch with the desire of visitors to have up-close encounters with wild animals (Whitehouse-Tedd et al. 2020).

#### **Current study**

The purpose of this study was to investigate the perceptions of a general audience on the use of cheetahs in educational programming. It was hypothesised that 1) interpretation performed by animal care staff will have a positive influence on guest perceptions of cheetah programmes, 2) guests will have a preference for presentations that demonstrate the wildness of the animal and 3) frequency of zoo visits will influence perceptions of cheetah programmes.

#### **Methods**

##### **Ethics compliance**

All research activities were approved by Beacon College's Institutional Review Board. In addition, the research complied with the Amazon Mechanical Turk (MTurk) operating policies. All participants in this study remained anonymous to the research team and no personal nor identifying information was collected. Participants were required to provide consent prior to answering any questions. Participants were compensated for their time and participation adhering to the MTurk guidelines.

**Table 1.** Description of visual media shown to participants.

Media type	Media name	Description
<b>Images</b>		
1	Exhibit (control)	Immersive exhibit, no visible barriers. Animals standing and alert.
2	Lure chase	Animal is actively chasing lure. Attention directed at lure, active pursuit (action) is captured in the image.
3	Harnessed walk	A handler is walking a harnessed animal in front of a crowd of guests. Guests are taking photos with their phone.
4	Exhibit training	Animal is engaged in a training session. Staff member and cheetah are separated by a mesh. Animal is on hind legs extending body towards a target presented by the staff member, who is kneeling next to exhibit.
<b>Videos</b>		
1	Exhibit training	Animal care staff engaged in a training demonstration at the exhibit (mesh). Narration provided about the behaviours and purpose of training. Audio (narration) mostly clear.
2	Harnessed walk	Handler walking a cheetah around zoo grounds with no interpretation provided. Guests, who are watching the cheetah, are visible along sidewalk near the animal. No audio.
3	Out-of-exhibit presentation	Formal presentation of animal. One handler training while the other narrates the session (active interpretation). Animal is leashed and out of exhibit. Clear audio.

### Procedure

A mixed methods approach was used to elucidate audience perceptions. An online survey was distributed using MTurk, an online crowdsourcing marketplace. Since there is a limited number of accredited zoos in the United States currently using cheetahs as programme animals, the MTurk platform was selected to reach a broader geographic audience. Additionally, the use of the MTurk platform allowed researchers an opportunity to reach participants without the influence of the zoo itself (Godinez and Fernandez 2019). Selection criteria included being at least 18 years of age and a resident of the United States. In addition, any participants who stated that they were currently, or recently (within the previous three years), a volunteer or employee of a zoo were not included in analysis. Participants must have answered all questions to be included in analysis.

The survey contained a total of 33 questions consisting of seven demographic questions and a data collection tool of 26 questions with open-ended and closed-ended questions (Appendix 1). Participants were asked to view four photographs followed by three videos (Table 1). Photos were selected to test a specific variable regarding perception. Each photo depicted one cheetah whose face was fully visible, and the entirety of the body was in the frame. Videos were from cheetah demonstrations within an Association of Zoos and Aquariums (AZA) accredited facility, but all videos did not represent a single institution. Videos were clear and sound was audible. All videos were less than 2 minutes in total length. Photo and video order was chosen to move from a control (minimal human interaction) to the media samples demonstrating the highest level of potential interaction with a cheetah.

After viewing each photo, participants were asked, 'What is the word or phrase that you believe best describes how the cheetah in the picture feels?' Once all photos had been viewed, participants were asked in which image they believed the 'animal has the best welfare (quality of life) in the zoo'. Additionally, participants were asked to describe why they had selected this image and if there was anything about any of the photos that they liked or disliked. In the video portion, participants were asked to view a short video. After viewing the video, they were asked how they believed the animal was cared for or treated. After watching all videos, participants were asked to select which video demonstrated the best commitment to welfare, had the best conservation message and which video felt the most educational. Again, they were asked if there was anything about the videos they liked or disliked.

### Data analysis

Descriptive statistics were used to compare participant responses for questions requiring participants to rank items. Chi-square tests were used to examine the relationship between specific variables (i.e. visitor demographics) with dependent variables (participant rankings of welfare, attitude rankings and media preferences). Inferential statistics were completed using SPSS.

