Nigerian Journal of Wildlife Management
Wildlife for Sustainable Development
Nig. J. of Wildl. Mgt., 2022, 6(1): 25 - 34

https://wildlifesocietyng.org/ojs/index.php/wildlifesocietyng-journal/index ISSN 2735-9298 (PRINT) ISSN 2735-928x (ONLINE)

Visitors' Preference for Active and Passive Communication Techniques in Zoos of Southwest Nigeria

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ABSTRACT
This study assessed visitors' preference for active and passive communication techniques in the selected zoos of Southwest Nigeria. The study was carried out at the University of Ibadan Zoological Garden (UI Zoo), Federal University of Agriculture, Abeokuta Zoo Park (FUNAAB Zoo Park) and Olusegun Obasanjo Presidential Library Zoo (OOPL Zoo). .A total of 266 visitors were sampled randomly. Data were collected using administration. Data were presented and analyzed using descriptive statistics and logistic regression. The result revealed that the majority (59.0%) of the respondents preferred active communication such as staff interactions/tour guiding to passive communication (41.0%) such as signage and personal observation. It is therefore recommended that for passive communication via traditional signage, zoos must develop methods for evaluating the effectiveness of sign design.

Keywords: Visitors, preference, communication techniques, zoos

INTRODUCTION
Zoos have a very long history: keeping wild and/or exotic animals captive was already known in ancient Greek and Roman times (Miller, 2013). These days' zoos often claim that their main objective is the promotion of nature conservation and that they strive to educate their visitors about animals and nature conservation (Ojalammi & Nygren, 2018). Viewing animals is usually the main reason for the zoo visit (Roe & McConney, 2015). Thus zoos can be seen as choreographed and constructed places for controlled interaction between human and non-human animals, guiding the interaction between the visitors and the captive animals in many concrete, subtle and practical ways (Braverman, 2011). Zoos are also the places that enable human-animal interaction and they are visited by more than 700 million people annually (Gusset & Dick, 2011; Kirchgessner & Sewall, 2015). Zoos are places that help the public to learn by reflecting on the relationships of animals in nature (Carr, 2016) and have the important mission of educating and protecting wildlife (Packer, 2008). These missions can largely be achieved with the help of successful visitor experiences. Therefore, it is significant to understand visitor experiences in the zoo and to know the reasons that affect these experiences. During the visit, for visitors to have a unique experience, animals should show normal behaviors in an active way (Kirchgessner & Sewall, 2015). The existence of active animals in the space positively affects the individuals' answers related to giving importance to animals and nature (Luebke *et al.,* 2016). Otherwise, when the visitors see an animal lying instead of behaving naturally, their interest and perception to support zoos decrease significantly (Miller, 2012). Within this context, it is very important for animals to exhibit their natural life in the exhibit areas, and this situation is related to the design of the exhibit areas. The more the

exhibit area reflects the natural lives of animals and the more they provide opportunities for animals to live their natural lives, the more positively it affects the visitor experience because the design of exhibit areas is significant for visitors to learn, for them to behave positively to animals, for the duration they stay in exhibit areas, for their watching times and for examining and observing animal behaviors (Clayton *et al*., 2008). The design of exhibit areas improves constantly to enrich the behavior and discipline of people in terms of protection and this improvement.

In many of today's cities, large areas of land have been designated for zoos, and annually more than 700 million people visit zoos and aquaria worldwide (Gusset & Dick, 2011). Zoos organize themselves into networks for cooperation, research, certification, monitoring and development purposes; these networks include the Association of Zoos and Aquariums (AZA), the European Association of Zoos and Aquaria (EAZA), and the World Association of Zoos and Aquariums (WAZA). In Europe, the mission of EAZA is to facilitate cooperation within the European zoo and aquarium community toward the goals of education, research and conservation (EAZA, 2019). Zoos are better conceptualized as a network that circulates and governs animals and information about animals (Braverman, 2015). Zoos have undergone a transition over the past 40 years, moving the focus from entertainment to conservation-based education (Roe *et al* 2014; Wijeratne *et al*., 2014; Bayma, 2012; Ballantyne *et al.*, 2007; Patrick *et al*., 2007) and this shift is still ongoing. The former legitimation of zoos as places for viewing exotic animals has been increasingly challenged, and new legitimating claims, those of education and the conservation of endangered animals, have been introduced. (Bayma, 2012).

