

AN EVALUATION OF THE CONSERVATION EDUCATION PROGRAMMES OF THE UGANDA WILDLIFE EDUCATION CENTRE

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ABSTRACT- Uganda's rich biodiversity is under threat due to poaching, the destruction of habitats, poaching and the illegal trade in wild animals, amongst others. The aim of this study was to evaluate the effectiveness of the Conservation Education programmes of the Uganda Wildlife Education Centre (UWEC) in increasing the learners' knowledge, attitudes and values about wildlife and wild places. A mixed-methods approach was followed in this research. The research instruments that were used in the quantitative part of this study were group-administered questionnaires. The population was school groups attending the structured non-formal programmes offered at the zoo. The qualitative research involved making use of individual interviews. The best practices and/or weaknesses in the Conservation Education programmes at this zoo were evaluated by means of the Kellogg's Logic Model. The findings of this study indicated that the Conservation Education programmes were effective in increasing the learners' knowledge about wildlife and wild places. There was no significant improvement in the increase in attitudes and values of secondary school learners with regard to the consumption of bush-meat and the destruction of habitats. However, there are indications that the outcomes of the Conservation Education programmes are achieved through changes that are evident in the communities.

Keywords: Conservation Education, evaluation, zoo

1. INTRODUCTION

Uganda is rich in biodiversity, including species richness and abundance, species of high conservation values, and a rich and varied landscape with many ecosystems (National Biodiversity Data Bank; n.d.). However, Uganda's biodiversity is under threat. The rate of biodiversity loss in this country was calculated in 2004 to be between 10-11% per decade (US Aid/Uganda, 2006:18). The main threats to biodiversity in Uganda are over exploitation of resources, pollution, the destruction and fragmentation of habitats, invasive alien species, poaching, and the illegal trade in wild animals (Ministry of Natural Resources, 2006:5; US Aid/Uganda, 2006:18; Department of Environmental Affairs, 2012:109-110).

Zoos have the potential to elicit pro-environmental behaviour in a number of ways, namely by acquiring environmental knowledge and skills to solve environmental problems, by fostering positive attitudes and values, and by evoking the necessary emotions (Hancocks, 2001:xviii; Hatchwell, Rübel, Dickie, West & Zimmerman, 2007:354; Packer, Ballantyne & Falk, 2010:12). Jackson (2010:40) indicated that with its vast protected areas, Africa should be able to offer an intimate wildlife experience that does not require the presence of a zoo; however, Africans have become increasingly isolated from nature due to urbanization. Taking poverty into consideration, the only connection many people are likely to have with Africa's magnificent animals is by means of a visit to a zoo. Zoos provide access to animals and the natural world that people would otherwise not have been able to experience (Hancocks, 2001:xviii; Jensen, 2011:94).

The evaluation of Conservation Education programmes are often ignored due to a lack of understanding about how to measure the effectiveness of the programme, or to a shortage of resources (Bettinger, Kuhar, Lehnhardt, Cox & Cress, 2010:445). Bettinger et al. (2010: 448) came to the conclusion that the evaluation of Conservation Education programmes allows us to confirm that our programmes are delivering the information we intend, and that, in the end, when the wrong message is perceived, we can try a different approach. The aim of this study was to evaluate the effectiveness of the Conservation Education programmes of the Uganda Wildlife Education Centre (UWEC) in Entebbe, in increasing the learners' knowledge, attitudes and values about wildlife and wild places.

2. CONCEPTUAL FRAMEWORK

The greatest threat to the sustainability of wild things and wild places and the health of the environment is of the behaviour of humans. Therefore, the solution for many of our environmental problems and the sustained existence of biodiversity lie in changing the way we think and behave (Balmford & Cowling, 2006:692; Crowther, 2011:2; Lichfield & Foster, 2009:6; Rockström & Karlberg, 2010:257; Schultz, 2011:1080). Education presents our best chance of promoting and securing the values and behaviour which sustainable development implies (Hungerford & Volk, 1990:267; United Nations Educational, Scientific and Cultural Organization, 2007:16). Schultz (2011:1080) indicates that conservation is a goal that could only be achieved by changing behaviour. Furthermore, if zoos can influence visitor behaviour positively towards pro-environmental behaviour, and can prove that human-animal interactions can be used to this end, they will be able to justify keeping animals in captivity (Smith, 2008:26).