Open-ended responses were coded using the procedure described by Moustakas (1994), in which a preliminary stage of coding was completed to gather a general outline of participant responses. The themes were established using a systematic review of text entries and cataloguing the entries based on primary themes. The final presented categories were developed once all entries were coded and there was agreement on common connecting themes.

## Results

### Study participants

A total of 99 participant responses were included in the data analysis. All participants were at least 22 years old, with a median age of 32. All participants reported they regularly visit zoos, with

**Table 2.** Sociodemographic characteristics of respondents.

Characteristic	n	
Gender	Male	58
	Female	41
	Non-binary	–
Ethnicity	White	40
	Asian/Pacific Islander	31
	Black	14
	Hispanic or Latino	11
	Native American	3
Education	High school	10
	Some college	7
	Undergraduate degree	80
	Graduate degree	2
Geographic region	East Coast	20
	Midwest	14
	Southeast	22
	Southwest	13
	West Coast	19
	Rocky Mountain	11
	Did not disclose	20
Annual income	\$15,000–\$29,999	22
	\$30,000–\$49,999	27
	\$50,000–\$74,999	25
	Over \$75,000	5
	Did not disclose	20
Last visit to a zoo	Last week	11
	Less than one month ago	28
	2–3 months ago	25
	More than 3 months ago	35
Frequency of annual visits	Multiple times per month	4
	Monthly	14
	3–6 times per year	6
	1–2 times per year	47
	Less than once per year	28

61 stating they had visited a zoo within the past three months. There was no difference in reported visits to zoos based on geographic region ( $\chi^2=57.168$ ,  $df=32$ ,  $P=0.22$ ). Table 2 provides a detailed breakdown of participant demographics.

### Previous experiences with animal demonstrations

When asked how frequently respondents seek opportunities to interact with animals during a typical zoo visit, 55 stated that they usually (always=27, usually=28) will do so. A total of 27 respondents stated they rarely seek out interactive experiences with zoo animals during a visit. Those who visit the zoo less frequently were more likely to attend animal shows and demonstrations compared

**Table 3.** Analysis of participant responses per image.

Image no.	Image name	Participant interpretation	Participants reporting highest welfare	Themes
1	Exhibit (control)	Curious, Confident, Happy	n=42	Positive perception of captivity; appearance of naturalness and wildness of animal
2	Lure chase	Playful, Fast, Excited	n=25	Positive perception of captivity; allowed to be a wild animal
3	Harnessed walk	Pet, Sad, Captured	n=15	Animal is a pet/not wild; tameness; zoos use animals for entertainment only
4	Exhibit training	Curious, Play/playful, Fun	n=17	Quality care received; contained and safe

to those who visit the zoo more frequently ( $\chi^2=65.218$ ,  $df=25$ ,  $P<0.01$ ). A similar relationship exists when examining the trend to seek out interactions with animals at the zoo ( $\chi^2=107.937$ ,  $df=25$ ,  $P<0.01$ ). Respondents between the ages of 18 and 24 were most likely (70%) to seek an interactive experience. Individuals over the age of 45 were least likely (30%) to engage in an interactive experience.

Respondents reported a similar desire to attend animal shows or demonstrations during a visit to the zoo (always=20, usually=33). A total of 21 participants stated they rarely attend a show or animal demonstration during a visit to the zoo. Male and female respondents were equally as likely to attend shows or demonstrations during their visit to the zoo. Those respondents between the ages of 18 and 34 were twice as likely to view a show or demonstration than those over the age of 35. Respondents over the age of 55 were the least likely to watch a show or demonstration.

**Audience response to cheetah programmes**

After viewing the collection of photographs, study participants were asked to identify which image demonstrated an animal with the best quality of life (the highest state of welfare). Table 3 provides a thematic analysis of responses.

The difference in rating for each photo was not influenced by the frequency of annual visits to the zoo ( $\chi^2=18.237$ ,  $df=15$ ,  $P=0.25$ ). However, there appears to be a relationship between photo rating and the amount of time since the most recent zoo visit. Respondents who had visited the zoo more than three months before the survey demonstrated a preference for Image 1 (exhibit;  $\chi^2=24.894$ ,  $df=15$ ,  $P<0.01$ ). There was no relationship

between photo selection and a participant’s gender ( $P=0.47$ ), education level ( $P=0.21$ ) nor geographic region ( $P=0.16$ ).

