Interpreting the effectiveness of

WHALE WATCHING

Experimenting with intentions

"The world will not be destroyed by those who do evil, but by those who watch them without doing anything."

(Albert Einstein, 1879 – 1955)

ABSTRACT: Given the on-going and current state of endangerment that whales are facing, it is strongly recommended that the fast growing whale watching industry should maximize benefits accruing to the sustainable use of whales. The whale watching experience is publicly praised due to its educational value which should motivate whale watchers towards socio-political action that supports whale conservation. The purpose of this study is towards a richer understanding of the effectiveness of the various aspects of the on-board interpretation which should trigger behavioural intentions and foster agreeing behaviour. An experiment was set up in Tenerife in which the interpretation on a whale watch boat was manipulated. Whale watchers were subjected to interpretation that either transferred solely knowledge, evoked their feelings of empathy or provoked their feelings of responsibility. Results of this study support the notion that whale watch experiences that contain a targeted interpretation message effectively influence intentions related to pro-conservation behaviours. Evoking empathy on whale watch boat appears to be a key aspect in preparing whale watch operators to effectively make the whale watchers donate money to projects that aim to help the endangered whales. However, a measurement of corresponding behaviour three months later did not yield positive results. It is to question whether different outcomes will be observed when having a similar study taking place in whale watch destinations that offer bigger whales and attract a different type of tourists.

KEYWORDS: Whale watching, effectiveness, interpretation, behavioural intentions, conservation behaviour

PREFACE AND ACKNOWLEDGEMENTS

I have had a passion for marine life and whales in particular ever since I was a little boy. If I could go back in time to choose another study to start with, I would have opted for marine biology due to not having followed and acted upon my childhood interest. Now, these whales that I have admired and loved to watch on both a television set and in many books when I was younger have become a symbol of endangered life in the world as we know it. With me following the MSc program of the study Leisure, Tourism and Environment at the Department of Environmental Sciences, Chair Group Social Spatial Analysis of Wageningen University and Research Center, the Netherlands, and having written this thesis as part of that, I feel I am able to come closer to that what I felt I had wanted to do. I now sense that I can do something in order to help save these beloved animals from extinction. You can therefore say that this thesis has been written from the heart.

More than I can say, my deepest gratitude for having realized this work goes out to Ed Bentham, founder of the Atlantic Whale Foundation. He was the one that gave me the opportunity to conduct this research in the first place. It was him who invited me to come to Tenerife and who set me up with a whale watch boat that I could conduct my experiment on. For that, I would also like to send a lot of gratitude to Justin Muscat for his wonderful cooperation and offering his boat, the Must Cat, for my field research. After having been on the Must Cat for about a month, it felt as my second home. This was also realized by its amazing crew that I had met and befriended. I still miss those times of being on the boat. Apart from them, I need to address my utmost thanks to the volunteers of the Atlantic Whale Foundation for their continuing support when things didn't go as planned for me and who have made my stay in Tenerife worthwhile. A lot of love goes out to them for making me feel welcome and assisting me in every way possible. And more specifically, I would like to thank Agata Paraszczak, Jilly Deconinck, Joe Fox, and Owen McGrath for their great assistance and determination on the Must Cat.

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Michel Harms
Arnhem, June 2011

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1 INTRODUCTION

1.1   Background and problem statement

This paragraph describes the background issues that lead to a concise problem statement. First, a general introduction to whale watching will be presented which will show the importance of this recreational activity in the ecotourism industry. Alongside positive aspects, several issues will be discussed which bring along a negative character of whale watching, as described in paragraph 1.1.2. Chapter 1.1.3 will be the build-up for the overall goal of this thesis, which entails the sustainable use of whale watching.

1.1.1 Whale watching

Taking short wildlife watching excursions are a significant and growing feature of mainstream tourism and the market for specialist wildlife watching holidays continues to grow (Tapper, 2006). Day trips in which the public goes whale watching is one of these opportunities for tourist to have a close encounter with wildlife as it provides the public to see whales and other cetaceans in their natural habitat. Those individuals who participate in nature-based tourism are qualified as 'ecotourists' in a number of published studies. The Whale and Dolphin Conservation Society (WDCS) states that whale watching is at the foreground of ecotourism and it is preferred by most individuals to watch cetaceans in the wild rather than seeing them in a captive facility (WDCS, 2009). Although the generic term 'whale' watching is used, it is important to note that the term also encompasses the watching of other cetacean species, such as dolphins and porpoises. To be more specific, whale watching has been defined by one of the world's foremost experts in this field, Erich Hoyt (1995, p.3) as "tours by boat, air or from land, formal or informal, with at least some commercial aspect, to see and/or listen to any of the some 80 species of whales, dolphins and porpoises."

In the past two decades, whale watching has enjoyed phenomenal growth and it is now one of the fastest growing tourism products in the world (Hoyt, 2000). In 2001, the global whale watching industry was already well established. At that time, the industry was estimated to have generated over US$1 billion in total expenditure each year, reaching over 9 million participants per annum over 495 communities in 87 countries and overseas territories which span every continent of the globe (Hoyt, 2005). At that time, the number of whale watchers increased at 12 per cent a year, three times faster than overall tourism numbers (Hoyt, 2001). Due to the recent decade, which was tumultuous for global tourism due to the terrorist attacks of 9/11 and the negative influence of SARS, the global whale watching industry has grown at an average rate of 3.7 per cent per year compared to a global tourism growth of 4.2 per cent per year over the same period (O'Connor et al., 2009). More recently, the whale watch industry has grown strongly with over 13 million participants in 2008 that generated a total expenditure of $2.1 billion. By that time, the industry expanded over 119 countries and territories, with an estimated 3,300 operators offering whale watching trips around the world, employing another estimated 13,200 people (O'Connor et al., 2009). It is clear to see that with a growing whale watching industry, expected to develop in those countries that are enjoying long and established whale watching operations, the whale watching industry is an important phenomenon to study.