Pro-environmental behaviour is defined by Kollmuss and Agyeman (2002:240) as behaviour that consciously seeks to minimize the negative impact of one's actions on the natural and built world. According to Bamberg and Möser (2007:15), pro-environmental behaviour is best viewed as a mixture of self-interest, for example to pursue a strategy that minimises one's own health risk, and of concern for other people, for example the next generation, other species, or whole ecosystems. Furthermore, behaviour change need to occur at both individual and community level in order to achieve sustainability (Kollmuss & Agyeman, 2002:249). Behaviour change is influenced by many factors, including one's upbringing or social environment, and his/her belief in the ability that he/she can bring about change (Litchfield & Foster, 2009:6-8). Schultz (2011:1081) mentions that efforts in respect of Conservation Education have to include a reason for action, or a motivational element. Potential motivational elements are, for example, self-interest, social responsibility and self-transcendent values. Information coupled with motivation can induce change.

The theories used as basis for this study are those that attempt to clarify a change in human behaviour, namely the Theory of Reasoned Action by Fishbein and Ajzen (1975:5), the Hines Model of Pro-environmental Behaviour (Hines, Hungerford, & Tomera, 1986:7), the Hungerford and Volk Model of Environmental Behaviour (Hungerford & Volk, 1990:260) and Kollmuss and Agyeman's Model of Pro-environmental Behaviour (Kollmuss & Agyeman, 2002:257). However, the researcher acknowledges the fact that numerous theoretical frameworks have been developed to explain the discrepancies between knowledge, attitudes and pro-environmental behaviour, for example prosocial theories, altruism, empathy and community social marketing. Furthermore, different learning theories underpin the learning approach that was used in the Conservation Education programmes that were evaluated in this study to try and ensure a behavioural change, namely social constructivism and experiential learning.

Randall (2012:14) conducted a study in the Oklahoma City Zoo to assess the change in conservation attitudes of teenagers through zoo and aquarium education. His conclusion was that teenagers indicated a significant increase in their pro-conservation attitudes as a result of coming to the zoo

(Randall, 2012:14). Jensen (2011:27) argues that how people understand the relationship between animals and their natural habitats have a direct bearing on zoos' efforts to promote wildlife conservation. That is, knowledge of the animal and its habitat is the fundamental building-block for learning about wildlife conservation. There is a critical link between an endangered animal and its increasingly degraded habitat, and this comprises the basis for understanding the need for conservation and the kinds of conservation strategies that are necessary (Jensen, 2011:99).

In addition, zoos have a unique feature that can be utilized to facilitate behaviour change, namely the ability to connect people with wildlife (Litchfield & Foster, 2009:9-10; Jensen, 2011:94; Hancocks, 2001:xviii; Jackson, 2010:40) on an emotional level. Emotional involvement is the extent to which we have an affective relationship with the natural world (Kollmuss & Agyeman, 2002:16). Zoo experiences have the potential to provoke a range of emotions, including happiness, interest, surprise, anger, and even fear. Smith (2008:24) reckons that this emotional arousal is positively associated with many outcomes of interest in zoos, including positive behaviour change. He (2008:44) concluded that attitudes formed through empathy are also more predictive of behaviour, meaning that, if zoos can provoke empathy for species in their collections, then attitudes formed under these conditions are likely to result in positive behaviour change.

3. METHOD

This study aimed to evaluate the Conservation Education programmes presented at UWEC by following a mixed method approach. The objectives of this study are (1) to evaluate whether a change occurred in the learners' knowledge, attitudes and values in respect of wild animals and the environment before and after the learners attended a structured non-formal Conservation Education Programme and (2) to determine the best practices and/or weaknesses in the Conservation Education programmes of UWEC. The mixed-methods strategy used for data-collection in this study is that of concurrent triangulation. The quantitative research made use of questionnaires as research instruments to evaluate whether a change occurred in the learners' knowledge, attitudes and values in respect of wild animals and the environment before and after the learners attended a structured non-formal Conservation Education Programme. The qualitative research involved making use of interviews and observations. In-person semi-structured interviews were conducted with staff members at UWEC. The qualitative data collected by means of these interviews were used to determine the best practices and/or weaknesses in the Conservation Education programmes at UWEC by means of a logic model.