Today, zoos open to the public can be found in virtually every country in the world. The World Association of Zoos and Aquariums now consists of more than 1,200 institutions which together attract over 600 million visitors per annum (Holst, 2008). The initial zoos of the modern era followed in the footsteps of their predecessors and were created with an emphasis on allowing the public to see the animals rather than on the needs of the animals, and with little or no concern given to animal rights or conservation; two issues which have not reached the public agenda until relatively recently in comparison with the age of zoos. Consequently, the conceptualization of zoos in the modern era has built on their historic construction as places of human entertainment; places to be visited during leisure time where the animals are presented for the amusement of visitors (World Association of Zoos and Aquariums, 2006). According to Adefalu *et al.* (2015) age of the respondents, their occupation and gender are significant factors influencing preference for animal display in the zoo. Kellert, (1996) and Bjerke et al., (2002) reported that age and level of education significantly influenced preference for animal display and communication among wildlife tourists. Communication techniques play important roles in meeting the visitor's quest for knowledge and satisfying their curiosity. Hence the need to look into how the visitors utilize communications signs and their perception of it. This study was therefore conducted to examine the visitors' preference for active and passive communication techniques in zoos and determine the communication techniques used by the zoos. The study hypothesized that: Null hypothesis (H_o): There is no association between visitor's demographic characteristics and their preference for communication techniques. The Alternate hypothesis (H_a): There is an association between visitors' demographic characteristics and their preference for communication techniques.

MATERIALS AND METHODS

Study Area

The study was carried out in FUNAAB Zoo Park, Abeokuta (FUNAAB Zoo), University of Ibadan Zoological Garden, Ibadan (UI Zoo) and Olusegun Obasanjo Presidential Library (OOPL Zoo). The Federal University of Agriculture, Abeokuta is located along Alabata road in the North-east part of Abeokuta in Odeda Local Government at latitude 7^o 23`08`` E and longitude 3$^o$ 43`66`` N. The region enjoys an average temperature of 3.18^{0}C and annual rainfall of about 1300mm with peaks in June and July and dry season of 2-3 months. University of Ibadan (UI) Zoological Garden, Oyo state, is located in Ibadan in the southwestern Nigeria approximately between Latitude 7^o 26`33`` N and Longitude 3$^o$ 53`39`` E. The zoological garden boasts of many flora and fauna species like lions, giraffes, eland, kob, etc. Olusegun Obasanjo Presidential Library (OOPL) has a land mass of 32 hectares which lies near Federal High Court, the City Stadium, the Federal and State Governments' Secretariats, a golf course and several highbrow residential estates. OOPL lies approximately between Latitude 7^o 12`57`` N and Longitude 3$^o$ 36`29`` E. Almost 47 per cent of the site is covered with outcrops of igneous granite rock formation. The shape and

outlook of the rock formation are impressive and interesting. A plateau-like formation serves as a natural helipad.

Data Collection and Analysis

Data were collected from the visitors to the selected zoos. Two hundred and sixty six (266) visitors were randomly selected for the study comprising 71 from FUNAAB Zoo Park, 101 (UI Zoo), and 94 (OOPL Zoo). A structured questionnaire was used to collect data from visitors randomly selected from the three Zoos. The independent variables were the visitors' profile which consists of gender, age, marital status, income, level of education, religion, occupation, income, place of residence, and nationality. Gender was measured as male=1, female=0. Age was measured in years. Marital status was measured as single=1, others=0. Level of education was measured as non-formal education = 0, others= 1. Religion was measured as Christianity=1, other=0. The Occupation was measured as student=1, others=0. Income was measured in naira (N). Tribe measured as Yoruba=1, others=0 Nationality was measured as Nigeria=1 Foreigner=0. Preference for communication techniques as dependent variables with active communication =1, and passive communication=0. Data analysis was done using the Statistical Package for Social Sciences (SPSS) version 20.0. Respondents' demographic characteristics were presented using descriptive statistics such as frequency and percentage. The relationship between visitors' demographic characteristics and their preference for communication techniques was tested using logistic regressions. The hypothesis was tested using logistic regressions.

