# An application of a photo-based mixed-methodology to explore domestic demand for Indigenous tourism in Australia

# Abstract

Indigenous tourism is a growing research area that is receiving increased attention from both policy and academic communities. However, existing studies for this type of tourism in Australia tend to be limited to investigating domestic demand, with the majority of previous research taking a quantitative approach. This study, which investigates domestic visitors’ tourism activity choices at the Grampians National Park, Victoria, has adopted a more innovative approach. The research used a mixed-method approach in a case study involving 52 domestic visitors. The methods included an on-site survey instrument, a photo-based sorting-ranking procedure and semi-structured interviews using the photo-based sorting-ranking procedure as a photo-elicitation technique. The combination of the three methods enabled a broader understanding of the domestic visitor preferences, motivations for, and barriers to, engaging in Indigenous tourism. The on-site survey provided information about visitor’s demographic and psychographic characteristics. The photo-based sorting-ranking method provided insights into both the preferences for Indigenous tourism activities and as a photo-elicitation technique for the semi-structured interviews. The semi-structured interviews contributed to the understanding of motivations and barriers regarding participation in Indigenous tourism. As different methods were used, a variety of data analysis techniques were applied. Frequency distributions were used to analyse the data from the survey. Mean rankings and the multidimensional unfolding [MDU] of ordinal data method using SPSS were applied to analyse the preferences for Indigenous tourism activities. Finally, the data collected from the interviews was analysed via a thematic qualitative coding analysis using NVivo10. The coding analysis employed the Leisure Motivation Scale (LMS) framework and motivations and barriers themes identified in previous studies. The results not only confirm previous theory in regards to the socio-demographic profile of Indigenous visitors, but also expand the knowledge. The results reveal new motivations for, and barriers to, domestic visitors engaging in Indigenous tourism that have not been previously identified in the existing literature. The approach used in this study was found to be an effective tool in gaining a deeper understanding of the visitor motivations and barriers.

# Introduction

Tourism is often suggested as a promising development strategy for Indigenous people in achieving economic independence and improving the life conditions of the community while protecting the culture and natural resources (Bunten 2010). As a relatively new field of study, Indigenous tourism research has been receiving attention not only from the academic community but also from policy makers. According to Harvey and Blangy (2009), the term “Indigenous tourism” become a catalyst for Indigenous tourism research when the Butler and Hinch (1996) study was published. Indigenous tourism research in Australia, from a demand perspective, started to appear in the late 1990s (e.g. Moscardo & Pearce 1999). However, it was not until 2000 that Ryan and Huyton studied visitor attitudes towards Indigenous tourism. After Ryan and Huyton’s (2000; 2002) studies, there has been limited research undertaken in Indigenous tourism from the demand perspective (e.g. Jones Donald Strategic Partners [JDSP] 2009; Ruhanen, Whitford & McLennan 2013). These studies approached the interest in Indigenous tourism mainly from a quantitative perspective following a positivism approach (e.g. Ruhanen, Whitford & McLennan 2013; Ryan & Huyton 2000; 2002), or from the perspective of future visitor destination choice, instead of considering in-destination activity choices (e.g. JDSP 2009). Previous studies have also approached Indigenous tourism preferences from choices of activities not offered in the destination where the research was conducted, or/and from the perspective of a future intention to participate (e.g. JDSP 2009; Ruhanen, Whitford & McLennan 2013; Ryan & Huyton 2000; 2002).

Therefore, there is an opportunity for a more inclusive method, using images and verbal statements, to explore domestic visitor perceptions towards Indigenous tourism activities taking place close to those visits in time and space. This current research uses a mixed-method approach in a case study. The methods include an on-site survey instrument, a photo-based sorting-ranking procedure, and semi-structured interviews using the sorting-ranking procedure as photo-elicitation technique. The combination of the three methods enable a broader understanding of the domestic visitor preferences, motivations for, and barriers to, engaging in Indigenous tourism. The aim of this paper is to present a discussion of the methods used to answer the research question.