1.1.2 Issues

With this continuing worldwide growth in tourism, it is likely to belief that this will put more pressure on existing wildlife watching sites, their animal populations and habitats, and to the development of wildlife watching activities in new areas and for new species (Tapper, 2006). Given the fact that many of the great whales are endangered while other species are classified as vulnerable and are now travelling down that same path due to e.g. commercial whaling (e.g. WDCS, 2009), there is a much needed point for protecting the whales on the political agenda. Orams (1999, as cited in Orams, 2000) argues that the use of whales as a tourist attraction can be seen as another form of harmful exploitation as these vulnerable cetaceans are (repeatedly) targeted as common-pool resource by the whale watching industry for often close up encounters. In this case, those tourists who are on the boat closest to the whales mostly benefit from their presence, which leads to an increase in the number of boats. In turn, this can deteriorate both the quality of the whale-watching experience as well as the quality of life for the whales itself by humans disturbing their natural habitat. In order to contribute to the conservation of these cetaceans, there is the need to understand the effects of tourism on the cetaceans and wildlife in general better.

For that reason, a variety of research projects have been conducted to assess, monitor and address the impacts of whale watching on these marine mammals (IFAW, 1997; Parsons et al., 2003). Studies like these elaborated on federal whale watching regulations or voluntary codes of conduct (e.g. Carlson, 2001, as cited in Rasoamampianina, 2004), which have been created for different situations all over the world. These regulations include, among others, descriptions of the way and speed of a boat approaches the whales, the maximum distance to the whales and the maximum amount of time that is spend with the whales, hereby taking the amount of boats and signs of avoidance into consideration. Short term effects are measured in immediate responses, such as changes in whale behaviour or vocalizations, and horizontal or vertical avoidance. Long term effects range from shift in habitat usage, long term displacement or the actual decline of whale species (Vester, 2007). Minimizing these threats from tourism is particularly important for whale watching as this is a tourism activity that aims to support conservation.

1.1.3 Variables supporting sustainable use of whale watching

Besides providing important scientific data to protect the whales, the International Whaling Commission (IWC) and other international authorities have acknowledged commercial and recreational whale watching as a potentially sustainable use of whales and other cetaceans (IFAW, n.d.). To elaborate on that a little bit more, The International Fund for Animal Welfare (IFAW) concludes that whale watching is more than just economic expenditures by tourists as the true value of whale watching epitomizes a key objective that defines sustainable use (IFAW, 1999, as cited in Hoyt, 2001). IFAW believes that whale watching helps to foster visitor appreciation of the importance of marine conservation and can be used to drum up public support for the protection of whales (WWF, 2003; Higginbottom, 2004; McIntyre, 2006, as cited in Higham & Lück, 2008; WDCS, n.d.). In terms of having an impact on conservation, it is behaviours such as the way people vote, the money they contribute to conservation projects and their own minimal impact behaviours that are critical. Three important variables might mediate the relationship between the activity of whale watching and behaviour from the whale watcher towards supporting whale conservation. These are (a) the experience of being exposed to whales, (b) knowledge transfer, and (c) interpretation.

1.1.3.1 The whale watch experience

Wildlife experiences can encourage a positive attitude towards nature and enhance nature conservation attitudes and behaviours (Tapper, 2006). Dr. Michael Iwand, executive director of Touristik Union International (TUI AG) states that "[w]atching animals is an inspiring experience" (as cited in Tapper, 2006, p.7) and expresses that people are excited when they see animals in the wild and that this is not just something that is only memorable, but that this experience of watching animals in the wild is also a very strong personal motivation for conservation behaviour (Tapper, 2006). Tapper (2006) states that the main motivation for the public taking a trip to watch whales is probably entertainment. However, the tourists may not only have had fun and excitement at the end of their trip, but will have learned a lot about the animals they have seen and are likely to return with a stronger commitment to conservation. According to the WDCS, it are these cetaceans themselves that make terrific ambassadors for marine conservation as they fire people with enthusiasm to do something positive to help in their conservation needs (WDCS, n.d.). The World Wide Fund for Nature (WWF) regards the whale as one of the key (marine) flagship species, and the conservation efforts of the WWF are directed towards these species, which they see as "iconic animals that provide a focus for raising awareness and stimulating action and funding for broader conservation efforts in our priority places" (WWF, 2010). Higham and Lück (2008) argue that a wildlife experience in a scenic natural area as whale watching may intensify visitor concern and appreciation for marine wildlife, but that behavioural changes may not always follow up as there is often a risk that behavioural changes will not last in the long-term. Manfredo (1992, as cited in Higginbottom, 2004) agrees with this and asserts that a total management program should be in place to encourage and support the desirable behaviour as it is only when people incorporate information into their belief systems, that consequent behaviours will last in the long-term.

1.1.3.2 Knowledge

Zeppel and Muloin (2008) concur with this idea that simple exposure to wildlife is not enough to have an impact on conservation and state that the level of tourist commitment to marine wildlife conservation is related to impacts on their knowledge, attitudes and behaviour. They argue that this is derived from both the close personal encounters with marine wildlife that the tourists experiences and the educating aspect on board which makes tourists gain knowledge about marine species and ocean environments (Zeppel and Muloin, 2008). Prior research on environmental behaviour has put the centre of attention on the assumption that knowledge is linked to attitudes, and attitudes to behaviour in a linear model (Cottrell & Graefe, 1997). This reasoning suggests that if people become more "knowledgeable about the environment and its associated issues, they will, in turn, become more aware of the environment and its problems and, thus, be more motivated to act toward the environment in more responsible ways" (Hungerford & Volk. 1990, p. 9, as cited in Cottrell & Graefe, 1997).