After watching the collection of three videos, respondents were asked to select which video they believed demonstrated the highest 1) level of welfare, 2) delivery of educational messaging and 3) level of commitment to conservation. Table 4 provides a detailed breakdown of participant responses for each video viewed. The difference in the welfare rating of each video was not influenced by the frequency of annual visits to the zoo ( $\chi^2=12.029$ ,  $df=8$ ,  $P=0.15$ ). However, there appears to be a relationship between video rating and the amount of time since the most recent zoo visit. Respondents who had visited the zoo more than three months before the survey stated that Video 1 demonstrated the highest level of welfare ( $\chi^2=14.604$ ,  $df=6$ ,  $P=0.02$ ). There was not a relationship between video selection for welfare with a participant’s gender ( $P=0.14$ ), education level ( $P=0.27$ ) nor geographic region ( $P=0.37$ ).

There was no relationship between the frequency of annual visits with the selection of video demonstrating the highest conservation impact ( $\chi^2=6.119$ ,  $df=10$ ,  $P=0.80$ ). Similar results were found when examining the time since the most recent visit to a zoo ( $\chi^2=9.986$ ,  $df=6$ ,  $P=0.12$ ).

The difference in the education rating of the videos was not influenced by the frequency of annual visits to the zoo ( $\chi^2=8.599$ ,  $df=8$ ,  $P=0.38$ ). However, there appears to be a relationship between video rating and the amount of time since the most recent zoo visit, with those participants who had visited the zoo more than three months before the survey stating that Video 3 demonstrated the strongest educational message ( $\chi^2=14.769$ ,  $df=6$ ,  $P=0.02$ ).

**Table 4.** Analysis of participant response per video

Video number	Video name	Highest welfare	Highest conservation impact	Highest educational impact
1	Exhibit training	n=34	n=30	n=26
2	Harnessed walk	n=20	n=20	n=23
3	Out-of-exhibit presentation	n=44	n=48	n=49

**Table 5.** Video preference by frequency of animal interactions of respondent.

Frequency	Video		
	1	2	3
Always	22%	44%	33%
Usually	32%	7%	61%
Sometimes	43%	9%	47%
Rarely	20%	15%	66%
Never	66%	44%	0%

**Table 6.** Percentage of participants expressing interest in a programme presented by age.

	Age				
	18–24	25–34	35–44	45–54	55+
Support	18–24	25–34	35–44	45–54	55+
Yes	59%	69%	33%	20%	16%
No	35%	14%	40%	60%	40%
Unsure	6%	17%	27%	20%	44%

There was no observed relationship between the video ranking and the frequency of attending animal shows or demonstrations ( $\chi^2=8.733$ ,  $df=8$ ,  $P=0.36$ ). As shown in Table 5, there was an observed relationship between video ranking and frequency of interacting with animals during a zoo visit ( $\chi^2=20.251$ ,  $df=8$ ,  $P<0.01$ ).

#### **Audience attitudes towards the inclusion of cheetah programmes in zoos**

A total of 67 respondents stated they had not participated in a cheetah encounter programme nor had they previously seen an ambassador cheetah. Respondents under the age of 24 were most likely to have previously participated in a cheetah programme. Study participants were asked if they would want to see a cheetah programme, similar to those provided in the videos, offered at their local zoo. A total of 56 respondents stated they would like to see a programme involving a cheetah offered. As shown in Table 6, respondents under the age of 34 were more likely to express an interest in seeing their local zoo offering a programme. Female respondents were more likely to support the inclusion of a cheetah programme ( $\chi^2=22.131$ ,  $df=6$ ,  $P<0.01$ ). Those who held a college degree were more likely to be opposed to seeing their zoo offer a programme of this kind ( $\chi^2=21.932$ ,  $df=12$ ,  $P=0.03$ ). There was a

relationship between annual income and likelihood of supporting a programme ( $\chi^2=25.864$ ,  $df=15$ ,  $P=0.04$ ). Those respondents who earned over \$30,000 per year were more likely to demonstrate support.