Following this introductory section, section 2 provides a review of existing methods and a justification for the approach undertaken in this study. Section 3 details how the methodology was applied in the case study under examination. Section 4 presents the results in light of the methodology. Finally, section 5 discusses the findings in regard to Indigenous tourism and the methodology used. Section 5 also concludes the paper by presenting the limitations of the study and summarising the key findings.

# A mixed-method approach

A mixed method approach involves the combination of at least one qualitative and at least one quantitative component (Bergman 2008; Jennings 2010). The use of both elements add depth and insights to the purely quantitative approach (O’Leary 2010).

This study uses mixed methods under a qualitative perspective with acceptance of quantitative data, and performs content and statistical analysis; which means that a deeper exploration under a qualitative framework using qualitative and quantitative data help the researcher to answer the research question. Table 1 summarises the methods used and their contribution to answering the research question.

Table Methods used in the present study

|  |  |  |
| --- | --- | --- |
| **Method** | **Research objective** | **Data collected** |
| On-site survey | a) To define the domestic visitor profile interested in Indigenous tourism activities (demographic and psychographic data). | Quantitative |
| Sorting-ranking photo-based process | a) To gain information about domestic visitor preferences for Indigenous tourism activities in comparison to other tourism activities available within the destination.  b) To compare domestic preferences for two different Indigenous tourism activities. | Quantitative |
| Semi-structured interviews using photo-elicitation | a) To gain information about domestic visitor motivations for, and barriers to, engaging in Indigenous tourism activities. | Qualitative |

**Source: Adapted from Espinosa Abascal, Fluker & Jiang, 2014**

The photo-based sorting-ranking procedure and the semi-structured interviews using a photo-based sorting-ranking procedure as a photo-elicitation technique were developed for this study (see Figure 1). The following subsections will detail the development of this procedure.

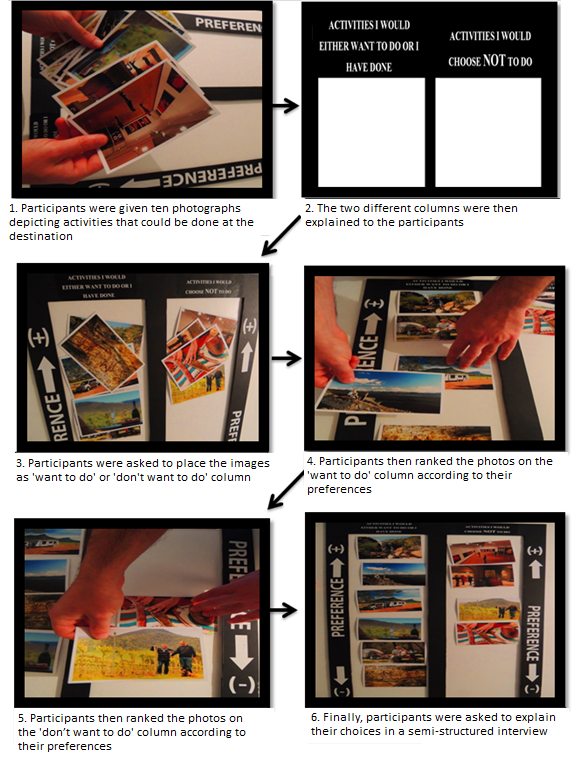


Figure Sorting-ranking photo-based process

(Adapted from Espinosa Abascal, Fluker & Jiang 2014)

## The use of photographs

While the use of photographs in tourism research is well established, its use has been limited. Methods using photographs “can be less restrictive and, perhaps, more accurate than other methods…they represent a viable, but underleveraged, method” (Ray & Smith 2011, p. 289).

One of the most commonly found photo-based methods in tourism research is the photo-elicitation technique. Sorting procedures include the Q methodology, multiple-sorting, repertory grid, and rank-ordering. Each of these techniques are further explained in the following sections.

## Photo-elicitation

The photo-elicitation technique is described as the use of photographs in research interviews with the aim to evoke different kinds of information than one evoked by words (Harper 2002): “as a ‘can opener’, a starting point from where trust can be developed between the researcher and informants” (Andersson 2004, p. 226). The technique has its origins in the mid-1950s when John Collier (1957) published a photo-elicitation research based paper (Harper 2002). Different approaches in using photographs in interviews have appeared; however, the most common examples are either using photographs gathered by participants or by researchers (Matteucci 2013). The use of the photo-elicitation technique in tourism remains marginal (Matteucci 2013), and mainly focused on investigating traveller experiences (e.g. Andersson 2004; Matteucci 2013).