A number of studies have demonstrated this link between increased knowledge and more positive wildlife conservation attitudes (Higginbottom, 2004), with several studies suggesting that marine wildlife tours with a strong educational focus can change the pro-environmental attitudes and beliefs of visitors (e.g. Lück, 2003; Muloin, 1998; Zeppel & Muloin, 2008). IFAW and WWF suggest that the most valuable thing about whale watching is the potential to educate people (Whales Alive, n.d.). For that reason, IFAW held an international workshop in 1997 on the 'Educational Values of Whale Watching' as they

believe that whale watching is an educational and environmentally friendly industry (IFAW, 1997). In their report on this International Workshop, they state that "education is more than the mere transfer of information. It agreed that education should be a normative process, resulting in increased awareness. It was a strong feeling of the workshop that education include the goal of changing human attitudes", (IFAW, 1997, p. 9). As attitudes are subject to learning processes (e.g. Halloran, 1967), outdoor educators assume that a positive change in someone's attitude will be translated into the corresponding change in ones behaviour. Increased knowledge could then promote attitudinal shifts and, in turn, support marine conservation and marine wildlife.

In general, it is believed that there is a link between a change in attitude towards an object and a change in behaviour towards that object. Regan and Fazio (1977, as cited in Cialdini et al., 1981, p. 14) specify this further, by stating that "attitudes formed on the basis of direct experience with the attitude object are better predictors of behaviour than attitudes formed without such experience." Due to whale watching being such a direct experience (Lück, 2003), one might assume that an attitude which is formed based on such a direct experience will result in being a good predictor for a certain behaviour. That said, this attitude-behaviour link is not as straightforward as one might think. Both theorists and practitioners are frequently disappointed by the low correlation between knowledge and action and by the limited capacity of attitudes to predict behaviour (Clayton & Myers, 2009). Higginbottom (2004) is one of them and she argues that the reason for this is that there is complexity in the link between exposure to information, retention of the provided information and a change in attitudes followed by a change in behaviour. Weiler and Ham (2001) argue that providing information is not enough and that interpretation is the connecting the link from education towards conservation attitudes and corresponding behaviour. Manfredo and Driver (2002, as cited in Higginbottom, 2004) seem to agree when they state that changes in conservation attitudes are associated with structured, quality, interpretation programs. It is therefore necessary to take interpretation into consideration for being an important variable in changing ones conservation attitude and behaviour.

1.1.3.3 Interpretation

Weiler and Ham (2001) state that "interpretation is at the heart and soul of what ecotourism is" (p. 549) and environmental education and interpretation have become common components on wildlife viewing tours (Lück, 2003). Christie and Mason (2003) state that education is at the heart of ecotourism and interpretation is the method by which educational messages are frequently delivered. Education and interpretation are indeed very much entwined. There are several other ways to describe interpretation and link it with education. Ham (1992) describes interpretation as an education-based management strategy and merely an approach to communication, hereby stating that "[e]nvironmental interpretation involves translating the technical language of a natural science or related field into terms and ideas that people who aren't scientists can readily understand. And it involves doing it in a way that's entertaining and interesting to these people" (Ham, 1992, p. 3). Hammitt (1984, as cited in Lück, 2003) states that education is part of the interpretational process and that environmental education often involves a formal approach to educating people while environmental interpretation is almost always informal and often addresses a voluntary 'first time' audience in a natural setting. Higginbottom (2004) states that it is the educational aspect of interpretation that, besides being a means of managing the

interactions between wildlife and tourists, can raise visitors' knowledge and awareness of wildlife and habitats (Higginbottom, 2004).

So far, interpretation has been defined as an approach to communicate, translating scientific language and raise awareness. O'Neill and Lee (2001) go a step further, by stating that education programs can be defined as interpretation when these programs are used in an indirect way to manage the behaviour of tourists. Prentice (1995, as cited in Christie & Mason, 2003) also goes beyond the mere notion of the educational aim. He defines interpretation as "a process of communicating to people the significance of a place so that they can enjoy it more, understand its importance and develop a positive attitude to conservation. Interpretation is used to enhance the enjoyment of place, to convey symbolic meaning and to facilitate attitudinal or behavioural change" (p. 4). Weiler and Ham (2001) also link interpretation as the means by which knowledge, attitudes and behaviour are connected. Peake et al. (2009) also state that interpretation focuses largely on individual mechanisms, e.g. cognitive processes which lead to intention and behavioural change. One of the most recognised definitions of interpretation dates back to 1957, when Tilden (1957, as cited in Ham, 1992, p. 3) defines it as "[a]n 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," which ultimately should result in a conservation outcome (Tilden, 1957, as cited in Peake et al., 2009). However, there is little published research into the actual effectiveness of this form of interpretation (McArthur & Hall, 1993, as cited in Higginbottom, 2004; Moscardo, 1996, as cited in Higginbottom, 2004).

1.1.4 The effectiveness of whale watching

Russel (2001a) states that the on-board educational aspects should encourage a set of values that promotes concern about the fate of the environment and motivation to participate in its improvement and conservation. This is seen as one of the major components towards a sustainable and effective use of whale watching (WWF, 2003, WDCS, 2005; Whales Alive, 2005; McIntyre, 2006, as cited in Higham & Lück, 2008). Russell and Hodson (2002, p. 495) state that "[i]f the educational rationale for whale watching is valid, the experience should be seen to play a major role in raising awareness, conveying information, fostering critical appraisal of issues, influencing pro-whale and pro-environmental values, and, possibly, motivating socio-political action." The desired outcome of interpretation should therefore be a particular behaviour of the tourist because interwoven into these interpretive experiences are conservation messages that target salient beliefs relevant to behaviour, e.g. donating money to conservation organizations (Powell & Ham, 2008). Educating the tourists, and the desire to change their behaviour, is indeed a prime motivator for interpretation on wildlife tours which should increase the likelihood of tourists joining conservation groups (e.g. Airey, 2007; Gray, 1993, as cited in Higginbottom, 2004; Lück, 2003).

One major aim of interpretation, and one that has been related to effective interpretation, is to create 'mindful' tourists (Moscardo, 1996). Mindful, in the words of Moscardo (1996), relates to people that "actively process information and question what is going on in a setting" (p. 381). They are active and show interest and are capable of reassessing the world in the way they see it. Opposite of 'mindfulness' is 'mindlessness', which relates to one having a single-minded reliance on information without an active awareness of alternative perspectives or alternative uses to which the information could be

put (Moscardo, 1996). Langer (1989, as cited in Moscardo, 1996) argues that people can be either mindful or mindless, but most often they are mindless. With interpretation aiming to create mindful people, Interpretation might therefore be an important mediator between a whale watch experience and conservation behaviour.