RESULTS

Demographic Characteristics of Visitors

Table 1 revealed that more than half of visitors in UI Zoo (59.4%) and FUNAAB Zoo (52.1%) were male, while in OOPL Zoo, 51.1% of the visitors were female. Most of the respondents were single in UI Zoo (76.2%), FUNAAB Zoo (74.6%) and 83.0% in OOPL Zoo. It was observed across the 3 zoological parks that most of the respondents were between 16-25 years; UI Zoo (42.6%), FUNAAB Zoo (62.0%) and OOPL Zoo (57.4%). The results of the visitors' occupation revealed that the majority of the visitors in UI zoos were students (63.4%). Similar observations were also recorded in FUNAAB Zoo (66.2%) as well as OOPL Zoo (74.5%). Also, the majority of the respondents were predominantly Christian in UI Zoo (68.3%), FUNAAB Zoo (76.1%) and OOPL Zoo (80.9%). The educational status showed that less than half of the respondents at UI Zoo (42.6%), FUNAAB Zoo Park (46.4%), and OOPL Zoo (31.9%) had tertiary education. Classification of the respondents based on their ethnicity showed that the majority of the respondents in UI Zoo (84.2 %), FUNAAB Zoo (95.8%) and OOPL Zoo (67.0%) were Yorubas. Also, the majority of the visitors were natives of Ogun State among other states indicated. The study also showed that 91.0% claimed to have been visiting the parks for the past 1 – 5 years.

Table 1: Demographic characteristics of visitors the respondents (n=266)

Variables	UI ZOO (101)	FUNAAB ZOO (71)	OOPL ZOO (94)
Gender			
Male	60 (59.4)	37 (52.1)	46 (48.9)
Female	41 (40.6)	34 (47.9)	48 (51.1)
Marital status			
Single	77 (76.2)	53 (74.6)	78 (83.0)
Married	23 (23.8)	18 (25.4)	16 (17.0)
Age			
Less than 15 years	13 (12.9)	1 (1.4)	16 (17.0)
16-25 years	43 (42.6)	44 (62.0)	54 (57.4)
26-35 years	21 (20.8)	21 (29.6)	15 (16.0)
36-45 years	19 (18.8)	4 (5.6)	5 (5.3)
46-55 years	5 (4.9)	1 (1.4)	4 (4.3)
Occupation			
Students	64 (63.4)	47 (66.2)	70 (74.5)
Civil service	18 (17.8)	14 (19.7)	13 (13.8)
Trading	14 (13.9)	4 (5.6)	6 (6.4)
Artisan	1 (1.0)	2 (2.8)	5 (5.3)
Retired	2 (2.0)	4 (5.6)	0 (0)
Others	2 (2.0)	0 (0)	0 (0)
Religion			
Christianity	70 (68.3)	54 (76.1)	76 (80.9)
Islam	23 (22.3)	15 (21.1)	10 (10.6)
Traditional	8 (7.9)	2 (2.8)	8 (8.5)
Education			
No formal education	11 (10.9)	4 (5.8)	15 (16.0)
Primary school	13 (12.9)	2 (2.9)	15 (16.0)
secondary school	33 (32.7)	32 (45.1)	33(35.1)
Tertiary	43 (42.6)	32 (45.1)	30 (31.9)
Vocational education	1 (1.0)	1 (1.4)	1 (1.1)
Nationality			
Nigerian	98 (97.0)	71 (100.0)	94 (100.0)
Non-Nigerian	3 (3.0)	0 (0)	0 (0)
Ethnic group			
Igbos	10 (9.9)	1 (1.4)	26 (27.7)
Yoruba	85 (84.2)	68 (95.8)	63 (67.0)
Igbira	6 (5.9)	2 (2.8)	5 (5.3)