Those who visit the zoo more frequently were more likely to demonstrate support for a cheetah programme ( $\chi^2=69.083$ ,  $df=15$ ,  $P<0.01$ ). However, those who visited a zoo within the last three months were more willing to support their zoo offering a cheetah programme than those who had not visited in the three months before completing the survey ( $\chi^2=124.856$ ,  $df=12$ ,  $P<0.01$ ).

There is a significant relationship between the frequency of attending an animal show or demonstration and supporting a cheetah programme ( $\chi^2=113.078$ ,  $df=15$ ,  $P<0.01$ ). Respondents who attended shows or demonstrations more frequently were more likely to support the inclusion of a cheetah programme. A similar relationship was found when examining the frequency of interacting with animals during a zoo visit ( $\chi^2=65.488$ ,  $df=15$ ,  $P<0.01$ ).

The differences in the geographic region were statistically significant ( $\chi^2=47.271$ ,  $df=30$ ,  $P=0.02$ ). Participants in the south-eastern United States expressed a high desire to see a programme of this nature at their local zoo. Participants in the Rocky Mountain states were most opposed to their zoo offering a cheetah programme. All other geographic regions expressed opposition to a programme being offered at a rate of between twenty and forty percent.

Those respondents who selected videos with clear and defined interpretation included were more likely to demonstrate support for their local zoo including a cheetah programme ( $\chi^2=12.275$ ,  $df=4$ ,  $P<0.01$ ). There was no relationship between respondent support and preferred images ( $\chi^2=8.235$ ,  $df=15$ ,  $P=0.22$ ).

Respondents were provided with an opportunity to explain why they would or would not like to see a cheetah programme at their local zoo. Sixty-five respondents elected to leave a comment. Three major themes emerged from responses, which include 1) do not agree [with the practice], 2) cool/interesting experience and 3) opportunities for education and awareness. An additional supporting theme of safety emerged as well, both for the human and the animal (Table 7).

**Table 7.** Statements provided about using cheetahs as programme animals.

Theme	Excerpts of participant statements
Cool/interesting experience (n=13)	"...my kids would be delighted..." "It'd be really neat to get to see a cheetah that close" "different way to engage guests... breaks down the two-dimensional barrier"
Do not agree (n=12)	"I find this antiquated program repugnant, and against everything I believe" "Animals should not be paraded around on a leash." "I don't like exploiting animals..."
Subtheme: loss of wildness	"...makes them seem like a pet." "...send the wrong message about cheetahs being [basically] domesticated."
Subtheme: treatment of animal	"...takes away from the animal's independence" "It is not natural and appears to be somewhat cruel."
Education and awareness (n=9)	"It would bring awareness to the needs of cheetahs..." "...potential revenue for conservation programs." "...destigmatizes predators and allows people to learn more about their importance..."

The word 'leash' was a keyword used a total of seven times by respondents. Each use of the word was associated with a negative perception of the use of a leash. Upon examination, comments using the word 'leash' were left by male participants only. There was no single demographic shared by male participants as they represented all geographic regions, age ranges, ethnicities and income levels. Those respondents who stated they generally did not agree with the practice were often female. Their comments focused on the theme of general disagreement or the animal being perceived as a pet.

Respondents also appear to be excited by the opportunity to be near the animal without any barriers. Two participants provided statements supporting the programme by stating it prevents the animal from being "cooped up" and it provides "...more physical and mental activity compared to their exhibit".

## Discussion

The purpose of this study was to examine the perceptions of a general audience on the use of cheetahs in educational programming within a zoo setting. The hypothesis stating that interpretation performed by the animal care staff will have a positive influence on guest perceptions of such programming could be supported. Findings from the current study demonstrate that respondents ranked videos across all three categories (welfare, conservation impact and educational impact) consistently with the level of interpretation provided in the video. The video with no provided interpretation was consistently ranked lowest whereas the video with the clearest and most direct interpretation was consistently ranked highest. In addition, the qualitative data demonstrated that respondents understood there was an educational potential with these programmes when paired with interpretation.

The hypothesis stating that guests will have a preference for presentations that demonstrate the wildness of an animal could be supported. Qualitative responses demonstrated a lack of preference to see visible harnessing or leads. In addition, the control image with no visible barriers or man-made structures was ranked highest and was correlated with a positive perception of captivity, whereas the images with visible harnessing and containment structures were less preferred by respondents.