1.1.5 Problem statement

There is a need for further inquiry into the psychological and behavioural effects of ecotourism participation (Powell & Ham, 2008). The link between interpretation and environmental behaviour requires further investigation as the effectiveness of the linkages between interpretation and positive changes in tourists' environmental knowledge, attitudes and behaviours remain largely unexplored (Higginbottom, 2004; Zeppel & Muloin, 2008). Actual changes in tourist's conservation attitudes have rarely been examined, except in captive wildlife settings such as zoos and aquaria (Higginbottom, 2004). Several of these studies that focused on captive wildlife have demonstrated links between good quality, structured interpretation and learning about wildlife, where connections were found between an increase in knowledge and more positive wildlife conservation attitudes (Higginbottom, 2004). Much of the available research that exists into the effectiveness of wildlife interpretation in ecotourism has put its centre of attention on either changes in knowledge, levels of visitor enjoyment and/or changes in behaviour as outcome measures (Higginbottom, 2004). Changes in conservation attitudes have not had much focus in the context of natural areas where tourists have opportunities to view free-ranging wildlife. This is especially the case with marine wildlife tourism (Higginbottom, 2004; Zeppel and Muloin, 2008), where the visitor observes wildlife species in marine habitats, mostly from a boat-based platform.

There is however limited assessment of experiences in marine wildlife tourism and educational programs and little evaluation on the on-site and longer-term conservation intentions of visitors and corresponding behaviours that benefit marine wildlife and environments (Zeppel and Muloin, 2007). Being at the centre stage of marine wildlife tourism, whale watching should promote and intensify visitor concern and appreciation for marine wildlife and motivate whale watchers to participate in the conservation of the whale (Russell, 2001a; Higham & Lück, 2008). This educational value of whale watching has often been publicly stated and it is seen an essential part of the industry as to which the whale watching audience can be motivated towards socio-political action. However, this remains a phenomenon that is largely unresearched and unproblematized (Russel, 2001b; Russell and Hodson, 2002). This is what I considered as the foundation on which this thesis is made. It is therefore the validity of the potential value of whale watching that is to be brought forward as the focal point of this thesis. With an emphasis on an urgent call in mind for action needed in order to save the endangered whales, it would make it plausible that the need for current research should emphasize on the behavioural intentions of whale watchers to take action in order to support whale conservation.

1.2 Research objective and research questions

One intention of this study is to merge the social science and the wildlife conservation agenda, which according to Rose et al. (2003) is minimal. It is essential to create empirical evidence in order to support and to maintain the on-going assumption that whale watching leads to conservation behaviour. Based on the previous discussion and the information put

forward by Weiler and Ham (2001) and Zeppel and Muloin (2008), one would wonder if the whale watch experience affects behavioural intentions of whale watchers towards conservation and, if so, which aspect of interpretation plays a role in fostering this effect on whale watchers. The main objective of this thesis is therefore to test the effectiveness of whale watching by studying the role of interpretation in fostering an effect on whale watching tourists. From both a theoretical and a practical perspective, this leads me to state that the general purpose of this thesis is to examine the variable relationship between the interpretation on board of a whale watch tour and the behavioural intentions of the whale watchers towards engaging in wildlife conservation action with respect to whales. The first research question is hereby stated as follows:

"Does interpretation on-board of whale watching tours have an effect at positively changing behavioural intentions towards whale conservation?"

What needs to be assessed are these aspects that are embedded in the interpretation program and to determine which one of these is the most influential factor triggering conservation intentions. By bringing these components into the subject of analysis, we are open to a potentially richer understanding of the dynamics of triggering conservational behaviour in interpretation research and with that, help save the whales. The central research question addressed in this thesis is formulated as follows:

"Which aspect of interpretation has the biggest influence, if any, on fostering the behavioural intention of whale watchers towards whale conservation?"

Several concerns, as discussed earlier, have been raised by the scientific community as well as conservation agencies and may lead to restriction of the boosting whale watching tourism unless significant benefits can be demonstrated. However, it is argued that behavioural changes may not always follow up from whale watching and there is often a risk that behavioural changes will not last in the long-term (Higham and Lück, 2008). An additional aim of this study is to establish that whale watching has indeed beneficial conservation value which can be used to create successive effective learning environments. It is important for managers and operators of whale watch programs to understand this in order to decide how their interpretation programs can be catered to better meet the need of encouraging conservation attitudes, intentions towards conservational actions and corresponding behaviour from whale watchers in order to protect the whale. That said, it is not the goal of this study to either measure or change one's attitude, although the overall goal in the long term, in which this study can be put forward to, is in fact 'just' that: to change the attitude of whale watchers, predisposing an action that is consistently favourable towards whales. For that matter, a measure of behavioural action will also be performed while assessing the effectiveness of interpretation, to which the following research questions will also be answered:

"To what extent is interpretation effective at promoting conservation behaviour in the long run?"

1.3   Report structure

The following chapter outlines the review of both the theoretical and empirical literature. Relevant theories concerning the concepts are provided and the concepts are defined in relation to the research. The third chapter of this paper addresses the methods used for data generation, the research setting and the process of data collection. Chapter four will present the results and highlights how interpretation modifies the behavioural intentions of the whale watchers. This chapter will be followed by a discussion on the findings which will also bring along insights from other studies. The concluding chapter provides a summary of the findings with respect to each research question. Suggestions for future research are provided, and implications of the project's findings for management are outlined. The full reference list is found at the end of the thesis, along with appendices for the questionnaires and additional raw tables.

2 LITERATURE REVIEW AND THEORETICAL FRAMEWORK
This chapter outlines the review of theoretical and empirical literature. Section 2.1 provides theory concerning the relevant concepts and defines the concepts in relation to this research. Section 2.2 provides the framework in which the relevant concepts are categorized, followed by the research hypotheses which are to be found in section 2.3.

