
Theses

2004

Influence of varying intensities of natural area on-site interpretation on attitudes and knowledge

Michael Hughes
University of Notre Dame

Follow this and additional works at: <http://researchonline.nd.edu.au/theses>



COMMONWEALTH OF AUSTRALIA
Copyright Regulations 1969

WARNING

The material in this communication may be subject to copyright under the Act. Any further copying or communication of this material by you may be the subject of copyright protection under the Act.

Do not remove this notice.

Publication Details

Hughes, M. (2004). Influence of varying intensities of natural area on-site interpretation on attitudes and knowledge (Doctor of Philosophy (PhD)). University of Notre Dame Australia. <http://researchonline.nd.edu.au/theses/15>

This dissertation/thesis is brought to you by ResearchOnline@ND. It has been accepted for inclusion in Theses by an authorized administrator of ResearchOnline@ND. For more information, please contact researchonline@nd.edu.au.



1 Introduction

In recent decades, recognition of natural areas as distinct and important destinations for tourist visitation has grown. In conjunction with this recognition, the need to manage natural areas has increasingly included the factor of human visitation and interaction with natural areas as part of the conservation equation. On-site interpretation is an important tool used to mediate between human visitors and the natural area of visitation. On-site interpretation, in part, intends to add meaning to the visitors' experience of the natural area; encouraging the visitor to view the natural area in personally significant terms or to perceive the natural area in a new light. This suggests an immediate influence on the visitor as a result of experiencing a natural area site. In order to achieve this, on-site interpretation requires an understanding of who visits particular places and how they relate to such places. Subsequently, natural area visitation has become an important focus for research to understand the character of such experiences and how they influence the type of people who undertake them (Boo, 1990; Markwell & Weiler, 1998; Newsome et al, 2002).

Visitor interaction with natural areas represents a two-way relationship with one affecting the other to varying degrees (Shafer, 1969; Dunlap & Heffernan, 1975; Evison, 1981; Perdue & Warder, 1981). For example, visitors whose attitudes are dominated by the perceived utility of natural areas to humans may prefer visiting places with significant human built modifications to enhance comfort. Those seeking to experience natural areas as intrinsically significant or pristine places may prefer no evidence of human modification at all (Jurowski et al, 1995). In turn, the appearance and experiential character of a natural area may foster particular attitudes and knowledge in the visitor (Evison, 1981). Along similar lines, those seeking active recreational activities are less interested in learning about the natural area compared with those seeking to explore their natural surroundings (Hendee et al, 1971; Ballantyne et al, 1998). In this way, the types of attitudes and knowledge held by a visitor might determine the manner of natural area experience they choose, which in turn may determine how on-site interpretation is incorporated into and influences their experience.

While significant resources are spent on developing on-site interpretation of varying types and intensities, there appears to be gaps in assessing the effectiveness of such

communicative techniques in terms of influencing attitudes and knowledge of visitors. For example, the ANZECC Working Group Report (1999) commented on the apparent lack of adequate assessment of interpretation programs in encouraging positive interactions between visitors and natural area sites. The report noted that few management agencies had documented procedures in place to assess the effectiveness of communication services. It was recommended that future development of success factors and performance indicators were required together with research into visitor perceptions of interpretation programs.

Brookes (2000a) commented that the focus of examination of natural area experiences lay primarily in the context of practical economic and environmental management issues. That is, on-site interpretation is primarily assessed in terms of its effectiveness as a marketing and regulatory tool rather than the extent of influence on the visitor. This is due mainly to the perceived difficulties involved in assessment of the influence of on-site communication on visitor attitudes (ANZECC, 1999; Sharpley, 2000). In addition, Brookes (2000a, p126) observed that more consideration is required in terms of finding ways to understand and evaluate the relationship between visitors and how their knowledge and attitudes are influenced by interaction with natural areas. Investigation of this will enable on-site interpretation to become more efficient and effective due to a better understanding of the underlying principles involved (McArthur, 1994; Cole et al, 1997; Floyd, 1997; ANZECC, 1999; Sharpley, 2000).

1.1 Research Objectives

Natural area management agencies in Australia generally have site management objectives relating to the visitors being influenced/educated and made knowledgeable about the site. This is reflected in the status of interpretation as a core component of natural area site management (ANZECC, 1999). Despite the perceived importance of on-site interpretation by natural area management agencies, very little systematic evaluation of its effectiveness has been undertaken. This is especially the case with regard to the intent of interpretation to influence visitor attitudes. Coupled with this is some debate relating to the intensities and types of on-site interpretation that are most appropriate and effective in influencing visitor attitudes.

