
Kids Need to Run Wild: Using Technology at the Zoo

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Abstract

The zoo is an environment which aims to evoke the natural world and encourage connections with wildlife. This gives rise to a number of barriers to incorporating technology (as a non-naturalistic feature) into the zoo experience. In this paper, we draw on our case study investigation into technology at Melbourne Zoo to explore the nature of the tensions around technology use at the zoo, and some of the challenges involved in designing and deploying technology in this space. From this, we identify three considerations relevant to the design of technology for the zoo setting, relating to the importance of play and free movement, and the primacy of the animal viewing experience.

Author Keywords

Naturalism; zoos; visitors.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous; See <http://acm.org/about/class/1998> for the full list of ACM classifiers. This section is required.

Introduction

Zoos occupy a hybrid status as built environments which aim to create the impression that the visitor is entering a natural space [3]. The overarching goals of



Figure 1: Digital signage iPads at small animal enclosures



Figure 2: The Zoopermarket supports visitors to learn about palm oil as an ingredient in consumer goods and lobby manufacturers.

modern zoos are centered on educating visitors and the community, motivating positive attitudes towards wildlife and conservation, and engendering relevant behaviors. [11]

In support of these goals, zoos aim to help visitors feel close to nature [2]. Central to this goal, and the zoo experience as a whole, is the opportunity to get close to animals, ideally in an environment which mimics their wild habitat [5]. It has been shown that seeing animals close up in naturalistic exhibits can positively influence visitor attitudes towards wildlife. [1,4].

A number of researchers have investigated how mobile technology can improve on existing static signage to support collaborative learning in a free choice environment [8–10]. O’Hara and colleagues [8] relate how a QR-code system for accessing content using mobile phones at the animal exhibits was used to share by visitor groups. They contend that delivery using QR-code signage supported visibility and coordinative work better than location based triggers, despite the fact bottlenecks occurred around single point access information points.

When accessing information about animals on a mobile phone, users move to a position where they can see both the animal and the information on their screen, looking back and forth between the two [8]. In response to the risk of technological displays distracting visitors from viewing animals, it has been proposed that augmented-reality systems might allow visitors to see information about an animal while viewing it [6,7].

In this paper we investigate further the challenges of deploying interactive information systems for use in

this naturalistic context which aims to foster both recreation and education.

Methodology

As part of a case study investigation into the deployment and use of digital technology at Melbourne Zoo, we conducted interviews with six members of zoo personnel. We observed five digital systems in use and interaction of zoo visitors in the vicinity, and inspected these selected systems and their content.

This paper draws on researcher observations and interviews with interpretations staff (two) and an educator (one) that reflect on how technology can be deployed for the zoo’s education and conservation goals. These interviews shed light on the objectives and constraints for design and deployment of technology in this naturalistic space. In this work we focus on a highly successful installation (the Zoopermarket) and the envisaged future use of technology as part of the zoo’s education programs.

Findings

Creating Engaging Visitor Experiences

For interpretations staff, innovative use of technology is seen as a way to capture the attention of visitors and engaging them with conservation and education messages. Digital signage provided using iPads (Figure 1) is seen as a mechanism to offer people access to a range of content, allowing them to select the materials that respond to their own interests. Technology is also a potential tool to enable people to more readily take steps towards conservation actions: for example, the highly successful Zoopermarket (Figure 2) makes it easy for visitors to send an email to manufacturers in support of sustainable palm oil use. It is important that

such interventions be sufficiently quick and simple to use that a parent can complete the envisaged task while looking after a number of children at peak times.

A key challenge in the design of such installations is to avoid distracting the visitor from the experience of viewing the animal: “you don’t want to take their attention away” [Interpretations Staff]. Researchers observed that parents were reluctant for children use digital signage, instead encouraging them to look at the animal on exhibit.