## Q Methodology

The Q methodology involves participants sorting elements according to specific instructions and then providing an explanation of their preferences (Brown 1980; Green 2005; Jacobsen 2007; McKeown & Thomas 1988). This technique employs both qualitative and quantitative analysis using a by-person factor analysis (Coxon 1999). Generally the Q-sample (for example, a set of photographs) is larger than the participants sample (Dziopa & Ahern 2011). An advantage of the Q methodology is that it does not impose meanings a priori and it “encourage[s] greater participant involvement where the issues facing tourism researchers involve multiple truths” (Stergiou & Airey 2011, p. 317). The use of the Q methodology in tourism is relatively novel, and has been used mainly to investigate destination images (Jacobsen, 2007).

## Multiple-Sorting

Similar to the Q methodology, the multiple-sorting technique involves respondents sorting photographs into groups (Green 2005); however, this technique invites but does not pre-request a rank-order (Coxon 1999). The multiple-sorting technique encourages respondents to sort the elements a number of times, using different criteria (Coxon 1999). The use of this technique in tourism research has been limited (Jacobsen 2007). For example, Green (2005) used this approach to investigate local perceptions of tourism development in Koh Samui, Thailand.

## Repertory Grid

While the Repertory grid method has been used widely in psychological studies and in other fields such as consumer behaviour, its application in tourism has been limited (Coshall 2000), in particular with the use of photographs (e.g. Botterill & Crompton 1996; Naoi et al. 2006). This method is based on Kelly’s (1955) theory of personal construct. A construct can be defined as “the ideas behind the actual discrimination that the subject makes between phenomena (people or objects) in the environment” (Naoi et al. 2006, p. 423). The repertory test involves participant sorting three elements (e.g. cards, photographs), which constitute a triad, and to then specify why two of them are alike and different from the third (to obtain constructs). The process repeats itself with different elements within the triad (Coshall 2000; Kelly 1955). The method is focused on similarity judgements (Breivik & Supphellen 2003).

## Rank-ordering

Similar to the repertory grid, the rank-ordering technique is also used to elicit attributes of different alternatives (Bech-Larsen & Nielsen 1999). This technique involves respondents being requested to rank-order a set of elements according to their preferences and then being asked the reasons for their rankings. This technique is focused on capture preferences (Breivik & Supphellen 2003).

The design of the procedure used in this study was based on part of all the above mentioned techniques. The development of a new method for data collection (sorting-ranking photo-based process) helped the researches to answer the following research question: what are Australian domestic visitor preferences, motivations for, and barriers to, participating in Indigenous tourism activities in comparison with other tourism activities when they are at a particular destination?

Table 2 shows how each method contributes to the development of the present methodology used in the present study to investigate visitor preferences, motivations and barriers in regard to Indigenous tourism. The reasons for not including one single method are also detailed.

Table Methods that contributed to the development of the sorting-ranking photo-based technique

|  |  |  |
| --- | --- | --- |
| **Method** | **Contribution to the sorting-ranking photo-based method** | **Limitations of single use method** |
| Photo-elicitation | To trigger semi-structured interviews, which then allows the researcher to capture the motivations for, and barriers to, participating in Indigenous tourism activities. | To explore the intention to participate, and to more easily trigger motivations and barriers, there was a need for a more structured layout, therefore other techniques were also included. |
| Q Methodology | The present study uses the principles of this methodology (sorting and ranking). However, the Q methodology is only partially used. | This methodology requires a large Q-sample (photographs). The inclusion of a larger sample of photographs is not relevant in this case study and it would be more time consuming. In addition, this methodology is widely used to capture the factors that have an influence on participants’ preferences; in this study the aim is to capture the preferences themselves. |
| Multiple-sorting | The multiple-sorting method was not fully included. However, participants were asked to sort photographs in two piles according to their intention to participate. | This method is used to explore different perceptions when the sorting criterion is changed. As this study aims to explore the intention to participate, a sorting method was used to explore the intention (and non-intention) to participate in the different tourism activities. |
| Repertory grid | While this technique was not substantially applied, the gathering of attributes was done by using the rank-ordering and the semi-structured interviews. | This technique is mainly used to obtain similar judgments between the elements. The aim of this study is not to capture these judgments but to understand the low participation rate in Indigenous tourism activities. The use of this technique would be overly time consuming and the data obtained would not fully match the objective of this research. |
| Ranking-ordering | This method was used to capture the visitor preferences to engage in tourism activities. | This method was used along the sorting method and the photo elicitation technique. This method by itself was not used because it would not allow the researchers to identify the intention to participate. The photo-elicitation also allowed the researcher to trigger the exploration of participants’ motivations and barriers. |