2.1 Concepts
As this study attempts to create a better understanding of what role interpretation has in a whale watch setting and how this can effectively change the behavioural intentions of whale watchers and for them to ultimately engage in conservation actions that benefit whales, it is required to gain a deeper insight on how interpretation is applied in the context of whale watching, what entails environmental concern, the different aspects that are promoted by interpretation and, for the full scope of this research, to explain the process of behavioural intentions.

2.1.1 Interpretation applied to whale watching
One can be provided with conservation messages that tells individuals that saving whales is important in a classroom, but being in the whales' own environment provides an opportunity for a more sensory experience then if one address environmental concern related to whales in a classroom. With interpretation being "[a]n educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information" (Tilden, 1957, as cited in Ham, 1992, p. 3), three key notions can be depicted out of what makes interpretation reach its conservational aim. These are: a) the use of original objects, b) by first-hand experience, and c) by illustrative media. In the context of whale watching, all three are present, hence it has all the signs to reach its conservational aim. The whale watch experience is built around the presence of whales (original objects representing object authenticity), in their original habitat (catering for a real and unique first-hand experience rather than a manufactured one as in an aquaria), and a range of illustrative media is used (e.g photos, guidebooks and sometimes video material) to communicate key themes relevant to the experience. Apart from visual information, oral information is provided by guides/naturalists who are present on-board and have the ability to attract the attention of visitors, answer questions and provide social interaction with the visitors.

Tour guides and interpreters are known to transfer information and facts, both of which are connected to the cognitive domain of interpretation. Since interpretation involves communicating knowledge, a common assumption is that if an interpreter is able to deepen visitor's knowledge about something and makes the receiver think about this, then the result ought to be an impact on one's attitude. Within the cognitive and behavioural sciences, this is referred to as the 'learning leads to liking hypothesis' (Cacioppo & Petty, 1989, as cited in Ham, 2007). However, when an individual learns something that was not consistent with their previous beliefs, this could also lead to resistance of the new learning. Festinger (1957, as cited in Orams, 1995; Ham, 2007) suggests that a psychological discomfort can follow from this. It is this discomfort that forms an important basis for learning as it will motivate an individual in the search to reduce the discomfort (Mason, 2005). This deals with the

theory that describes the process of learning "in terms of the relationship between different cognitive elements" (Orams, 1995, p. 87) and that learning is the resolution of experiencing cognitive dissonance (Orams, 1995; Ham, 2007).

2.1.1.1 Cognitive dissonance

The basic theory of cognitive dissonance is simple: individuals prefer a situation in which their cognitions are consistent with each other and with their behaviours. If there are inconsistencies among a person's cognitions or between cognitions and behaviours, these will cause a psychological discomfort in the person, leading him or her to seek some resolution of the discomfort. This theory therefore relates to differences between cognitive elements and is based on Piaget's theory of cognitive learning (1970, as cited in Orams, 1995), with cognitive dissonance referring to the two cognitive elements not being supportive or consistent with one another (Festinger, 1957, as cited in Orams, 1995). The bigger the inconsistency between two cognitive elements, the bigger the potential to educate people as the individual wants to learn more in order to close the gap (Fishbein & Ajzen, 1975). This could especially true for whale watchers that are considered being a non-captive audience who are intrinsically motivated (Ham, 1992). According to Gilbert (1997, as cited in Lück, 2003), ecotourists are interested in learning about the environment of the local area, its culture and wildlife." This can be mirrored to a study conducted by Lück (2003) in which he concluded that the majority of whale watchers are eager to learn on whale watch tours. Exposure to dissonant information provides a chance for cognitive dissonance to occur for education through interpretation (Orams, 1995) towards persuasive messaging, hereby making tourists become mindful, which can be achieved by assimilation (redefining an already existent base of knowledge) or through accommodation (updating the knowledge base) (Piaget, 1970, as cited in Orams, 1995).

Forestell and Kaufman's interpretation model (see Figure 1, p. 11) can be used to build on the theory of cognitive dissonance. This model is based on a review of cognitive psychological theory and the study of whale-watchers in Hawai'i. This model has three concepts that are important to note first, those being a 'direct experience', a 'guided experience' and a 'direct guided experience'. A 'direct experience', as Forestell and Kaufman argue, refers to a real-life situation, e.g. a whale watch tour (Orams, 1995). A 'guided' experience is an experience that includes exposure to a knowledgeable guide, but not in a real-life situation. Combining both concepts leads to a 'direct guided experience' in which the experience is a guided, real-life situation and is therefore considered to be more effective than the other two experiences described (Forestell & Kaufman, 1990, as cited in Orams, 1995). Forestell and Kaufman further state that a whale watch tour, based on their model, can be divided into three different stages in order to develop effective interpretation on a whale watch tour, hereby using cognitive dissonance as a means to change whale watchers' behaviour in support of conservation (Orams, 1995, p. 85). The three-point approach to which this model is based on consists of:

1. Pre contact phase;
2. Contact phase;
3. Post contact phase.
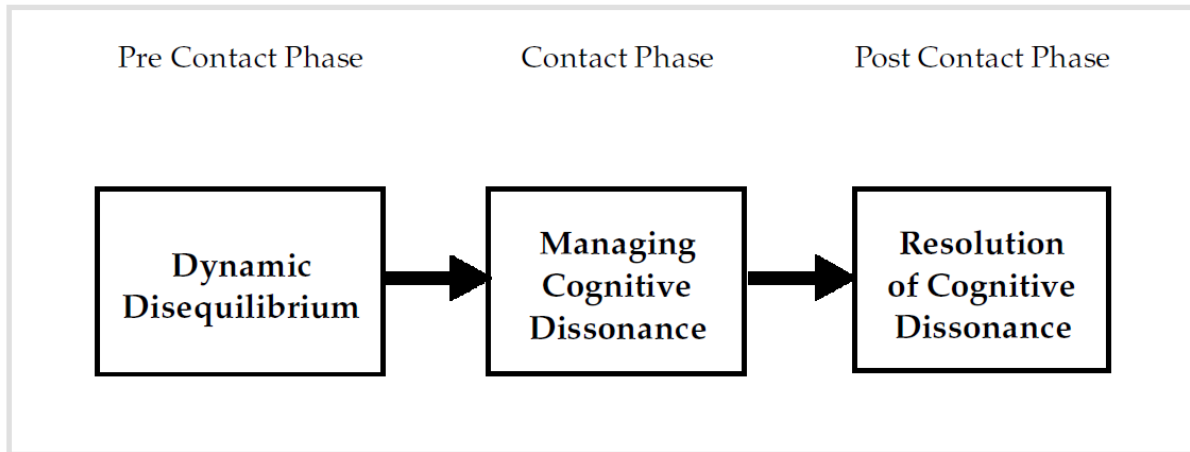
Figure 1: Forestell and Kaufman's Interpretation model (1990, adapted from Orams, 1995)

