Australian Government
Australian Research Council

Engagement and Impact 2018

The University of Queensland

QLD15 (SS) - Impact

Overview

Title

(Title of the impact study)

Enhancing visitor learning experiences in museums, zoos and aquariums

Unit of Assessment

15 - Commerce, Management, Tourism and Services

Additional FoR codes

(Identify up to two additional two-digit FoRs that relate to the overall content of the impact study.)

13 - Education
20 - Language, Communication and Culture

Socio-Economic Objective (SEO) Codes

(Choose from the list of two-digit SEO codes that are relevant to the impact study.)

93 - Education and Training
95 - Cultural Understanding
96 - Environment

Australian and New Zealand Standard Industrial Classification (ANZSIC) Codes

(Choose from the list of two-digit ANZSIC codes that are relevant to the impact study.)

82 - Adult, Community and Other Education
89 - Heritage Activities

Keywords

(List up to 10 keywords related to the impact described in Part A.)

Visitor research

Environmental education

Environmental interpretation

Heritage interpretation

Museums

Zoos and aquariums

Free-choice learning

Informal learning

Visitor experiences

Tourist behaviour

Sensitivities

Commercially sensitive

No

Culturally sensitive

No

Sensitivities description

(Please describe any sensitivities in relation to the impact study that need to be considered, including any particular instructions for ARC staff or assessors, or for the impact study to be made publicly available after EI 2018.)

Aboriginal and Torres Strait Islander research flag

(Is this impact study associated with Aboriginal and Torres Strait Islander content?
NOTE - institutions may identify impact studies where the impact, associated research and/or approach to impact relates to Aboriginal and Torres Strait Islander peoples, nations, communities, language, place, culture and knowledges and/or is undertaken with Aboriginal and Torres Strait Islander peoples, nations, and/or communities.)

No

Science and Research Priorities

(Does this impact study fall within one or more of the Science and Research Priorities?)

Yes

Science and Research Priority	**Practical Research Challenge**
Environmental change	Options for responding and adapting to the impacts of environmental change on biological systems, urban and rural communities and industry.

Impact

Summary of the impact

(Briefly describe the specific impact in simple, clear English. This will enable the general community to understand the impact of the research.)

UQ’s Visitor Research has enabled custodians of cultural and zoological sites around the world to evaluate the impacts of their offerings and improve the quality of the visitor experience. Our research has provided concrete evidence of how wildlife tourism experiences influence tourists' long-term environmental behaviour. We developed, tested and applied a theoretical model that has guided subsequent research and provided practitioners with key data on factors that influence visitor learning. The findings have enabled zoos and aquariums to extend and improve the effectiveness of conservation education initiatives, play a greater role in developing an environmentally literate society, motivate collective action for wildlife conservation, and measure achievement of mission objectives.

Beneficiaries

(List up to 10 beneficiaries related to the impact study)

Australian zoos (Taronga Zoo, Zoos Victoria, Adelaide Zoo, Perth Zoo; Territory Wildlife Park)

International zoos and aquariums (multiple in USA; Canada; South Africa)

Museums and heritage sites in Australia (South Australian Museum, Melbourne Museum; Australian War Memorial)

Chengdu Research Base for Giant Panda Breeding (China)

Zoo, aquarium and museum visitors

International sites (Te Papa Museum, NZ; Canterbury Cathedral, UK; St Louis Science Center, USA; Ha Long Bay, Vietnam; Robben Island Museum, SA)

Countries in which the impact occurred

(Search the list of countries and add as many as relate to the location of the impact)

Australia
New Zealand
United States of America
Canada
South Africa
England
China (excludes SARs and Taiwan)

Vietnam
Denmark

Details of the impact

(Provide a narrative that clearly outlines the research impact. The narrative should explain the relationship between the associated research and the impact. It should also identify the contribution the research has made beyond academia, including:
- who or what has benefitted from the results of the research (this should identify relevant research end-users, or beneficiaries from industry, the community, government, wider public etc.)
- the nature or type of impact and how the research made a social, economic, cultural, and/or environmental impact
- the extent of the impact (with specific references to appropriate evidence, such as cost-benefit-analysis, quantity of those affected, reported benefits etc.)
- the dates and time period in which the impact occurred.

NOTE - the narrative must describe only impact that has occurred within the reference period, and must not make aspirational claims.)