The final hypothesis, which stated that the frequency of zoo visits would influence perceptions of cheetah programmes, could also be supported. The findings from the current study align with those presented by Caplow (2018) in which a zoo visiting audience, particularly those who visit frequently, often share similar views that are supportive of most activities conducted by a zoo.

Nearly half of respondents stated that they were interested in seeing their local zoo offer a cheetah encounter; however, they struggled to reconcile this desire with their self-reported negative perceptions of the animals used in programming. Participants were more likely to support ambassador-style programmes where interpretation, containing a clear and easily recognisable conservation message, was a core aspect of the programme. Participants were less likely to support informal encounters where interpretation was not embedded in the experience. These findings echo those of Mann-Lang et al. (2016), who demonstrated the importance of well-constructed messaging that considers multiple audience factors, including the awareness of the relationship of an animal to the handler.

Participants demonstrated an applied definition that often equates welfare with the naturalness or wildness of the animal and the surrounding features of the environment. This sentiment also extended to a cheetah interacting directly with a human, in which it appears participants associated this interaction with a lowered state of welfare. The messaging delivered by the animal

care professional helps to offset this perception to a certain degree. However, it is not enough to completely negate the visual of the animal interacting with a human. The presence of barriers, leads and/or harnesses was viewed unfavourably by the participants in this study. Words often associated with negative perceptions were provided by respondents more frequently in open-ended responses when these items were visible in the photograph or video. These findings echo previous research in which visitors often associate wildness, or a more wild-like state, with a higher level of welfare (Melfi et al. 2004). Additionally, visitors demonstrate a preference to view animals in a more natural state (Davey 2006, Godinez and Fernandez 2019, Melfi et al. 2004). Clayton et al. (2009) posit that a visit to the zoo reminds people of their care towards animals and their desire to protect them. It is noted that zoo visitors frequently raise concerns about animal welfare (Roe et al. 2014).

Howell et al. (2019) suggest that visitors often use animal welfare as a factor in determining their connection to the animal. This outcome directly influences the visitor's capacity to care about conservation. Should conservation awareness and behaviour change be a primary motivation in using cheetahs as animal ambassadors, it is crucial to address the perceptions of the animal's welfare in order for programme participants to be open to hearing more about conservation-related information (Kirchgessner and Sewall 2015). Zoological managers often misunderstand the ability of a visitor to develop a bond or a connection with an animal (Luebke et al. 2016). However, it can be a helpful tool when developing animal programmes such as those examined in the current study.

In order for zoos to continue to deliver on their conservation commitments, zoological managers need to be aware of the expectations held by their visitors (Tomas et al. 2003). More importantly, zoos must deliver on their commitment to providing consumer products and experiences focused on animals, as this is the guest's primary motivation for visiting the zoo.

### Implications for zoo managers

Findings from this study suggest several recommendations for zoological managers looking to either add a cheetah programme or to strengthen existing programmes. These recommendations include: 1) Place an intentional effort on minimising the appearance of harnessed animals in front of the visiting public without any form of interpretation; 2) Train the animal care staff in the fundamentals of interpretation as they are deemed as reputable sources of information by the audience (Nekolný and Fialová 2018); 3) Understand the demographic that is drawn to these types of programmes and encounters. The young adult audience could be a potential demographic to target; 4) Zoo managers should be aware of the perceptions held by their local community members as zoos are culturally and geographically influenced by their communities; 5) Messaging during the programme should not only be designed to be informative but designed in a manner that connects the visitor to the animal through the interpretation of animal behaviour (Skibins et al. 2017); and 6) Leverage the individual connection a visitor creates with the animal to promote learning and revenue generation (Hacker and Miller 2016).

### Limitations

Due to the limited sample size in the study population, findings from this study should be viewed as a pilot study. While the mixed methods approach provided an opportunity to examine specific trends within responses and choices, the questionnaire design could have limited the participants' desire to leave open-ended responses.

### Future research

Further investigation is needed to examine the differences in

expectations, perceptions and general patterns during a zoo visit between those who visit the zoo regularly and those who visit the zoo less frequently. Future research should also examine the perceptions of harnesses and other equipment used with other species of animals in a zoo setting.

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