Percentages are in parenthesis

Visitors' Zoo Travel Behaviour

Table 2 shows the respondents' travel behaviour. More than half of the respondents at UI Zoo (55.6%) and FUNAAB Zoo Park (54.5%) visited the zoos once a year while less than half of the respondents at OOPL Zoo (31.9%) visited the zoo once a year. In addition, less than half of the respondents were at UI zoo for education (22.8%), while they were for recreation at FUNAAB Zoo Park (21.0%) and OOPL zoo (22.4%).

Table 2: Visitors' travel behaviour

Variables	UI ZOO (101)	FUNAAB ZOO (71)	OOPL ZOO (94)
Visitation rate in a year			
Once	55 (55.6)	36 (54.5)	29 (31.9)
Twice	15 (15.2)	12 (18.2)	23 (25.3)
3- 4	11 (11.1)	10 (15.2)	16 (17.6)
Above 5 times	18 (18.2)	8 (12.1)	23 (25.3)
Reason for visiting zoo			
Recreation	21 (20.8)	16 (21.0)	21 (22.4)
Quality family time	17 (16.8)	15 (20.6)	19 (19.8)
Education	23 (22.8)	13 (19.2)	18 (19.6)
Entertainment	19 (18.8)	14 (20.0)	17 (18.4)
Viewing wild animal	21 (20.8)	13 (19.2)	19 (19.8)

Communication Techniques Used in the Zoos and Visitors' Preference

Table 3 reveals the communication techniques employed to allow visitors to learn about conservation by the zoos. It shows that 29.7% of the respondents at UI zoo reported exhibit signage as the main communication technique used by the zoo, while at FUNAAB Zoo Park (28.1%) and OOPL Zoo (26.5%), they reported staff interactions/tour guiding respectively. Figure 1 shows the respondents' preferred communication techniques in the Zoos. The majority (59.0%) of the respondents preferred active communication such as staff interactions/tour guiding to passive communication (41.0%) such as signage and personal observation. The results of the model explaining visitors' preference for communication techniques are presented in Table 4. The likelihood ratio test indicates that the logistic regression model is significant with Chi-square statistics of 20.07. This shows that the socio-demographic variables of the respondents were significantly related to their preference for communication techniques. In addition, the model prediction is correct at 93.2% which shows that the explanatory variables can be used to specify the dependent variables (i.e. preference for communication techniques) in discrete term (0,1) with a high degree of accuracy. Age is statistically significant with a preference for communication techniques ($p<0.01$). However, gender, marital status, education, religion, income, occupation, tribe and nationality of the respondents were not statistically related to the visitor's preference for communication techniques. The null hypothesis is therefore rejected and the alternative hypothesis is accepted. The final model fit indicated that 97% of the variation in the preference for communication techniques is explained by the logistic model indicating a strong relationship between the predictors and the predictions.

Table 3: Communication techniques used in zoological gardens to support conservation

Communication techniques	UI ZOO	FUNAAB ZOO	OOPL ZOO
Exhibit signage	30 (29.7)	18 (25.4)	23 (24.5)
Staff interactions/tour guiding	24 (23.7)	20 (28.1)	25 (26.5)
Personal observation	20 (19.8)	13 (18.3)	17 (18.1)
Video/technology	13 (12.9)	7 (9.9)	14 (14.9)
Quiz Programs	14 (13.9)	13 (18.3)	15 (16.0)