# Case study: Indigenous tourism, Grampians, Vic

Halls Gap is a town of 613 inhabitants (ABS 2013) located next to the Grampians National Park (also known as Gariwerd in the local Indigenous language). The Grampians and Halls Gap region is situated about 260 kilometers west of Melbourne, Victoria. The Grampians and Halls Gap region was chosen because it is one of Victoria’s premier holiday destinations (Ali 2009). It is predominantly a domestic travel destination and the majority of visitor main purpose of visit is holiday/leisure (Tourism Victoria, 2012). The destination offers five tourism categories as part of its primary product strengths: nature, food and wine, cultural, caravan and camping, and Indigenous (Grampians Tourism 2012); therefore, it is well suited to fulfil the aims of this study and to test the methodology as an efficient tool to compare participation preferences in Indigenous tourism activities in relation to other tourism categories.

## Data Collection Procedure

The data collection process was conducted on April 2013 at the Halls Gap and Grampians visitor information centre. Domestic visitors were invited to participate using the mall intercept technique (Butler 2008). A total of 52 participants agreed to answer the survey, and of these, 50 agreed to participate in the following sorting-ranking photo-based procedure and the semi-structured interview. The sample size was determined during the in-field data collection process: the process was stopped when the qualitative information collected started to show signs of repetition and the saturation point was reached (Minichiello et al. 1995). Additionally, the fact that the sorting photo-based method uses a relatively small number of participants (e.g. Dewar et al. 2007; Fairweather & Swaffield 2001; Green 2005; Stergiou & Airey 2011) was also taken into consideration.

Participants were asked to fill in a questionnaire, and once completed, the sorting–ranking photo-based procedure was undertaken to identify the domestic visitor preferences for participation and as a prompt for the semi-structured interview which was conducted to capture the motivations for, and the barriers to, participating in Indigenous tourism activities. The data collection process was in compliance with human research ethics approval arranged through the researchers’ university.

The on-site survey consisted of two sections. The first section included nine closed questions and two open ended questions designed to capture demographic and travel behaviour data. The second section was used to collect psychographic data by including eight questions which capture core venturesome preferences: participants were asked to evaluate each of the statements on a 5-point Likert scale, where 5 indicates strong agreement and 1 indicates strong disagreement (Weaver 2011). The full questionnaire was completed by 51 of the 52 participants.

Ten photographs were previously chosen from a validation process and then tested during the sorting-ranking photo-based procedure (see Figure 1). The ten photographs used in the data collection process are shown in Figure 2. These images were collected from the official Grampians tourism and Visit Victoria websites. There were two photographs for each tourism category previously mentioned: museums (Photo 1-cultural), waterfalls (Photo 2-nature), camping (Photo 3-caravan & camping), art galleries (Photo 4-cultural), vineyards (Photo 5-food & wine), rock-art sites (Photo 6-Indigenous), caravan (Photo 7-caravan & camping), sightseeing (Photo 8-nature), cultural centre (Photo 9-Indigenous), food and wine (Photo 10- food & wine). Participants were asked to sort the photographs according to their intention to participate. Next, they were asked to rank the photographs according to their preferences (Espinosa Abascal, Fluker & Jiang 2014).