The qualitative interviews and quantitative questionnaires were administered with prior informed consent from the participants and from the learners' parents or guardians. The learners who participated in the study signed child assent forms.

3.1 The Quantitative Study

Two questionnaires were developed, one to assess learners in the Secondary Ordinary Level and one for Higher Primary. In order to formulate the questions, brainstorming sessions were held with the education officers to identify the key messages that the Conservation Education programmes strived to with regard to cognitive and affective messages. The programme that was evaluated was a structured non-formal programme namely the "On-site Guided Tour". All the learners visiting UWEC are compelled to follow this programme, although other programmes are also offered on request. The key messages of this programme are: 1) Uganda has a wonderful variety of wild animals. However, these animals are threatened by poaching, the exotic pet trade, the bush-meat trade and climate change. 2) You can play a very important role in protecting the wild animals and their habitats.

The questionnaires were piloted and some of the questions were changed after the study. For the primary school ‘Yes’ and ‘No’ questions were used to establish the learners’ knowledge, attitudes and values in connection with wild animals and the environment before and after the learners followed the Conservation Education programmes and Likert-type scales were used in the secondary school questionnaire.

The following statements were developed to evaluate a change in knowledge:

1. Chimpanzees are threatened animals.
2. Rhinoceroses are found in the wild in Uganda.
3. Wild animals make good pets.

The following questions were developed to evaluate a change in attitude and values, namely

4. It is good to eat the meat of threatened wild animals.
5. I want to help to protect wild animals.
6. Littering harms the ecosystem.

The following statements were developed to evaluate a change in knowledge:

1. Chimpanzees are endangered due to poaching, the consumption of ‘bush meat’, pet trade and habitat destruction.
2. A chimpanzee’s DNA is about 98 % similar to a human’s DNA.
3. The pet trade is a threat to the survival of tortoises and terrapins.
4. Rhinoceroses are poached for their horns.
5. Rhinoceroses are not found in the wild in Uganda anymore.

The following questions were developed to evaluate a change in attitudes and values:

6. Consuming the meat of endangered wild animals is wrong.
7. I think we must accept the responsibility for the destruction of the habitats of animals.
8. I can play a role in conserving chimpanzees.
9. I believe that all living creatures are important.
10. I want to get involved in projects to protect animals and their habitats.

In this study a non-probability quota sampling method was used. The results were not generalised to the population and the results will hold only for the sampling groups. The schools that participated in the study were chosen from those who attended the zoo during the specific time of the year that corresponds with a time period that many schools visit the zoo. Both rural and urban schools were chosen. All the learners from a school group were included in the sample. Three school groups for primary and secondary schools respectively were chosen. The McNemar test was used to determine whether there is an association between two categorical variables in a 2x2 classification table where the same respondents answered both pre- and post-questions.

3.2 The Qualitative Study

In-person semi-structured interviews were conducted. Critical case sampling was used. The data was analysed by means of interpretive analyses. The Kellogg Foundation Logic Model was used to evaluate the context, namely the strengths and weaknesses of the programmes, the implementation of the programme, that is, whether the outputs were achieved, and also to determine the extent to which progress was being made toward the desired changes with regard to the short- and long-term outcomes. The impact of the programmes was not evaluated since it did not fall within the context of this study. A logic model is a systematic and visual way to present the relationships between the resources used to operate a programme, the activities included in the programme, and the expected

outcomes (W.K. Kellogg Foundation, 2004:1). It is a framework that can be put to good use as a tool to evaluate education programmes (Peter, 2013:12; McCawley, 2002:1).