Figures in parenthesis are percentages

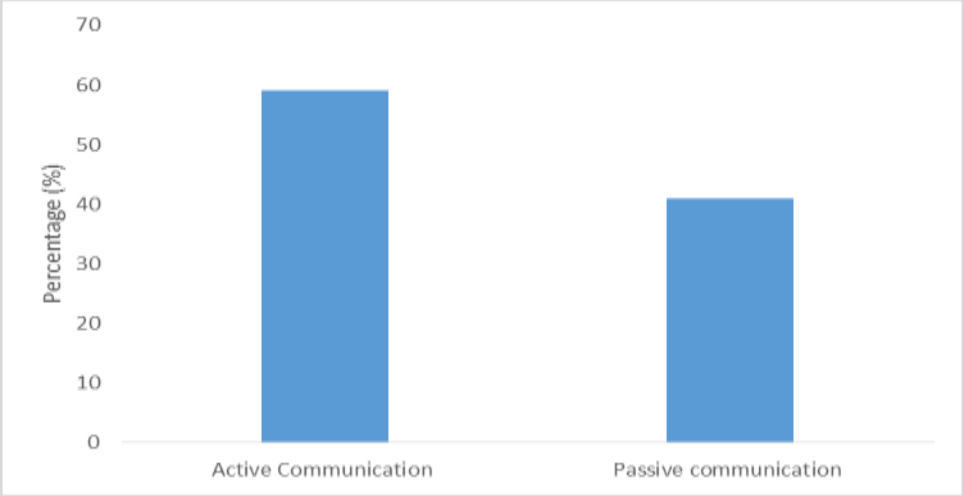

Figure 1: Respondents' preferred communication techniques at the zoos

Table 4: Socio-demographic predictors of preference for communication techniques

	B	SE	Wald	Sig.	Exp.(B)
Gender	-0.655	0.592	1.226	0.268	0.519
Marital status	0.326	0.712	0.209	0.647	1.385
Age	-0.254	0.044	32.976	0.000	0.776
Occupation	-0.130	0.664	0.038	0.845	0.878
Religion	0.475	0.743	0.409	0.522	1.609
Education	-26.451	5954.111	0.000	0.996	0.000
Nationality	-18.540	22223.975	0.000	0.999	0.000
Tribe	0.366	0.752	0.237	0.627	1.442
Income	0.000	0.000	0.078	0.781	1.000
Constant	27.081	22223.0	0.000	0.999	5.770+E11
Correct Prediction (%)	93.2				
Final Model Fit					
-2 Log Likelihood	97.005				
Nagelkerke R Square	0.799				

DISCUSSION

The study shows that most of the visitors were male. This is consistent with similar studies by Adetola & Oluleye (2014), Hun & Anuar (2014) and Ogunjinmi *et al.* (2017) also revealed that the majority of the visitors to the zoo were male. A similar study conducted by Ogunjinmi *et al.* (2017) in three zoos in southwestern Nigeria revealed that the majority of the visitors were male. The study shows that most of the visitors were in the age range of 16-45 years, which is an indication that they were youth. This agrees with Yager *et al.* (2015) whose findings reported that people at a youthful age are curious to learn and pursue their interests. This is consistent with Hun & Anuar (2014) that the majority of the visitors to the National zoo, Malaysia were single. The respondents were in the zoological gardens for education and recreation. This agrees with studies by Yager *et al.*, (2015*)* and Alarape *et al.*, (2015) that majority of visitors to the zoological gardens were students visiting for recreational purposes Also, Adams & Salome, (2014) reported that zoo parks serve as recreation centres where the student had access to relax and connect with

nature which can complement what they have learnt theoretically in the classroom. The majority of the visitors were also Christians, this is in line with the study conducted by Ogunjinmi *et al.* (2017) in Zoos in southwestern, Nigeria. The educational status of the visitors shows that most of the visitors were highly educated attaining to tertiary level of education. This is consistent with the findings of Adetola & Adedire (2018) and Ogunjinmi *et al.* (2017).

