

## International research on Zoo and Aquarium visitors – some new perspectives

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### Summary

As advances in technology improve our ability to communicate, tap previously inaccessible resources, fight ever more complex wars and cure previously incurable diseases; they also drive us further away from nature, the very foundation upon which our society exists. Virtual reality has taken over from real life and most people in western nations are more in touch with a screen than a tree. Rekindling a connection with nature and animals is critical for the future of mankind. Zoos and aquariums can, through research, education and visitor experiences, help to reverse the current tide of destruction threatening to overwhelm the planet. This can be achieved by stimulating people to care, equipping them with the knowledge to take action and providing them with the tools they need to act. However, there is still much to learn about how to do this more effectively and research into this field is not yet fully developed. This paper will present some results of recent international research which investigated the congruency between visitors' views on the role of aquarium and zoos and the conservation mission of such facilities, and will share some suggestions of how to enhance environmental learning and encourage post-visit environmental behaviour.

### What do we already know?

Despite an exceptionally long history, zoos and aquariums continue to play a controversial role in conservation. In response to both internal and external pressure, during the early 1980's zoos started to reprioritise and promote their role in conservation and education. Zoos and aquariums are increasingly scrutinised on the quality of their animal care, their real value to *in situ* and *ex situ* animal and habitat conservation and the impact of their formal and informal (free-choice) education programs (Hutchins & Thompson, 2008). In the absence of evidence in the form of reliable data, the justification for keeping animals in captivity remains subjective. The challenge facing zoos and aquariums is, therefore, to

transform themselves into powerful conservation organisations, and to critically analyse and measure their effectiveness in conservation (in all facets) in order to honestly address the shortcomings preventing this transformation (Fraser & Wharton, 2007). Only once a zoo or aquarium's message and its actions are aligned, will their credibility as conservation organisations be fully accepted.

In 1972 the first paper questioning the educational value of a visit to a zoo was published with the comment 'We must learn the extent to which the zoo serves to develop a proper environmental ethic' (Sommer, 1972). This comment is probably even more relevant today than it was in 1972. An understanding of the role of the zoo or aquarium as a part of an overall matrix of awareness-raising experiences is important – one visit to a zoo or aquarium is unlikely to turn visitors into active environmentalists, however, the visit builds on past experiences and lays a foundation for future experiences, which together play a role in sensitising people to the need to engage in environmentally responsible behaviours (Ballantyne & Packer, 2011). It has been argued that, in order for zoos and aquariums to really influence the behaviour of visitors when they return home, it is essential that the visit be 'extended', through the provision of post-visit resources (Ballantyne & Packer, 2011; Hughes, Packer & Ballantyne, 2011). Working out how to best reach the visitor after the experience is becoming progressively important. Such research indicates that the provision of post-visit resources can encourage visitors to participate in environmentally sustainable actions and enhance their attitudes towards wildlife (Ballantyne & Packer, 2011; Hughes et al., 2011).

### **What influences visitors' long term environmental learning?**

In order to better understand the impact of different variables on environmental learning, Ballantyne, Packer and Falk (2011) used Structural Equation Modelling to identify the factors that best predicted positive long-term environmental learning and environmental behaviour change outcomes. Working in four marine-focussed educational leisure settings (two where animals were captive - an aquarium and a marine theme park, and two where animals were wild - a whale watching experience and a turtle nesting and hatching experience), they tested the relationships between visitors' entering attributes, relevant aspects of the experience, and short and long term learning outcomes. The empirical model emanating from their observations and analysis showed that attributes such as pre-visit environmental orientation and motivation to learn were good predictors of the long term impact of the experience (Fig. 1). Aspects of the experience, particularly the opportunity for reflective engagement which included both cognitive and affective processing of the experience, were also found to influence both short and long term learning. For zoo and aquarium professionals this suggests that encouraging visitors to reflect, imagine, connect and discuss during their visit is important to encourage long term behaviour change.

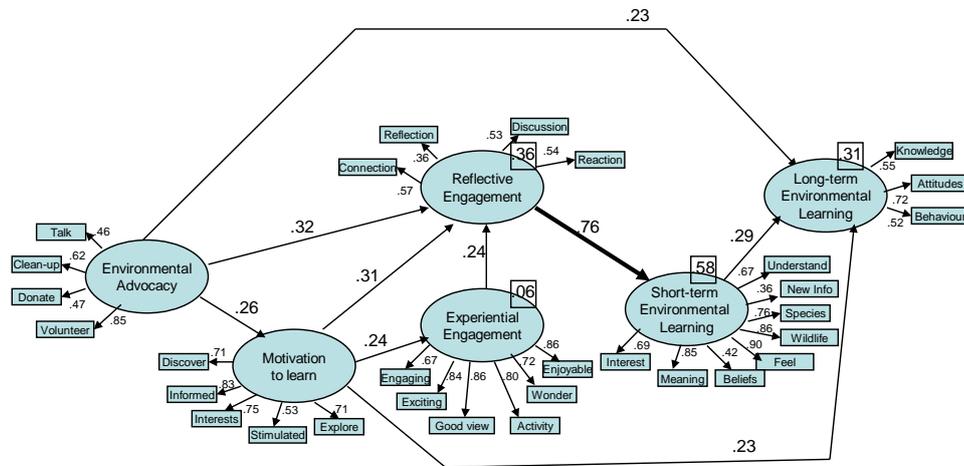


Fig. 1. Structural equation model predicting learning outcomes (Ballantyne et al., 2011). The numbers represent the strength of the relationships.