Part of the issue behind the lack of investigation of the relationship between interpretation and visitor attitudes lies in the difficulties of measurement of cause and effect. While some authors condone extensive workshop style sessions using narratives to gain a detailed picture of attitudes held by individuals, other methods using rating responses (from disagree to agree) to key statements, such as the New Environmental Paradigm scale developed in 1975 have been cited as legitimate (Dunlap & Heffernan, 1975; Jurowski et al, 1995; Manning et al, 1999; Shanahan et al, 1999). There appears to be a trade-off between the depth of attitudinal understanding and detail provided by time consuming narrative methods as compared with the relatively rapid assessment offered by methods such as the NEP scale. It would seem that lengthy attitude assessment techniques would lend themselves to formal interpretative situations in which individuals take part in structured activities of which an in-depth attitude assessment could be a natural extension. Alternately, for circumstances in which individuals are not part of a formal activity but choose to experience interpretation in a casual manner, rapid assessment of attitudes may prove less intrusive and time consuming. The advantage of this is that individuals in casual situations who are not expecting to take part in a survey style assessment may be more likely to take part if the process is time efficient.

This thesis examined whether different intensities of on-site interpretation in natural areas were significantly associated with immediate influences on attitudes and knowledge of visitors as measured by a survey instrument based on the New Environmental Paradigm attitude scale. Measuring the immediate influence of on-site interpretation enables attitudes to be more accurately assessed in the context of a particular natural area site. This was addressed through the following research questions:

1. Is there a measurable influence on attitudes and knowledge of visitors immediately after experiencing on-site interpretation at natural area sites?
2. Is there a relationship between different intensities of on-site interpretation and the influence on attitudes and knowledge?

Two variations of the NEP attitude scales were used to gather attitude data. The first focussed on visitor attitudes toward the human relationship with natural areas. The second focussed on visitor attitudes toward natural areas as a personal experience. The

intent was to measure the influence of on-site interpretation on visitor attitudes toward the relationship between natural areas and humans; and the attitudes of visitors toward the specific study sites as a natural area experience. Influence on knowledge was measured in the context of the site management objectives and factual content of on-site interpretation.

1.2 Nature and Extent of this Study

As part of a research arrangement in co-operation with local universities, the Department of Conservation and Land Management (CALM) provided funding for a social research oriented PhD project in 1998. CALM is a Western Australian State Government agency responsible for the management of the public natural area estate and particularly protected natural areas (such as national parks) within Western Australia. The intent of this project was to determine the influence of CALM's on-site interpretation in natural areas on visitors, comparing different intensities and methods of communication. CALM states in both its corporate objectives as well as in strategic planning documents for use at the individual site level that they aim to positively influence visitor attitudes, knowledge and experiences in natural areas (for example CALM, 1996a; CALM, 2000). While CALM staff have considerable experience in the design of on-site interpretation in natural areas, the success or failure of various techniques has relied on past experience and subjective assessment. Consequently, there was no systematic or consistently accessible resource to provide information on the effectiveness of communication techniques in influencing visitor attitudes and knowledge as stated in agency objectives

This research aimed to address the research questions outlined previously using self administered written paired surveys. Two forms were completed by respondents, one immediately before the experience of the site and one immediately after. Written surveys were determined to be the most appropriate method of data collection owing to the quantifiable nature of the information and the relative short length of time required per visitor to collect such information.

The literature dealing with long term changes in attitude response to communicated messages also suggested immediate or short term influences are apparent. Pratkanis and Greenwald (1985) provided an overview of previous research into what has been

termed the “sleeper effect”, a documented phenomenon whereby an immediate attitude response may alter over time depending on the relationship between the receiver and source of the message. While the authors were primarily concerned with the varying theories as to why the “sleeper effect” occurs, the common underlying focus was based on an immediate attitude response followed by a decay or a strengthening of the immediate response in the long term (Pratkanis & Greenwald, 1985). Lariscy and Tinkham (1999) also document various literature sources that found significant immediate influences were evident in people exposed to persuasive messages. In addition, their study of persuasive messages, in the form of negative political advertising, identified a significant immediate effect in terms of influencing the attitudes of the audience such that they aligned with the intent of the message being communicated (Lariscy & Tinkham, 1999).