Improving the effectiveness of visitors' conservation learning

Modern zoos and aquariums are conservation organisations aiming to positively influence visitors' environmental awareness, attitudes and behaviour. With three ARC-funded projects from 2005-2016, UQ's Visitor Research Team (Ballantyne, Packer, Hughes and others) systematically identified factors that facilitated the adoption of pro-environmental behaviours after visits to zoos and aquariums, and formulated strategies to increase the impact of the experience. The findings have since supported zoos and aquariums in their mission to enhance and extend the environmental behaviour of over 700 million visitors each year, including Brookfield Zoo, Chicago, and the Bronx Zoo, New York. The impact is supported by the following testimonials:

"Brookfield Zoo's current efforts in understanding and addressing our visitors' perceptions of animal welfare are a direct result of the research Roy Ballantyne and Jan Packer conducted at our gorilla exhibit in 2011. Their study was the first time we had examined in depth our visitors' perceptions of animal welfare. Given the significance of their original findings, we have continued the research and today we have a better understanding of our visitors' perceptions of zoo animals. We are addressing our visitors' concerns about animal welfare by including more information about the health and welfare of our zoo animals during formal and informal staff interactions with visitors." (Jerry Luebke, Brookfield Zoo)

"Jan Packer and Roy Ballantyne's research has helped to describe and contribute to the unique landscape and considerations of zoo and aquarium interpretation… our exhibit design and interpretation practice references the work to help position and define our own efforts at WCS broadly, as well as in particular projects." (Sarah Hezel, Wildlife Conservation Society)

UQ's work with uShaka Marine World in Durban, South Africa influenced new strategies for communicating conservation messages to visitors: "The research revealed the factors that influenced visitors. We have adjusted our experiences and messaging to focus on these factors. Through these changes we have been able to encourage more of our visitors to take small, everyday actions to save the environment and save the penguins. Feedback from visitors suggests that this program is helping to raise awareness of environmental issues. The results are being used in the design of future campaigns, both at uShaka Sea World and in zoos and aquariums elsewhere." (Judy Mann, Conservation Strategist, South African Association for Marine Biological Research)

"Thank you for all your work around conservation messaging and audience responses. As someone working to establish a strategic approach to community campaigns at a zoo, your work has been referenced heavily in the development of discussion papers and strategies. Hopefully we can continue to aid you and your team in furthering your understanding of how to best bring about action on key conservation issues." (Alan Gill, Perth Zoo)

Improving the quality of interpretive techniques

Following the 2007 publication of "Designing Interpretive Signs: Principles in Practice" (Moscardo, Ballantyne and Hughes), which has guided and improved interpretive practice in parks and heritage sites around the world, UQ researchers were invited in 2011 to help develop a Visitor Management Plan for Canterbury Cathedral. In 2014, the Plan was leveraged for a successful grant of £11 million from the National Lottery Heritage Fund to completely redesign their interpretation plan and renovate sections of the cathedral.

Developing a tool to capture the visitor experience

In 2010-2016 A/Prof Packer and Prof Ballantyne designed and developed an instrument (DoVE) to measure 15 dimensions of the visitor experience, which is now used at such institutions as Shedd Aquarium (Chicago, USA), Denver Zoo (USA), Monterey Bay Aquarium (USA), St Louis Science Center (USA), and Te Papa Museum, Wellington (NZ). Since 2012, Denver Zoo has used the instrument in its standard evaluation for developing and improving exhibits. In 2016, staff at the Shedd Aquarium published an article describing how DoVE improved visitor experiences. “We have used DoVE to better understand the variability in the visitor experience Shedd-wide. Using the example of connection, we have been able to identify where connection scores are high and where they are lower, and then use those findings to further investigate why such variation exists across exhibition experiences… This information about our visitors’ experience in Amphibians provided valuable insight. In collaboration with our animal care staff, we began to alter lighting, habitat design, and even the animals on exhibit to help create a better experience that allowed for a less tense and more satisfying search.” (Nesbitt and Maldonado, 2016).

Upskilling visitor research practitioners

UQ has shown leadership in raising the profile and professional standing of visitor research internationally. Prof Ballantyne and A/Prof Packer ran workshops for visitor research practitioners at Brookfield Zoo (2011), Bronx Zoo (2012), and Denver Zoo (2016), which led to and supported collaborative industry-based research with these partners. In 2013, UQ contributed a section focussed on visitor management and heritage interpretation to a short course on “Built Heritage – Management and Conservation” for town planners from Myanmar, funded by AusAID. UQ has co-hosted with the University of Canberra 9 annual Visitor Research Forums, bringing together academics and industry practitioners across Australia and NZ. “I enjoyed the VRF more than any other research-based event of the past 12 months, thanks to the quality, subject focus and diversity of the presentations, so thank you for the huge amount of work inevitably involved in the delivery of such a successful day.” (Victoria Young, Doctoral candidate, Tate Art Museum)

Associated research

(Briefly describe the research that led to the impact presented for the UoA. The research must meet the definition of research in Section 1.9 of the EI 2018 Submission Guidelines. The description should include details of:
- what was researched
- when the research occurred
- who conducted the research and what is the association with the institution)