In addressing this challenge, the location of the installation is critical. For example, the Zoopermarket is housed where visitors have had a chance to view the animals. Observations of visitors at the exhibit indicate that visitors are attracted to investigate the Zoopermarket display only after they have seen enough of the orang-utans or when there is no opportunity for a good view of the animals.

The Zoopermarket incorporates hardware that allows users to perform the physical act of taking a handheld barcode scanner, holding it to a selected product and squeezing the trigger to scan the item – resulting in a familiar feedback tone, and the display of relevant information on the screen. Interviews and observations indicated that this offers a form of physical play which is greatly enjoyed by children. It is often children who instigate use of the system, though children were generally unlikely to use the system alone for long. Visitors seen at the Zoopermarket installation were most commonly adult-child dyads or groups, interacting around the system or using it concurrently.

Education In Situ

Melbourne Zoo educators aim to frame the visit of school groups, encouraging them to experience the animals and exhibits through the lens of a conservation message or scientific question. This is accomplished through presentations at the beginning and end of their visit. Accordingly, a concern for educators is that students are likely to forget the messages and questions presented to them as they roam the zoo and encounter the animals. “The kids can sometimes walk in to the orang-utan exhibit, walk out, and not have considered our questions because they didn’t remember that the orang-utan was one of the ten” [Educator].

Educators are keen to provide context-relevant reminders and guidance to students as they pass through the zoo, both to encourage them to visit areas most relevant to their educational goals, and to remind them of the message or perspective introduced during their introductory presentation. This would allow educators to extend the interactive and challenge-based learning experience throughout the zoo. Delivering location-specific content to students’ own mobile phones is seen as a prime opportunity for achieving this vision. However, it is important for educators that students should not spend extended periods looking at their phone. Rather, location-based alerts are seen as a way to encourage students to engage with nearby learning opportunities, and make conceptual connections between their experiences at different exhibits.

In contrast, educators were resistant to technology which proposed to intervene in the act of viewing the animal. For example, an iPad app which could be used

to view an animal as though through binoculars was not well received: “all it was really doing was making a kid look at an iPad and not the real deal” [Educator].

An important concern for educators is that interactive experiences should be able to cater to the interest of dozens of students entering a significant exhibit at the same time. “We don’t want to send every kid that we have here on site in a day to an experience that’s a one person at a time type thing” [Educator]; this is particularly relevant to the more prominent animal exhibits, which may be visited by hundreds of students in an hour.

Discussion

From the observations and interviews described above, the following considerations emerge.

Support free movement

It is important that interventions at the zoo should support the free movement of groups and individuals between and around exhibits. Visitors need be able to roam as they choose through the zoo, rather than following a pre-determined path. It is evident moreover that systems which require queuing and turn-taking are unlikely to be sustainable during peak hours. This suggests that techniques are needed which will allow good visibility of the experiences on offer, *as well as* enabling multiple users to pass through at once.

Encourage physical play and interaction

Children and parents alike value the zoo as a place for physical play: technology interventions need to allow children to run ahead of the group and keep their hands free for climbing and clambering. Similarly, when moving around the zoo parents need to keep their

hands – and attention - free for pushchairs or bags, and for interacting with children.

Ideally, interventions should encourage physical interaction or movement, rather than screen-based interactions. It is therefore uncertain whether use of mobile phones when moving between exhibits will be attractive to family groups.

Avoid distracting from the animals

It is important that technology should enhance the time that visitors spend viewing the animal, rather than attempting to intervene in this experience. Our early research suggests that augmented-reality based information overlay systems might be problematic. It seems that there might be stronger potential in systems for use before or after seeing the animal. These might include interventions to direct or frame engagement with the animal; informational and experiential systems to supplement the viewing experience; contextual materials aiming to create connections between different exhibits.

Conclusion

As a naturalistic space, the zoo is an environment that encourages families and young people to observe animals in (a recreation of) their natural habitat, as well as engaging in unstructured exploration and physical play. It is important that technology interventions for this context should avoid negatively impacting on these activities. Accordingly, we propose three high-level considerations for designing technology for zoo visitors.

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