This research was concerned with the immediate response of visitors after experiencing a given natural area site. The measurement of immediate response enables associations to be made with the on-site interpretation. Surveying visitors immediately before and after their site experience minimises influences external to the site that may alter attitudes. Long term studies may provide insight into the ultimate influence of natural area experiences on attitudes but specific effects of particular sites are difficult to attribute to any changes measured.

The issue of external influences occurring when investigating the long term changes in attitude as a result of a particular event was discussed by Hovland et al (1953). They commented that, “subsequent experiences affect the retention of communications, but subsequent experiences are also differentially perceived as a result of prior communications” (Hovland et al, 1953, p261). That is, long term attitude studies are complicated by experiences outside the confines of the intended experimental variables. In addition, the influencing factor at the centre of investigation may itself influence how subjects perceive those external experiences. Thus, attitude responses in the long term are difficult to link directly to the original source of influence. Further discussion is provided in the review of the literature in Chapter 2 and methodology Chapter 3. The limitations of this study are addressed in section 1.3.

Two CALM managed sites in Western Australia were used as case studies: the Tree Top Walk site (TTW) and Penguin Island. These sites were selected owing to some

fundamental similarities in character (i.e. small size, entry fees, delicate ecology, short walk trails) while having distinct differences in on-site interpretation techniques. Both sites are relatively small and have been established to protect ecologically unique phenomena. Penguin Island and TTW both incorporate a controlled method of visitor access coupled with an entry fee. Finally, both Penguin Island and the TTW sites are centred on a specific icon that attracts visitors. Penguin Island affords a visitor centre with an enclosure containing Fairy Penguins. The TTW offers a unique canopy level walk trail through stands of giant Tingle and Karri trees. More detailed site descriptions and location maps are provided in Chapter 3.

Both the visitors accessing the TTW and those using the ferry to access Penguin Island were required to pay an entry fee. This represents an important similarity in the visitor samples taken at each site. Paying for site access may be closely associated with how a visitor experiences a site and their attitudes toward it. A visitor willing to pay for admission may view the site in terms of a user-pays facility, in other words, the site simply becomes a commodity for use by visitors as a source of entertainment or place of recreation. This may affect the meaning the site has and may also distance visitors from the site (metaphorically) as a natural area experience, a situation in contrast to the intent of interpretation discussed in section 1.4.4 (Schwer & Daneshvary, 1997). In addition, the expectations of paying visitors may be higher than non-paying visitors in terms of the quality and type of experience (Morgan & Lok, 2000). On the other hand, non-paying visitors may view the site in terms of social heritage to which the community should have free access (Schwer & Daneshvary, 1997). Morrison et al (1994) included readiness to pay for an experience in a list of possible significant visitor categorisation that represent distinct visitors groups with differing attitudes and expectations. Thus sampling paying visitors at each site creates a common link between the two samples.

The main difference between the sites relate to the intensity of interpretation used and the range and type of visitor experiences offered. The TTW uses a low intensity of interpretation, mainly text based signs, and offers a low intensity (and passive) level of interaction with the site, namely two walk trails. Penguin Island uses relatively more intense on-site interpretation including signs, ranger talks, volunteer information staff and touch tables as well as a walk trail loop around the island. Visitors may also undertake a diverse range of mainly aquatic based activities (swimming, fishing, bird watching, snorkelling and boating), representing a more physically interactive, higher

intensity of experience. These similarities and differences enable comparisons to be made regarding the influence of the differing site communication designs on visitor attitude and knowledge change.

1.3 Research Limitations

This thesis is intended as a study of the measurement of immediate influences on attitudes and knowledge and its relationship with the intensity of on-site interpretation. This enabled influences of site specific interpretation to be better related to influences on attitude not afforded by long term studies. Consequently, a cross sectional, largely quantitative research approach was used as advocated by Neuman (2000). That is, data was collected over relatively short periods of time using primarily numerically based techniques of data collection. The data were not intended as an assessment of the influence of the site on the general visitor population. Ultimately, the thesis provides a foundation for understanding the relationship between intensity of use of on-site interpretation and the influence on attitudes and knowledge.

The nature of this research precludes any assessment of the long term influences on visitors after their experience of the respective sites. In addition, the effects of media or interpretation relating to the sites encountered by visitors outside the locales was not assessed. It was assumed that respondents were equally likely to have access to such interpretation.