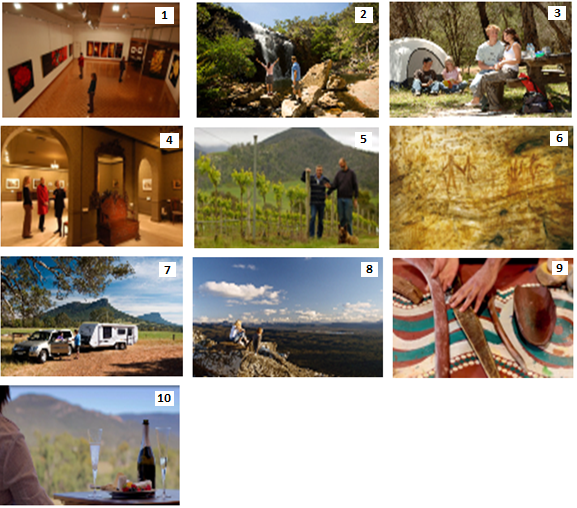


Figure Photographs used in the data collection process

([www.grampianstourism.com.au/](http://www.grampianstourism.com.au/) [www.visitvictoria.com](http://www.visitvictoria.com))

After the photo-based sorting-ranking procedure was finished, the researcher started the semi-structured interview using the sorting-ranking results as stimuli - photo-elicitation method. The semi-structured interview method was used to capture the motivations for, and barriers to, domestic visitors participating in Indigenous tourism activities.

## Data Analysis

As different methods were used, different data analysis approaches were taken. Table 3 shows the data analysis approach for each method.

Table Data analysis approaches undertaken in the present study

|  |  |
| --- | --- |
| **Method** | **Data analysis** |
| On-site survey | * The distribution of each demographic variable was obtained with the use of appropriate descriptive statistics (frequency distributions), and compared with previous studies in the region. * The psychographic variables were computed with the use of cluster analysis: Hierarchical cluster analysis using Ward’s method (Ward, 1963). * Chi-square tests of independence (demographic and psychographic as independent variables) were calculated using SPSS statistical analysis software package. |
| Sorting-ranking photo-based process | * Mean rankings were computed for each activity. * To visually analyse the data, Multidimensional Unfolding [MDU] analysis was conducted using the PREFSCAL algorithm (Borg, Groenen, & Mair 2013). * Chi square tests of goodness of fit and independence were computed to examine the relation between the two Indigenous tourism activities and determine whether they were equally preferred. |
| Semi-structured interviews using photo-elicitation | * Coding and qualitative analysis were undertaken using Nvivo10 qualitative data analysis software. * The frameworks used in this study for the coding analysis follows the LMS framework used in Ryan and Huyton (2002) study, the Australian holiday motivations framework (JDSP 2009), and Ruhanen, Whitford, and McLennan’s (2013) identified motivations and barriers themes. |

# Study Results: Mixing methods

The demographics and the results of the semi-structured interviews using the photo-elicitation method have been previously reported (Espinosa Abascal, Fluker & Jiang 2014). Therefore, no details of these are informed in this paper. It is important to point out that more in-depth and spontaneous answers, compared with previous studies, were captured using the photo-elicitation method. This allowed the researchers to not only to confirm previously identified motivations, but to also explore newly identified motivations and barriers in regards to Indigenous tourism.

The aim of this paper is to show how a photo-based mixed-methodology can help to answer the research question. Therefore, the results presented in this paper will show how the data analysis of each method was linked in order to get a broader understanding of the topic under investigation.

## Preference for Tourism Activities

As mentioned in Table 3, the sorting-ranking photo-based data was analysed using a mean ranking and a MDU analysis. The mean ranking allowed the researchers to identify the most preferred activities. These results have also been previously reported (Espinosa Abascal, Fluker & Jiang 2014).

To support the mean ranking calculation, an MDU analysis was conducted to provide a visual analysis of the domestic preferences for tourism activities. The MDU results confirm the mean ranking data. A 52 x 10 matrix (Participants x Objects) was transformed into a (dis)similarity data matrix and subjected to analysis. Figure 3 shows the best fit configuration plot for the overall data set with all sources simultaneously and ordinal transformations using PREFSCAL.