The pre contact phase should create curiosity among the whale watchers and a perceived need for information, hereby motivating the whale watchers to learn (Orams, 1995). The contact phase is that stage where needed information is provided in an informed and interesting manner, whereas the post contact phase facilitates participation in follow-up activities, which incorporates the new information into a changed behavioural repertoire (Orams, 1995). It is during this final phase that whale watchers are receptive to environmental issues and reconsider global environmental threats and habitat degradation, with the reason being that these issues are not that abstract for them anymore (Forestell and Kaufman 1990, as cited in Lück, 2003). When cognitive dissonance is effectively created due to the information provided, the interpretation should help the whale watchers change their behaviour by closing the gap between their level of knowledge before the trip (the first cognitive element) with incorporating new information (the second cognitive element). Cognitive dissonance can therefore be deliberately caused by interpretation during the contact phase on the trip where the whale watchers try to resolve this conflict and reduce cognitive dissonance at the third and final stage of the trip (Orams, 1995).

2.1.1.2 Affective domain
Orams (2000, as cited in Lück, 2003; Shapiro, 2006) states that the success of interpretive communication strategies on whale watch boats is of particular importance due to the addition of whale watching being an immersive and direct experience that is complemented by interpretation that seizes the tourists' curiosity and which facilitates the development of an enriched understanding and appreciation of whales. Weiler and Ham (2001) argue that the best interpretation is one which is personally relevant and meaningful to the visitors and engages them both intellectually and emotionally, which is derived from their own research on the perception from tourists of quality guiding. Weiler and Ham (2001) believe that this idea of "emotionally connection" is an important one as they believe that interpretation is not simply a case of filling visitors with endless facts, but that "something else must be going on" (Weiler & Ham, 2001, p.6). Orams (1999, as cited in Lück, 2003) is on the same wavelength, as he argues that the tourism experience must achieve more than simply providing tourists a good time. Orams stipulates that "it is possible that experiences with a strong emotional component may be a technique to 'short cut' the complex processes that determine behaviour" (Orams, 1994, p.27), which could expose an individual to experience their "real self" (Orams, 2002). Whale watching provides just that experience that includes

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this emotional component. Zeppel and Muloin (2008) agree with Orams (1994) when he states that the personal, educational, and conservation benefits rely on proper management of the marine animal encounters and the interpretation programs that integrate knowledge with the emotional aspects of observing marine wildlife. Linking both the affective and cognitive responses to marine wildlife encounters should: (a) increase environmental awareness, (b) change visitor attitudes, (c) modify intentions to act pro-environmentally; and (d) foster conservation appreciation and actions by tourists (Zeppel and Muloin, 2008).

This should also lead to higher levels of satisfaction as "[t]he benefits for participants on marine wildlife tours are realized when the affective (emotional) benefits and excitement of seeing unique marine life are integrated with the cognitive (education) benefits of learning new facts about marine wildlife" (Zeppel & Muloin, 2008, p.10). When taking this into account, an effective whale watching interpretation program thus needs to engage visitors emotionally and deliver conservation messages about marine animals and ecosystems while also managing the visitor desire for close interaction with marine wildlife. Along the line of delivering conservation messages, one of the main ecological and social values of whale watching is to educate the public in environmental matters and expose the tourists to environmental concern regarding whales and other cetaceans (Mayol et al., 2007). This might assume that once whale watchers are exposed to interpretation that delivers conservation messages which promote environmental concern, specifically animal welfare concern as being a facet of environmental concern (Smith & Sutton, 2008), interpretation might be a strong and reliable predictor for feelings of concern specified to the welfare of the whales and increase the level of animal welfare concern, which could influence intentions to conserve the whale.

2.1.2 The three components of environmental concern

Environmental concern relates to an attitude towards environmental issues and according to Bamberg (2003), environmental concern is an important indirect determinant of specific behaviour as only situation-specific cognitions are direct determinants of specific behaviours. Bamberg (2003) also argues that environmental concern has a strong direct impact on situation-specific beliefs associated with the acquisition of information. Fransson & Gärling (1999, as cited in Smith & Sutton, 2008) state that environmental concern has been used to represent specific attitudes toward the conservation of a single species and more general attitudes or value orientations relating to the environment in general commonly considered an attitude. Fazio (1990, as cited in Bamberg, 2003, p.3) argues that "where the association between an attitude and the object representation is strong, the attitude is becoming active in the mere presence of the attitude object," which results in different behavioural alternatives and different behavioural consequences being regarded as personally relevant (Bamberg, 2003).

With whale watching being a specific situation in which situation-specific cognition is transferred to the audience in the form of environmental concern embedded in interpretation, this could mean that environmental concern might mediate the intention to perform a specific behaviour. The following three components of environmental concern have been shown to affect behavioural intentions: saliency, empathy, and feeling responsible. *Saliency* represents the beliefs about the urgency and importance of conserving the whale (Smith & Sutton, 2008). *Empathy* can be defined as an emotional response characterized by feelings of compassion for the perceived welfare of others, in this case the species of whales (e.g. Schultz, 2000, as cited in Smith & Sutton, 2008). This can be traced

back to the affective domain discussed earlier (chapter 2.1.1.2). Eisenberg and Miller (1987, as cited in Merchant et al., 2010) state that when someone feels 'empathic', one is likely to selflessly help someone in need. Feeling a sense of responsibility can be translated as a sense of obligation to act towards conserving the species or the environment (e.g. Stern, 2000, as cited in Smith & Sutton, 2008).