The UQ Visitor Research Team’s projects between 2002-2016 included four ARC-funded projects (Discovery Ballantyne, Packer & Falk 2005-2008; Linkage Ballantyne, Packer & Falk 2012-2015; Discovery Packer, Ballantyne & Uzzell 2013-2016; Linkage Ballantyne, Lee, Packer & Hughes 2015-2018) and 19 industry-funded research and consultancy projects involving museums, zoos, aquariums and other tourist attractions in Australia, Canada, New Zealand, UK, South Africa, China and the USA. Our research in zoos and aquariums showed that visitors’ entering characteristics (motivation, environmental orientation, values), level of engagement (experiential and reflective engagement), and the communications they receive from the zoo (on-site and post-visit interpretive strategies) all influence the extent to which visitors make positive changes to their pro-environmental behaviours as a result of their visit. This has enabled us to devise and test strategies to tailor interpretive experiences to address individual needs; encourage reflective responses to animal encounters; and provide post-visit action resources to reinforce and extend on-site experiences. We have demonstrated the effectiveness of these approaches using qualitative and quantitative research techniques and randomised controlled experiments. Similarly, our research in museums has explored multiple facets of the visitor experience and developed recommendations for improving interpretive strategies and meeting visitor needs.

FoR of associated research

(Up to three two-digit FoRs that best describe the associated research)

15 - Commerce, Management, Tourism and Services
13 - Education
20 - Language, Communication and Culture

References (up to 10 references, 350 characters per reference)

(This section should include a list of up to 10 of the most relevant research outputs associated with the impact)

Ballantyne, R. and Packer, J. (2005). Promoting environmentally sustainable attitudes and behaviour through free-choice learning experiences: What's the state of the game?, Environmental Education Research, 11 (3), 281-295.

Ballantyne, Packer and Falk. (2011) Visitors' learning for environmental sustainability: testing short- and long-term impacts of wildlife tourism experiences using structural equation modelling. Tourism Management, 32, 6, 1243-1252.

Ballantyne, R., Packer, J. and Sutherland, L. (2011) Visitors' memories of wildlife tourism: Implications for the design of powerful interpretive experiences. Tourism Management, 32, 4, 770-779.

Ballantyne, R., Packer, J., Hughes, K., and Dierking, L. (2007). Conservation learning in wildlife tourism settings: lessons from research in zoos and aquariums. Environmental Education Research, 13 (3), 367-383.

Ballantyne, R., Packer, J. & Hughes, K. (2009). Tourists' support for conservation messages and sustainable management practices in wildlife tourism experiences. Tourism Management, 30, 658-664.

Ballantyne, R. and Packer, J. (2011). Using tourism free-choice learning experiences to promote environmentally sustainable behaviour: the role of post-visit 'action resources'. Environmental Education Research, 17 (2), 201-215.

Moscardo, G., Ballantyne, R. and Hughes, K. (2007). Designing interpretive signs: Principles in practice. Golden, Colorado, USA: Fulcrum Publishing.

Hughes, K., Bond, N. and Ballantyne, R. (2013) Designing and managing interpretive experiences at religious sites: visitors' perceptions of Canterbury Cathedral. Tourism Management, 36 210-220.

Packer, J., Ballantyne, R., and Hughes, K. (2014). Chinese and Australian tourists' attitudes to nature, animals and environmental issues: Implications for the design of nature-based tourism experiences. Tourism Management, 44, 101-107.

Packer, J., and Ballantyne, R. (2016). Conceptualising the visitor experience: a review of literature and development of a multifaceted model. Visitor Studies, 19 (2), 128-143.

Additional impact indicator information

Additional impact indicator information

(Provide information about any indicators not captured above that are relevant to the impact study, for example return on investment, jobs created, improvements in quality of life years (QALYs). Additional indicators should be quantitative in nature and include:
- name of indicator (100 characters)
- data for indicator (200 characters)
- brief description of indicator and how it is calculated (300 characters).)

Name

Number of institutions whose practice has been directly influenced by our research

Indicator Data

23

Indicator Description

Zoos: Brookfield, Bronx, Taronga, Territory Wildlife Park, Wellington, Melbourne, Perth, Adelaide, Oregon, Woodland Park, Philadelphia, St Louis, Denver; Aquaria: Vancouver, Shedd, Nth Carolina, Monterey Bay, uShaka; Museums: Queensland, Melbourne, South Australian, Te Papa; Detroit Institute of Art

Name

Funds committed by partner organisations to collaborative research 2002-2016

Indicator Data

$200,000

Indicator Description

(ARC Linkage Projects 2012-15, 2016; NCETP; SLQ; Burnett Shire Council)

Name

Number of articles published in industry publications and newsletters 2011-2016

Indicator Data

9

Indicator Description

International Zoo Educators Journal 2010, 2011; Interpretation Network New Zealand Insights 2013; World Association of Zoos and Aquariums Magazine 2014; International Zoo Yearbook 2016; Evaluation and Visitor Research Group newsletter 2011, 2012, 2014; Music Council of Australia magazine 2012.

Name

Number of page views of UQ online stories featuring the Visitor Research Team 2011-2016

Indicator Data

5499

Indicator Description

Page view data (2011-2016) collected by UQBS from web stories and videos featuring the Visitor Research Team (Prof Ballantyne, A/Prof Packer, Dr Hughes)