4. RESULTS

4.1 The Quantitative Study

There was a 100% response rate in respect of the questionnaires distributed. A total number of 75 primary school learners completed the questionnaires, of whom 73,33 % were from rural schools and 26,67 % from urban schools. School groups, A, B and C respectively consisted of 30, 25 and 20 learners. A total number of 82 secondary school learners from the three different school groups completed the questionnaires, of whom 64,63% were from rural schools and 35,37% from urban schools. School groups, D, E and F respectively consisted of 25, 29 and 28 learners.

The pass rates (percentage of correct responses) of the primary school learners are indicated in Figure 4.1. The pass rates for the secondary school learners are indicated in Figure 4.2

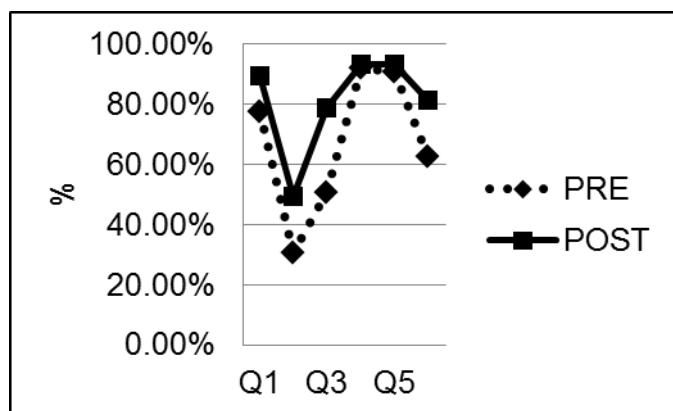


Figure 4.1: The pass-rates of the primary school respondents

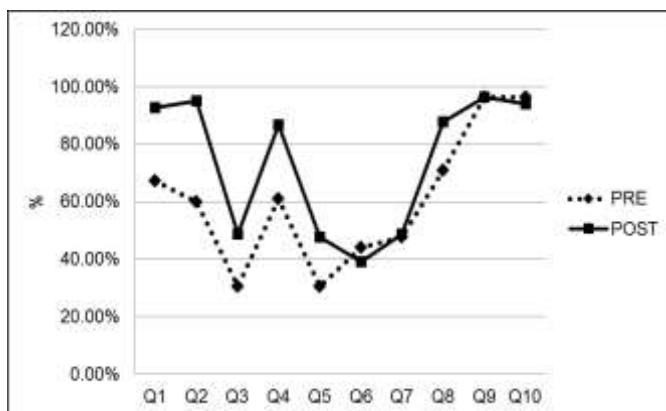


Figure 4.2: The pass-rates of the secondary school respondents

To determine if the differences in the proportions in section 4.2.2 were statistically significant, McNemar's tests were conducted. A probability value (p-value) is produced which indicates statistical significance if this calculated p-value is smaller than 0.05. The results of the McNemar tests are summarised in Table 4.1

Table 4.1: Summary of the results of the McNemar tests

Variable	Statistics	P-value	Significance
Respondents: Primary schools			
Q1	McNemar's chi-squared = 5.8182, df = 1	0.01586	Significant
Q2	McNemar's chi-squared = 4.6944, df = 1	0.03026	Significant
Q3	McNemar's chi-squared = 13.7931, df = 1	0.0002041	Highly significant
Q4	McNemar's chi-squared = 0.00, df = 1	1.00	Not significant
Q5	McNemar's chi-squared = 0.10, df = 1	0.7518	Not significant
Q6	McNemar's chi-squared = 8.45, df = 1	0.00365	Highly significant
Respondents: Secondary schools			
Q1	McNemar's chi-squared = 16.00, df = 1	6.334e-05	Highly significant
Q2	McNemar's chi-squared = 22.4, df = 1	2.214e-06	Highly significant
Q3	McNemar's chi-squared = 5.2973, df = 1	0.02136	Significant
Q4	McNemar's chi-squared = 12.9032, df = 1	0.000328	Highly significant
Q5	McNemar's chi-squared = 4.9706, df = 1	0.02578	Significant
Q6	McNemar's chi-squared = 0.3214, df = 1	0.5708	Not significant
Q7	McNemar's chi-squared = 0.00, df = 1	1.00	Not significant
Q8	McNemar's chi-squared = 7.0417, df = 1	0.007963	Highly significant
Q9	McNemar's chi-squared = 0.00, df = 1	1.00	Not significant
Q10	McNemar's chi-squared = 0.125, df = 1	0.7237	Not significant

4.1 The Qualitative Study

Abbreviations were used when referring to the different participants, as indicated in the brackets below.