Having mentioned these components of environmental concern and taking this into the context of interpretation on-board a whale watch tour, saliency can be regarded as to be always embedded in interpretation, as it is used to create a feeling of empathy as well as a feeling of responsibility. Additionally, it is worthwhile to investigate if the validity of education holds of being one of the most important variables mediating towards pro-conservation behaviour. For that reason, presenting merely facts and information to the whale watchers in order to address environmental concern is worth to compare alongside taking both components of empathy and responsibility in the theoretical framework as aspects of interpretation to influence behavioural intentions.

2.1.3 Behavioural intentions

Behaviours are observable measured outcomes (often actions), that are determined by behavioural intentions, which are a measure of the intention of performing an observable outcome (Fishbein & Ajzen, 1975). A person's behavioural intention is viewed as the immediate determinant of any particular behaviour and refers to an individual's intention to perform a given behaviour (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980; Ajzen, 1991). In the context of this study, behavioural intention is viewed as the intention to act to conserve the whale. This brings forward the idea of measuring behavioural intentions as the intention towards the behaviour (Fishbein & Ajzen, 1975) and how these can be changed due to an effective interpretation program, which subsequently should change behaviour that supports a conversation outcome.

Attitudes can also be influenced by a whale watch experience as these are learned predispositions that, in their development, are influenced by e.g. an experience, education and one's personality (Halloran, 1967). As mentioned earlier, changes in conservation attitudes have not had much attention in the context of marine wildlife tourism (Higginbottom, 2004; Zeppel and Muloin, 2008). The relationship between attitude and behaviour is not a direct one and the measurement of attitude might not lead to corresponding behaviour (Ajzen, 1991). Several studies do suggest a high positive relationship between ones intention and behaviour (e.g. Armitage and Conner, 2001, as cited in Rajani, 2010; Ouellette and Wood, 1998, as cited in Rajani, 2010). This reasoning is supported by the cognitive hierarchy (as adapted from the cognitive hierarchy of human behaviour by Fulton et al., 1996, as cited in Vaske & Donnelly, 1999), which takes Fishbein and Ajzen's (1975) reasoning into account in that intentions can be more easily changed than attitudes when in a specific situation, e.g. a whale watch tour and that attitudes have been defined generally. This makes the relationship between attitudes and behaviour vague (Ajzen & Fishbein, 1980) with the behavioural intention regarded as the intervening construct between attitude and behaviour. Applying these theories, it makes it clear that it is worthwhile to measure the behavioural intention of whale watchers towards actions to conserve the whale as it is the intention that has a strong direct effect on actual behaviour (Ajzen, 1991). In order to create an effective environment and a more valid research, it was deemed necessary to take into account how a behavioural intention functions.

2.1.4 Constructs of a behavioural intention

The strength of actually following up a behavioural intention is indicated by the person's subjective probability that he or she will perform the behaviour in question (Fishbein & Ajzen, 1975). According to Ajzen (1991), it is most often defined as the indication of how much effort someone plans to exert in order to perform the behaviour. Therefore, there is the likelihood that the factors that influence behavioural intentions are likely to affect actual behaviour as well. A person's behavioural intention is regarded as a function of three constructs: a) ones attitude towards this behaviour, b) ones subjective norm, and c) the perceived behavioural control. This is derived from Ajzen´s theory of planned behaviour (1991).

Attitudes toward behaviour reflect how favourable, or unfavourable, an individual feels toward performing the behaviour. These are either newly formed attitudes or existing ones which are recalled from memory (Fishbein & Ajzen, 1975; Bagozzi & Yi, 1988). A subjective norm relates to an individual's perception of whether certain people think that this individual should or should not perform a particular behaviour, which leads to normative pressures (Fishbein & Ajzen, 1975; Ajzen, 1991). The totality of these normative pressures can be defined as subjective norm. Thus, instead of an individual's own behavioural beliefs about the advantages and disadvantages of performing a particular behaviour, it is recognized that someone's action is also influenced by what we think that others wants us to do (normative beliefs). The third factor on which a behavioural intentions depends on is someone's perceived behavioural control, which is defined by the perceived ease or difficulty of performing a specific behaviour (Ajzen, 1991; Bamberg, 2003). Saba and Vassallo (2002, as cited in Rajani, 2010) state that "when behaviours pose no serious problems of control, they can be predicted from intentions with considerable accuracy" (p. 10).

2.2 Conceptual Framework

Based on the literature review described above, the following conceptual framework represents the proposed pathways of analysis for determining which aspect of interpretation mediates the relationships between the whale watch experience and the effect it has on a change in specific behavioural intention to conserve the whale. A more detailed explanation of how knowledge, empathy and feelings of responsibility were communicated to the whale watchers is to be found respectively in chapters 3.2.3, 3.2.4 and 3.2.5.
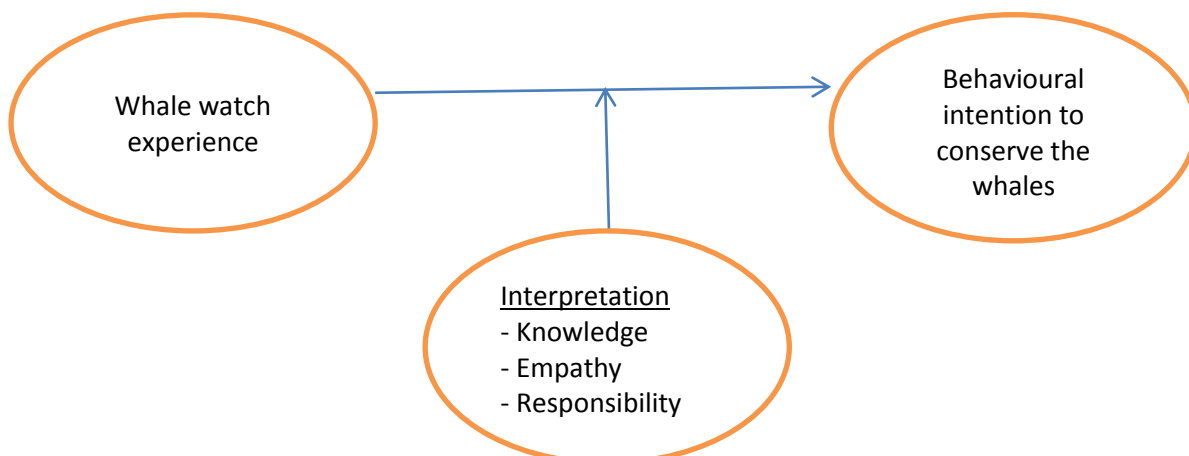
Figure 2: Conceptual Framework