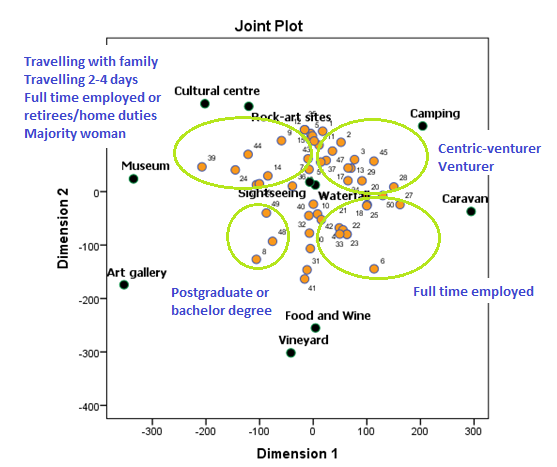


Figure MDU configuration of the domestic visitor preferences for tourism activities

Several MDU models, from 2 to 5 dimensions were generated, and stress value, goodness of fit, and degeneracy indices were calculated for each model. The two dimensional solution was selected because it had the best indicators in comparison with other dimensional solutions. The model presents a goodness of fit of 88.26 per cent (Spearman’s Rho), and a small normalised stress value (.06). The normalised stress value is insensitive to differences in scale and sample sizes, so it is a suitable value for comparing models with different dimensional solutions (Little 2013). In addition, there is no sign of a degenerate solution: The stress is different to zero, the number of the DeSarbo’s intermixedness is small (1.33) which indicates that the points of the different sets are well intermixed, and the model has a Shepard’s Rough non-degeneracy index nearly 80 per cent which means that there are sufficiently different distances. The variation in both distances and transformed preferences are nearly equal (.52 and .59 respectively). Variability in the distances improves the spread of points. It is good that both are similar as that means the model fits the reality. Similar measures appear in Busing’s (2010) and Busing, Groenen and Heiser’s (2005) studies. The solution also shows that the original ranking preferences and the estimates ranking preferences are highly associated (Kendall’s Tau-b.70). This correlation coefficient must be in between −1 and 1.

In Figure 3 the distance between two points represents the correlation of the respective variables (the closer two points, the higher the correlation). The figure shows that domestic preferences for both nature activities are highly correlated. However, the preferences for the other four types of tourism activities appear to be randomly distributed. The figure also shows the majority of respondents (small orange dots) closely located to waterfall and sightseeing activities, this suggests that those activities are the most preferred activities to engage, followed by rock-art sites and camping. In contrast to this, the art gallery was the least preferred activity (small orange dots are far away located from this activity). The figure also indicates that sightseeing and waterfall are located in a central position which reflects that these two activities are positively correlated with each of the other eight activities. This visual presentation is supported by the mean ranking analysis (Espinosa Abascal, Fluker & Jiang 2014). Figure 3 also shows the demographic and psychographic characteristics of the participants that were more inclined to prefer different activities. This data was obtained through the on-site survey.

To understand the dimensions of the MDU analysis, the data from the semi-structured interviews was used (see Table 4). Dimension 1 in Figure 3 suggests that participants perceived the activities on the left side as learning activities (art gallery, museum, cultural centre, rock-art sites, and vineyards – see motivations in Table 4). The right side activities were perceived as activities extremely close to nature activities (caravan and camping – see motivations in Table 4). Dimension 2 in Figure 3 could be interpreted as the suitableness/attractiveness of the activity. For example, the museum, the cultural centre, the rock art sites and camping were perceived as more suitable and attractive than the others. One of the main reasons could be that families travelling with children find it difficult to engage with these activities (see barriers in Table 4).