The data used within this thesis was taken from two sites within Western Australia and therefore may have limitations in terms of direct transferral of results to natural area sites in other locations. However, the exploration of the relationship between the visitors and the communication methods provide useful indications of how varying degrees and types of interpretation influence attitudes and knowledge in the short term. Further discussion of limitations are presented in section 3.6.

1.4 Definition of Terms

Following are a list of key terms used throughout this manuscript defined in relation to the context of the research carried out. While the terms listed may have a wide variety of definitions and interpretations, the definitions used below have been sourced from the literature to represent the meaning of the respective terms as intended in this thesis.

1.4.1 Natural area

Natural areas may be simplistically defined as places comprised of non-human made elements. This is a fairly restrictive definition as it envisages a dichotomy between human made and natural environments that does not reflect the reality of the contemporary environment (Heimstra & McFarling, 1974). A more comprehensive definition of natural areas by Heimstra and McFarling (1974) delineated three categories of natural area: human made (built), natural areas, and a blending of natural and built environments. Blended environments may include parks within urban areas that provide the components of a natural setting artificially constructed for temporary 'escape' from the surrounding built environment. To better represent the blending of environmental types, Newsome et al (2002) described a spectrum that ranged from natural to built environments. At one end of the scale, natural areas were defined as those places that retained their essential endemic ecological processes. At the other end of the scale, built environments were characterised by significant human modification with little or no evidence of the original self-sustaining ecological processes. The concept of the spectrum emphasises a continuum from built to natural areas rather than definitive boundaries between what constitutes a built environment and what is a natural area. The simulated natural environments described by Heimstra and McFarling (1974) occur as a recognised environment type (semi-natural areas) along the spectrum between natural and built areas.

1.4.2 Attitude

Attitudes are based on negative or positive assessments (e.g. agree/disagree, like/dislike) directed toward a specific object or situation. Attitudes are a manifestation of applying a set of values to an individual's experience at a particular moment in time (Manning et al, 1999). Values, in the context of natural settings, relate to enduring conceptions of the natural environment or human interaction with the natural environment (Manning et al, 1999). Values are deeply held and are based on a social and cultural history of belief. Consequently, values tend to be widely shared by members of a given society or culture (Vaske & Donnelly, 1999). Although values are enduring and widely shared within a community, they are also arranged in a flexible hierarchy with a complex array of interactions specific to the individual. This values

hierarchy changes according to the situational context of the individual such that emphasis on particular values may alter with changing circumstances (Crick-Furman & Prentice, 2000). While a group of individuals may possess a common set of values, the variations in the values hierarchy result in a wide variation of expression resulting in the numerous attitudes evident within a given population (Vaske & Donnelly, 1999).

Shanahan et al (1999) commented that individuals might express entirely different attitudes according to the context of their situation. While values represent a transcendental basis that is difficult to change, how those values are interpreted and applied to a given situation in the form of attitudes may be influenced by external factors (Born & Wieters, 1978; Vaske & Donnelly, 1999). Environmental attitudes may be categorised in terms of levels of satisfaction with a particular environment; preferences for particular features within an environment or attitudes toward conservation of natural resources (Holahan, 1982). Environmental attitudes may also be characterised by an ecological focus and conceptions of human interaction with natural ecological systems (Cone & Hayes, 1980). Sections 2.2 and 2.4 provide further discussion of attitude and its measurement.

1.4.3 Knowledge

CALM as a natural area management agency states that part of their mission in regards to both the TTW site and Penguin Island, is to provide knowledge about the natural area being experienced (CALM, 1996a; CALM, 2000). The Oxford Dictionary defines knowledge as the possession of information or facts as a result of an experience (Turner, 1987). Thus, knowledge in the context of this thesis pertains to the ability of an individual to identify facts regarding the natural area being experienced as determined by site management and communicated by on-site media. While knowledge transferral is not the primary function of interpretation, it forms an important foundation from which to create meaning for the visitor. Factual information is an important basis upon which to build themes (a key component of interpretative design) that create meaning and influence visitor attitudes. This was suggested by Rolston (1998) who commented that while an individual may gain meaning from a natural area through experiencing it, this is difficult to achieve by simply looking long and hard at it in the absence of any knowledge base. Knowledge is discussed further in section 2.3.

1.4.4 Interpretation

Interpretation was initially conceptualised by Tilden (1957) as:

“An educational activity which aims to reveal meanings and relationships through the use of original objects, by first hand experience, and by illustrative media, rather than simply to communicate factual information.”