- The Director (D2)
- The Education and Information Manager (M2)

(a) Clarifying the programme theory

Situation/problem

- Biodiversity needs to be conserved.
- Environmental problems are a threat to biodiversity. Some of these problems are overpopulation, deforestation and pollution.
- Biodiversity is threatened by poaching, the consumption of bush-meat and illegal trade in wild animals and products from wild animals.

M2: "The programme we are handling is real, it is a real problem in Uganda of overpopulation, overconsumption, high level environmental degradation, deforestation, poor farming methods, overfishing, there is fish poisoning, degradation of the lakes."

D2: "Over fifty percent of the wildlife in terms of flora and fauna is actually outside the protected areas, so we need to protect that even more."

Inputs

- Conservation Education Staff: One manager, two education officers, 24 guides.
- Learning support materials.

- A Conservation Education Strategic Plan that has been developed in collaboration with the Department of Education.
M2 stated: "We consulted with all the stakeholders, held various workshops with all our stakeholders that we work with, including schools, the ministry of education, pupils themselves, teachers, the board members, likeminded organizations and various other stakeholders. We held various workshops to be able to bring on board everyone as we planned for our work. So we have a strategic plan, yes, we do."
- A reporting framework.
- Brochures, fliers, booklets, posters and documentaries.

(b) The programme activities

The following Conservation Education activities are offered:

- Guided tours for all school groups visiting the zoo.
- Tailor-made programmes on request by the schools.
- Programmes for the general public run programmes "keeper for a day".
- Interactive programmes aimed at creating awareness within the community about the value of the wildlife biodiversity.

The audiences are:

- School groups visiting the zoo.
- School groups attending the outreach programmes.
- The general public visiting the zoo.
- Communities attending the outreach programmes.

Approximately 180 000 school learners participate in the Conservation Education programmes at the UWEC annually.

(c) The desired programme results

Outputs

- To increase knowledge about wild animals and their habitats.
- To increase positive attitudes towards wild animals and their habitats.
- To increase pro-environmental behaviour.

Outcomes:

- Short-term outcomes:
 - To reduce poaching, the trade in wild animals and their products as well as the consumption of bush-meat.
 - To reduce deforestation.
- Long-term outcomes:
 - To conserve biodiversity

Proposed impact

- To change people's attitudes towards the environment in order to ensure a sustainable way of living.

M2 explained as follows: "to educate the people so that we can have sustainable way of living, we can have change of life and attitude towards the environmental conservation. We can have positive set of action by individuals..."

(d) The evaluation study

Context

- **Weaknesses**

- Funding is the biggest challenge the UWEC is facing.

M2: "This institution at the moment is not yet fully self-sustaining, and gets some meagre funding from government, basically to contribute mainly to the capital development of the centre. So all the money for our operations, or the recurrent budget, at the moment is basically contributed by ourselves, generated locally by ourselves. Government has not yet put in place the institutional framework, or the legal framework to be able to fund us both for capital development and recurrent operational expenses. So we end up using only the money we collect through our innovative programmes towards a bit of sustainability. That is the only money we are able to use for our operational function."

M2: "It will help the whole world if we can have more funding provided to your Conservation Education here where you can make a difference, where it is going to count."

- The general public has a poor attitude towards environmental conservation due to poverty.

M2: "And then of course the others (threats) are the general environmental problems in the country, one of them being of course overpopulation in the country as Uganda... When you are talking about Conservation Education, and those issues you're talking about sustainable management of the environment. Someone is poor and is preoccupied and is looking for income and livelihood for his family. So in the long run, it creates a problem of poor attitude towards environmental conservation."