The high proportion of the visitors were Yorubas across the 3 zoological gardens which may be because the parks are located in the southwest region which made it more accessible for Yorubas to visit the parks compared to other tribes. Furthermore, the study revealed that the majority of the visitors reside within the town the zoos were located and were majorly Nigerian. This is in line with Adetola *et al.* (2016), Adetola & Adedire (2018) and Ogunjinmi *et al.* (2017). Most of the visitors were repeat visitors having visited between 2 to 5 times. This is in line with previous studies by Couch (2013), Adetola *et al.* (2016) and Adetola & Adedire, (2018) which reported that most of the visitors were repeat visitors.

The motivation for visitation by the visitors was for recreation and relaxation, as many of the visitors see their visit as form of leisure and a time for refreshing. This is in agreement with the submission of Hyson (2004) who stated that zoos have multipurpose advantages in the community where they are situated such as entertainment, education, aesthetic and escapist and conservation of animals as well as propagation and evaluation of animal diversity purposes. Also, Falk *et al*., (2007) reported that people come mainly with a social group, and/or for fun/entertainment. Jordaan & du Plessis (2014) found that people visit the Zoological Garden in South Africa to have a self-directed zoo experience for recreation and relaxation. Some of the visitors also visited for education and sighting of wild animals. Carr & Cohen, 2011 and Waller *et al*., 2012 reported that zoos, in general, give people a chance to view wildlife they may otherwise never see. This also creates a form of education for the curious visitors. Ballantyne & Packer, (2002) also concluded that motivations for visits impact how people conduct their visits and what they get out of them.

The study shows that the majority of the visitors read and appreciate exhibit signage which is a form of passive communication in the zoos and also considered them very informative. This is in line with Roe *et al.* (2014) who stated that all zoos passively communicate with their visitors through exhibit signage, while 95% of zoos offer some type of active communication. With advances in technology, interactive signs are becoming popular. Many visitors recognize that interactive signs increase engagement, which in turn facilitates learning, this is in line with Allen (2004) who reported that the right pathways and information could be layered in interactive signs that allow each user to access information in a personalized manner which implies that male visitors have interest in visiting zoos. However, Andersen (2003) stated that signage has moved away from individualized taxonomic information, and instead now focuses on ecological and conservation-based messages and how the species on view fits into that picture.

The study revealed that out of the socioeconomic characteristics investigated only age showed significance with a preference for communication techniques. Males and Females of different ages are known to connect with nature differently and perceive and place varying values on how they utilize signs to gain information during their visit. Foote *et al.* (2017) stated that Younger women ranked signs as their primary sources of information more often than young men and older male visitors appeared to utilize signs more than their female equivalents. Also, education has a significant effect on the experience of the visitors, highly educated visitors will tend to understand and grasp the concept of conservation easily. Ogunjinmi *et al.* (2017) stated that the educated are aware of the importance of zoos and are willing to visit and are also more interested in recreational activities. Furthermore, the study revealed that there is a significant relationship between the respondents' educational status and

their reliance on communication techniques. Visitors with tertiary education are more conversant with passive communication such as signage and can easily interpret them, while visitors with lesser educational qualifications depend on active communication such as tour guide and staff interaction.

CONCLUSION

The study revealed that the visitors acquired appreciable areas of experience in zoological gardens. The majority of them visited the Zoos mainly for entertainment and educational purposes. It also showed that exhibition of signage, staff interaction, personal observation and video/technology programs are major tools used in zoological gardens visited to support conservation in the study area. It is therefore recommended that for passive communication via traditional signage, zoos must develop methods for evaluating the effectiveness of sign design. The sign will give way to technologically interactive signs better utilized by future generations. Active communication via Keeper talks and staff interactions is an important form of communication for zoos. Signs should be directed towards gaining a better understanding of how passive and active communication components relate to visitor learning. This will continue to be a viable form of communication used to varying success depending on the size of the facility and the skill of the communicator. Considering that the majority of visitors visiting the zoos were majorly youths, efforts relating to conservation could be targeted accordingly by focusing on small lifestyle changes instead of donations as a way to help conservation.

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