In this sense, he defined interpretation as a way of providing a natural area with a personal significance that the visitor relates to through the use of a variety of communication techniques (Tilden, 1957). Edwards (1969) later described interpretation as a method of positively influencing people’s knowledge, attitudes and interest in natural areas. He stated that interpretation utilises methods that attract people to a particular subject then inspires them with a new understanding of the environment. This may be best achieved through stimulation of multiple senses (sight, touch, hearing, smell and so on). Ashbaugh (1970) reworded Edwards’ (1969) definition by stating that interpretation also encouraged a connection between visitors and the natural environment. A ‘connection’ relates to the concept of realisation that humans are a component of the greater ecological whole, influenced by, and being able to influence the structure and functions of natural areas (Ashbaugh, 1970). Similarly, Mahaffey (1970) viewed interpretation as a means for creating a sense of empathy and emotional attachment between the visitor and natural areas; a form of connection. Field and Wagar (1973) suggested that interpretation also helps people enjoy the natural area they are visiting. This may be achieved through a development of an understanding of the personal relevance of the natural area of visitation. All the above authors relate interpretation to the fostering of a connection between visitors and natural areas through influencing attitudes toward such places and how they are experienced.

Interpretation has also been identified as a means toward economic sustainability through ensuring a consistent or growing rate of visitation to natural areas. Bramwell and Lane (1993) identified interpretive facilities as important tools for attracting visitors to natural areas and encouraging them to stay longer. The subsequent revenue generated can then theoretically be used for further economic development. This was based on the premise that natural area tourism is a market driven activity. McKercher

(1993) expressed the view that tourism, including visitation of natural areas, is a market driven activity based on the flux of supply and demand. He stated that tourism is a form of entertainment, meaning natural area experiences need to cater to visitor wants, needs and demands in order to be economically viable. In this context, interpretation may provide for the entertainment aspect of natural area visitation while packaging the experience in an easily accessible manner (McKercher, 1993). Moscardo (1998) and Moscardo and Woods (1998) highlighted the beneficial relationship between use of interpretation and encouraging visitation to particular a natural area. Not only does interpretation operate to attract new visitors but it may also ensure the return of visitors at regular intervals.

The concept of interpretation originally grew out of the intent to positively influence visitor attitudes toward natural areas in order to create a sense of connection or personal responsibility. Interpretation is also seen to afford economic benefits through marketing and providing unique and desirable experiences to attract visitors to particular places. Interpretation thus is a process of communicating the significance of a natural area site to visitors. This in turn aims to positively influence their enjoyment of the site, become knowledgeable about the natural environment and encourage attitudes of caring toward conservation of nature (Moscardo, 1996; Kuo, 2002).

1.5 Organisation of Thesis

This chapter has sought to outline the key issues concerning interpretation and the relationship with natural area visitor attitudes and knowledge. The remainder of the thesis examines these issues in detail and presents the findings of surveys carried out at two natural area sites.

Chapter 2 examines the concept of on-site interpretation in terms of the various types used. There was no intent to discuss interpretive design in terms of an analysis of what might be considered to be 'best practice', but rather, to examine on-site interpretation as part of the natural area experience and the varying ways in which it may be used. This leads to a discussion of attitudes and knowledge in the context of natural area experiences and the influence interpretation may have.

Chapter 3 outlines the development and implementation of the survey methodology, derived from the New Environmental Paradigm Scale, used for gathering information relating to the influence on-site interpretation has on attitudes and knowledge. Site descriptions for the Tree Top Walk and Penguin Island Sites are provided along with detailed explanations of survey design, implementation and data analysis.

Chapter 4 provides a discussion of the significant results obtained from the Tree Top Walk surveys, relating material back to the relevant theory discussed in Chapter 2 and the original research questions outlined previously. The primary focus of this chapter is on the influence of the TTW visitor experience and how this relates to the interpretation used at the site.

Chapter 5 parallels the layout of Chapter 4 and discusses the results obtained from the Penguin Island survey. The data collected is analysed and placed into the theoretical context set out in the literature review and related back to the research questions.

Chapter 6 compares and contrasts the results from the Tree Top Walk and Penguin island surveys in order to understand the influence of different intensities of on-site interpretation on visitor attitudes and knowledge. As this is the concluding chapter, it also provides an overarching view in relation to the influence of varying intensities of on-site interpretation, its measurement and the significance for natural area management.

The final component of this thesis comprises a list of references cited throughout the text of the thesis.