### What do visitors want from their visit?

Recently, research designed to investigate various aspects of visitor environmental learning was conducted at 13 zoos and aquariums in USA, UK, Canada and South Africa (Ballantyne and Packer, 2014). A total of 1546 questionnaires were returned from the 13 institutions (705 responses from 6 zoos and 841 responses from 7 aquariums).

The findings of this study revealed that zoo and aquarium visitors held predominantly social motives for their visit – wanting to share quality time with family or friends, as has been found in many previous studies. Interestingly, the research revealed that, for most visitors, learning was one of the top three reasons (out of the five options presented) for visiting the facility and that more aquarium visitors were interested in learning than zoo visitors. Zoo and aquarium visitors rated themselves slightly above the midpoint of the scale in terms of their interest in, and knowledge about the environment. Zoo and aquarium visitors reported their environmental practices, especially recycling, conserving energy and conserving water, to be slightly above the midpoint of the scale. This highlights the fact that zoo and aquarium visitors are generally often already predisposed to hearing about environmental issues. However, when it came to more active environmental contributions, such as participating in public clean-ups or doing volunteer work, visitors rated themselves slightly below the midpoint of the scale. This would suggest that zoos and aquariums have the opportunity to capitalize on the interest of their visitors to encourage more active environmental contributions.

Of importance to zoo and aquarium professionals was the finding that visitors considered that factors relating to animal welfare (animals were well cared for, active and kept in naturalistic environments) contributed most to their satisfaction with their visit, followed by experiential factors (novelty, variety, proximity to animals) and environmental learning factors. Least important to visitors were interaction factors (being able to touch the animals, see them being fed, or see them perform). For 75% of visitors, knowing that the facility contributes to animal conservation projects was at least as, if not more important than being able to see animals being fed. This is a positive finding as it highlights the synergies between animal welfare and conservation and visitor satisfaction. Investments in welfare and conservation should be seen as contributing to visitor satisfaction.

Ballantyne and Packer (2014) also looked at what visitors considered to be the most important role of zoos and aquariums. According to the visitors surveyed, zoos and aquariums should provide information about animals, conservation and environmental issues. Being places where you relax and enjoy the beauty of nature was also considered important by visitors. Overall, 74% of visitors believed that the zoo or aquarium's role in providing information about conservation and environmental issues was at least as, if not more important than being a place where you can go for a fun experience. The opportunity to reflect and think during a visit was noted as the majority of visitors felt it was very important for zoos and aquariums to encourage visitors to reflect on, and take action in relation to environmental issues.

An investigation into visitors' preferences for off-site conservation information revealed that almost half of all visitors felt it was very important for zoos and aquariums to provide take-away materials to encourage people to continue learning about environmental issues after their visit (Ballantyne and Packer, 2014). When asked how they would like to continue learning about the animals after their visit, visitors noted that a website that could be accessed from home would be their first choice, followed by information on upcoming TV programmes and talks at the zoo or aquarium. It is noteworthy that visitors were not generally supportive of regular reminder emails, text messages, stickers or Facebook groups.

Ballantyne and Packer's research detected a number of significant differences between zoo and aquarium visitors:

- Aquariums appeared to attract more tourists and first-time visitors than zoos, while zoos were more popular with local residents, many of whom visited more than once a year.
- Aquarium visitors tended to be more environmentally orientated than zoo visitors.
- Aquarium visitors were more likely to hold learning motives than zoo visitors.
- Aquarium visitors placed more importance than zoo visitors on the role of the facility in relation to conservation education.

- Learning/conservation factors contributed more to the satisfaction of aquarium visitors, while opportunities to interact with animals were less important than for zoo visitors.

### **Future Research – Some Suggestions**

Overall, it would appear that visitors' views on the role of aquariums and zoos are becoming increasingly congruent with the mission of modern zoos and aquariums. No longer do visitors, or the facilities themselves, want to be only places of entertainment; both consider issues such as animal welfare, education and conservation to be vitally important. The work undertaken by Ballantyne and Packer (2014) presents an important step forward in the quest to better understand the visitor to a zoo or aquarium, and, more importantly, how best to influence the behaviour of the visitor. The international nature of the research is important as only one other study has looked at visitor learning across multiple sites and countries (Moss, Andrew, Jensen, Eric, Gusset, 2014). However, given the complexity of visitors as well as the wide range of zoos and aquariums around the world, there remains much to be learnt in this field. Key focus areas for research include:

- Better techniques for the measurement of long-term environmental learning after a visit to a zoo or aquarium – this should encompass environmental values, attitudes, knowledge and behaviour;
- How best to reinforce visitors' environmental learning 'off-site' in order to ensure that the visit becomes a part of life-long environmental learning; and
- The need to develop a validated tool which can be used by zoos and aquariums to accurately measure visitors' environmental learning and subsequent environmental behavioural outcomes as a result of a visit.

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