M2: "So those are some of the challenges, that we go out there and it takes a lot of effort and time to be able to convince people to listen to you".

- The evaluation of outreach programmes is a challenge due to a lack of funds.

M2: "For example the project we visited yesterday...and once the funding ended, that was it...So we are struggling to keep on the monitoring of the areas that we established and to see whether people are gaining value from it. That one is difficult."

- The evaluation of on-site programmes needs improvement.

M2 said: "We have not done very well there in terms of evaluation and I think I need to look at...to be realistic, we have not done well on evaluating our programmes."

- **Strengths/best practices**

- Conservation Education is seen as the main mandate of the zoo.

D2: "We have basically have four mandates in order of importance, conservation, education of the Ugandan public, is number one, and the aims of that is to spearhead the conservation of our biodiversity."

D2: "So if you have fifty percent of your wildlife biodiversity outside the protected area ...then educating and creating awareness within communities becomes very, very important because outside the protected areas you have all sorts of land ownership where people are having leases, people are having full ownership of land where they can do as they wish. So if those people are not properly educated and sensitised on the need to conserve what they have on their land, you can have a lot of loss of this biodiversity."

- Ambassador animals are used in outreach programmes.

M2: We carry animals to these exhibitions and then use them like what you see us doing here, we use those animals in the communities, and that creates a lot of excitement."

All school groups visiting the zoo are obliged to follow a programme.

M2: "We are using a thematic guided tour approach."

- Marketing is successful.

M2: "Because, like I told you, we go out very far and people know about UWEC and the people...it does very much."

- Although UWEC is not PAAZAB accredited, they are members of PAAZAB and WAZA.

Implementation

- **Outputs**

The outputs are achieved.

M2: "So it is working, and it is very, very promising."

- **Outcomes**

The short- and long-term outcomes are achieved.

M2: "I will say that we are achieving our outcomes, but not a hundred percent."

M2: "People are working trying to find money to feed their families, they don't have time to relax, so they don't go to the national parks, much as we have them, they don't know these animals, they have not seen them. So once you take them out there, people are very interested, so they come, you pass on your message, people appreciate the interrelationship between animals and humans and environment. But you know our play, you know."

D2: "Yes, we are." "...because meat here is a delicacy, for a child to refuse meat, the parents usually wanted to know who has been talking to their children and what is the message? So right now we have a restored population of sitatungas. But that also goes for animals that we have done, like in the forests we used to rescue on average ten chimpanzees a year. It's now been two years without rescuing a single one, and these two years coincide with the community sensitisation programmes which we started in those areas. So we've had quite a lot of success. Our hotline for rescued animals goes off quite often. In the past it never used to, because the people used to kill the animals that they found, in their communities."

D2: "So this change in the attitude is evidence that our community programmes are running". "I can see it already".

D2: "They have to keep the habitat, they have done that, but they want the animals in their communities because they're realising at some point these animals could be a source of income for them through activities like ecotourism..."

(e) Future plans/opportunities

- Changing education programmes to be more interactive.

D2 has the following opinion: "We want our education programmes to be more interactive, especially for the young ages, because we realise that the attention span for the attention span is very short and therefore they need interactive things and exercise more than a typical classroom setting and we are doing that within our centre to see that we provide interactive education or things for children to know, to measure themselves against chimpanzees, to understand how a chimpanzee lives, to understand how these live, how they can live with these animals, how they can respect wildlife and things".

- Expand the outreach programmes.

D2: "We need to reach out to other areas of Uganda and therefore we are planning to put satellite centres within the four corners of Uganda and these satellite centres will be running programmes on biodiversity that is local to that particular area."

- Establishing a Conservation Education network in East Africa.

D2: "So we are looking at establish harmonised programmes across the East African region, which will run between Uganda, Kenya, Tanzania, Rwanda, Burundi. So we can do trans-boundary conservation programmes for the chimpanzees or the gorillas. So these are the things which we are working on to expand our programmes here at UWEC, so that we can create impact within the society. But our main aim still remains the young generations. Because they change attitudes."