Table Main identified motivations and barriers to engage in tourism activities

|  |  |  |  |
| --- | --- | --- | --- |
| **Tourism activity** | **Tourism category** | **Main motivations for participating** | **Main barriers to participating** |
| Museums | Cultural | Appreciation / Learning | Indoor activity / Lack of interest / It is a "city thing" / Prefer other activities |
| Waterfalls | Nature | Appreciation of Nature / Be physical active / Close to nature | There were 0 barriers recorded |
| Camping | Caravan &  camping | Close to nature / Relaxation / Interaction / More suitable | Not comfortable / Lack of interest / Not for children |
| Art galleries | Cultural | Appreciation | Lack of interest / Indoor activity / Boring / Prefer other activities / It is a "city thing" |
| Vineyards | Food &  wine | Indulgence / Learning / Appreciation / Fun / Relaxation | Lack of interest / Not for children/ Backyard syndrome / Boring |
| **Rock-art sites** | **Indigenous** | **Connection with history / Learning / Appreciation / Learning op for children** | **Prefer other activities / Lack of interest / Lack of awareness / saturation** |
| Caravan | Caravan &  camping | Travelling around / Close to nature / More suitable | Lack of interest / Not comfortable / Expensive / Not for children |
| Sightseeing | Nature | Appreciation of Nature / Be physical active / Close to nature / Being outdoors | Passive |
| **Cultural centre** | **Indigenous** | **Learning / Appreciation / Learning op for children / Connection with history** | **Lack of interest / saturation / inauthentic/passive / prefer other activities** |
| Food & wine | Food & wine | Indulgence / Relaxation / Fun | Lack of interest / Not for children / Limited time available /Prefer other activities |

## Preferences for Different Indigenous Tourism Activities

The previous section showed how the methodology was suitable to understand domestic visitor preferences for tourism activities at the Grampians. This section shows how the methodology assisted the researchers to compare the similarities and differences in visitor preferences for the two different types of Indigenous tourism activities (integrating the data from the sorting procedure with the semi-structured interviews).

During the sorting–ranking photo-based procedure, participants were asked to sort the activities into the ‘want to do’ or ‘don’t want to do’ columns. This data was analysed using a chi-square test of goodness of fit to examine the relation between the two activities: rock-art sites and cultural centre. The results show that the relation between the two activities is significant, (1, n = 52) = 14.04, p <.001. Fisher's Exact Test p=.000 (see Table 5). This means that all the participants who are willing to experience the cultural centre, are also willing to experience the rock-art sites. However, only 63 per cent of the participants that classified the rock-art sites as a “want to do” activity also classified the cultural centre as a “want to do” activity.

Table Cross tabulation of preferences for the rock-art sites and the cultural centre

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | | **Cultural centre** | |  |
| **Don't want**  **to do** | **Want to do** |
| **Rock-art sites** | **Don't**  **want**  **to do** | Count | 7 | 0 | 14.04 |
| Expected Count | 2.6 | 4.4 |  |
| Residual | 4.4 | -4.4 |  |
| Std. Residual | 2.8 | -2.1 |  |
| **Want to do** | Count | 12 | 33 |  |
| Expected Count | 16.4 | 28.6 |  |
| Residual | -4.4 | 4.4 |  |
| Std. Residual | -1.1 | .8 |  |
| **Total** | | Count | 19 | 33 |  |
| Expected Count | 19.0 | 33.0 |  |

Note: \* (1, n = 52) = 14.04, p <.001. Fisher's Exact Test p=.000

A chi-square test of goodness of fit conducted to corroborate whether the two activities (rock-art sites and cultural centre) are equally preferred by the domestic participants. The results show that preferences for the two activities are not equally distributed in the sample, (2, n = 52) = 17.57, p <.001. This means that while domestic visitors are likely to participate in Indigenous tourism, they are less likely to prefer the cultural centre over the rock-art sites (see Table 6).

Table Chi square test of goodness of fit: Rock art sites VS cultural centre

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Observed n** | **Expected n** | **Residual** |
| Rock Art | 31 | 17.3 | 13.7 |
| Cultural Centre | 14 | 17.3 | -3.3 |
| None | 7 | 17.3 | -10.3 |
| Total | 52 |  |  |

Note: \* (2, n = 52) = 17.57, p <.001

These findings are important because they indicate that if visitors engage in the cultural centre it is likely they will also experience the rock-art sites. However, if they are interested in experiencing the rock-art sites, it does not necessarily mean that they would also be interested in visiting the cultural centre. While the sorting-ranking procedure helped the researchers to capture that there are differences in the preference for Indigenous tourism activities, the data doesn’t explain the reasons. Therefore, the semi-structured interview results were used to help understand these preferential differences. For example, the following quote from the semi-structured interview illustrates how “connection with history” and “appreciation” are important motivations for engaging in both activities:

*“I think would be beneficial because you can see things that are so old, that there is not a lot of that here in Australia; artefacts and everything are so old, that is our old history” - Participant 13*

However, the data from the semi-structured interview also suggest that domestic visitors prefer to experience the rock-art sites because it is an outdoor tourism activity that involves “exploring by yourself”, it is a physical activity, and because it feels “more real” and in context with history (Espinosa Abascal, Fluker & Jiang 2014). For example the following quotation shows that Participant 32 is motivated to engage in the rock-art sites because it is connected with history. However, the participant is not interested in the cultural centre, because it is a passive activity

*“I am interested in Aboriginal sort of natural things that I just come across. I would rather that than going to a place and see it. See it in nature rather than in a gallery” - Participant 36*

# Discussion and Conclusions

## Discussion

While previous studies (e.g. JSDP 2009; Ruhanen, Whitford, & McLennan 2013; Ryan & Huyton 2000; 2002) have contributed to the Indigenous tourism knowledge. There are methodological variations between these studies and the current study (as mentioned before, they used a quantitative perspective following a positivism approach). The findings of this study suggest that the use of semi-structured interviews using the photo-elicitation technique along with the sorting-ranking procedure allowed the exploration of motivations and barriers in regard to Indigenous tourism that have not been previously explored, such as learning opportunities for children, and appreciation.

The use of the sorting-ranking photo-based process allowed the researchers to visually analyse the preferences for tourism activities. Indeed, the results offer insights into preferences within Indigenous tourism activities. It is suggested that participants do not consider all Indigenous tourism activities as being equally preferred. The semi-structured interview data shows that domestic visitors prefer more “authentic” and “natural” Indigenous tourism activities, such as the rock-art sites. This is aligned with Mckercher and Du Cross’s (1998) findings that seeing “mystical rocks” is an important touristic attraction.

Finally the use of an on-site survey allowed the researchers to obtain data that could be used to identify the visitor profile interested in Indigenous tourism. Previous studies have identified the Indigenous visitor socio-demographic characteristics (e.g. JSDP 2009; Moscardo & Pearce 1999; Ruhanen, Whitford, & McLennan 2013; Ryan & Huyton 2000; 2002; TRA 2010). This study confirms previous theory; however, the results cannot be generalised as the sample size used in this study is small in comparison. The aim of this study was not to define an Indigenous visitor domestic profile. Instead, the survey data was used in more of a complementary manner.

## Study Limitations and further research

The use of new methods to collect the data brought difficulties while conducting the research. The researchers acknowledge the limitations of the methodology and suggest the following advice for future research that intends to use this methodology:

First, this methodology has the ability to obtain qualitative and quantitative data. Therefore if a particular study takes a mainly qualitative approach, detailed quantitative analysis of data may not be necessary. On the contrary, if the focus is on a quantitative approach, it is critical to obtain an adequate sample size to increase the generalizability of the analysis.

Secondly, the geographic spread of the study area in this research was relatively small. The location chosen to collect the data (the Grampians) was selected because of its convenience in terms of travelling distance for the researchers, because it is easily accessible to large number of domestic visitors who stop by at the visitor information centre to collect maps of the area. When applying this methodology in different locations, it would be important to identify locations with reasonable access to visitors.

Finally, the methodology used in this study was designed to measure visitor intentions to participate in tourism activities. Opportunities exist to further test the methodology by intercepting the participants at the end of their trip in order to conduct an evaluation of the experience and to compare the actual participation.

## Conclusion

It is suggested that the mixed-methods methodology described in this paper results in a more engaging approach when investigating visitor consumer behaviour. This study showed that while various well-established methods in tourism research exist, they can sometimes be thoughtfully combined in order to more fully address the research question.

Although the aim of this study was not to generalise conclusions, but to explore the demand for Indigenous tourism using a novel mixed-methods approach. The results suggest that by using different data collections methods, an extension of previous theory can be achieved.

Finally, this study indicates that by developing more engaging research methods, not only is the chance of more participants agreeing to be involved in the study enhanced, but also an overall contribution to knowledge is achieved.

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