5. DISCUSSION

The quantitative results obtained from both the primary school and secondary school data regarding the questions evaluating a change in knowledge, indicated a significant or highly significant improvement in the pass rate of all the questions. The conclusion can be made that the Conservation Education programmes that the learners attended was successful in changing the learners' knowledge. According to Jensen (2011:99), knowledge of animals and their habitats is the fundamental building-block for learning about wildlife conservation.

With regard to the questions evaluating a change in values and attitudes, the primary school data indicated that there was a significant improvement in the number of correct answers for one question, namely question 6. Although there was no significant change in the correct answers for questions 4 and 5 at the UWEC, the learners had high initial pass-rates of 92.00 % and 90.67%, which indicates that the learners already had positive attitudes regarding wild life.

Regarding the questions evaluating a change in values and attitudes for the secondary schools, there was a highly significant improvement in one question namely in question 8 "I can play a role in conserving chimpanzees". The pass-rate in the pre-questionnaire was 70.73% and in the post-questionnaire it was 87.80%. The computed p-value of the Chi-square test was 0.007963($\chi^2(1)=7.0417$), which is smaller than 0.01, indicating highly significant differences between the 'pre-' and 'post-' proportions at a 95% level of confidence. This shows that the Conservation Education programme was highly successful in increasing the learners' intention to change their behaviour regarding the conservation of chimpanzees. Although there was no significant improvement in the number of correct answers for questions 9 "I believe that all living creatures are important" and 10 "I would like to become involved in projects to protect animals and their habitats" the pass rates were already high in the pre-questionnaire (both 96.34%), indicating that the learners already had a positive attitude . Both questions 8 and 10 of the secondary school questionnaire deal with the learners' intention to change their behaviour. Jensen (2011:94) found that the experience of viewing live animals can have a powerful impact on learners to construct a new understanding of wildlife, of the natural world, and of the role of humans intervening in this natural world. His research showed that visits to the zoo alone yield a statistically significant increase in scientific learning, and this impact can be increased by the zoo's educational interventions. This learning experience and the increase in knowledge can be enhanced by providing educational materials and presentations (Jensen, 2011:94). Furthermore, Johnson-Pynn and Johnson (2005:25) reported a positive increase in the knowledge of conservation of the learners who attended Conservation Education programmes in East Africa. However, the educational value of a visit to a zoo is influenced by a number of factors that precede the visit, such as prior knowledge, the mass media, age, gender, and whether it is the learner's first or subsequent visit (Jensen, 2011:94).

There was no significant improvement in the pass rates of two questions which had a low initial pass-rate, namely questions 6 "Consuming the meat of endangered wild animals is wrong" and 7 "I think we have to accept the responsibility for the destruction of the habitats of animals". Question 6 "Consuming the meat of endangered wild animals is wrong" had a very low pass rate in the pre and post-questionnaire (43.90 % and 39.02% and) which may indicate that the consumption of bush-meat is a behaviour that is difficult to change. Bettinger, et al. (2010:448) stressed the fact that attitudes are difficult to change, and even when people verbally agree to an action, their behaviour may not change until much later, since it takes time to incorporate new knowledge into value systems, and then it is even more difficult to transform the new knowledge and values into behaviour. A number of studies have been done to explain the gap between the possession of environmental knowledge and environmental awareness, and displaying pro-environmental behaviour, however, no definitive explanation has been found for this gap (Kollmuss & Agyeman, 2002:239; Smith, 2008:64).

The recommendations that can be made from the findings of this study regarding the best practices at UWEC is that Conservation Education should be regarded as one of the main mandate of zoos and that the marketing of the Conservaltion Education programmes should be effective in creating awareness about the zoo and the programmes that are offered. Furthermore, ambassador animals should play a role in the programmes offered.

6. CONCLUSION

There are indications that the outcomes of the Conservation Education programmes are achieved through changes that are evident in the communities. The findings of this study indicated that the Conservation Education programme was effective in increasing the learners' knowledge about wildlife and wild places. However, this programme was not effective in increasing secondary school learners' attitudes and values with regard to the consumption of bush-meat and the destruction of habitats.

7. ACKNOWLEDGEMENTS

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