2.3 Prediction

Based on the preceding discussion, the following hypotheses can be proposed. Hypothesis 1 is concerned with the expectation of environmental concern embedded in interpretation having an effect on the behavioural intentions of whale watchers. Although not specifically described, many studies (e.g. Powell and Ham, 2008) and publicized statements by various proponents regarding whale watching provide strong arguments that there is a positive relationship between interpretation and an effect on behavioural intentions. Therefore, it is hypothesized that interpretation on-board of a whale watch tour is expected to have a positive change on the behavioural intentions of the whale watchers (H1). However, to dig deeper and to come behind the ultimate goal of this research, it is key to take the three aspects of interpretation into perspective and compare these in order to define which aspect has the biggest effect, if any, on changing a whale watchers' behavioural intention to act and help save the whales. As there is a separation in omitting cognitive, affective, as well as provocative interpretation on to various persons, I suspect that there will be a difference in the effect of different aspects of interpretation changing the behavioural intentions of whale watchers (H2). The question of interest here is which aspect will yield the biggest effect. First of all, due to interpretation seemingly having an important role in tourism settings, and with that the suspicion that interpretation on whale watch tours will have an effect on intentions, I therefore reason that having no interpretation on board has less of an effect on changing intentions than the three aspects of interpretation used in this study. This can be supported by e.g. Higginbottom (2004), who states that "mere exposure to wildlife is unlikely to have much impact on visitors' knowledge and wildlife conservation attitudes." On the other hand, empathy is based on evoking emotions. Manfredo (2008) claims that emotions, together with cognitions, act to direct human behaviour. Based on past cross-cultural research, an experience in which people encounter animals can cause people to express a positive emotional bond with animals, which causes them to get attached to animals and wanting to help them (Jacobs, 2008). A successful emotional appeal should limit the number of exposures required for the participants to understand, learn, and respond to calls to action, as people only need to see emotional scenes once and they will remember those scenes for a long time (A. M. Lokhorst, personal communication, December 3, 2010). Therefore a strong positive relationship between interpretation that emphasizes on empathy and behavioural intentions is expected (H3). Along with that, I expect a significant difference to be found between interpretation on a whale watch tour that evokes empathy in comparison with a whale watch tour in which whale watchers are only exposed to whales in having an effect on changing the behavioural intentions of whale watchers (H4). To summarize, the four research hypotheses stated are as follows:

- **H1**: "*Interpretation that is present on-board a whale watching tour has a positive effect on the behavioural intention of whale watchers*."
- **H2**: "*There is a difference in the effect of different aspects of interpretation on changing the behavioural intentions of whale watchers*."
- **H3**: "*The aspect of empathy will turn out to be the biggest mediator of change towards whale watchers changing their behavioural intentions*."
- **H4**: "*Empathy will have a higher significant effect on changing the behavioural intentions of the whale watchers than having no interpretation on-board*."

3 METHODS AND RESEARCH SETTING

The process of data collection, questionnaires and analysis methods are discussed in this chapter of the thesis. The research for this thesis took place in a real world setting where data regarding the phenomenon of whale watching was gathered and analysed. The data are gathered from an insider (emic) and holistic perspective. This chapter first explains the research setting followed by the methods used to generate the data in order to answer the research questions and to test the hypotheses. The process of collecting the data during my stay in Tenerife are described next, followed by difficulties that occurred during my research.

3.1 Study site

In this study, whale watching in the southwest of the Canarian island of Tenerife was used as a case study to determine if, and how, whale watching may alter the behavioural intentions of visitors towards the conservation of whales and, in particular, if the provision of interpretation on its own affects the behavioural intentions of whale watchers.

Figure 3: Geographical location of the Canary Islands

3.1.1 Whale watching in the Canary Islands

The Canary Island is an archipelago of seven oceanic islands, administrated as part of Spain and located 100 kilometres northeast of the African coast in the Atlantic Ocean (see Figure 3). It is considered to be a top tourism destination, mainly focused on the '3S' segment (sun, sea & sand), with direct daily flights to and from different European cities. Easy accessibility between the islands is also ensured due to a good regional air and ferry transportation network. There are two busy tourist seasons in the Canary Islands. The winter months from December to February draw mostly older tourists seeking a warm winter break. The second high season is regarded to be from May through to October. It are these months when the islands welcomes young families and teenagers who are looking for a good time.

Along with the United States, Australia and Canada, the Canary Island is one of the four most popular places in the world to watch whales in its original habitat (O'Connor et al., 2009), making it the largest cetaceans observatory in Europe. Whale watching in the Canary

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Islands is offered from six communities: one community from the island of La Palma (Trazacorte), one on Gran Canaria (Puerto Mogán), two on La Gomera (Valle Gran Rey & Puerto Santiago) and three on the south and southwest coast of Tenerife (see Figure 4). The areas in the Canary Islands that are used for whale watching have been protected and declared a Site of Community Importance (SCI) for NATURA 2000, the European net of Special Areas of Conservation of natural habitats and species (Elejabeitia & Urquiola, 2009). Main reason for protecting these waters is to preserve the priority threatened Bottlenose dolphin and the Loggerhead turtle (Elejabeitia & Urquiola, 2009).
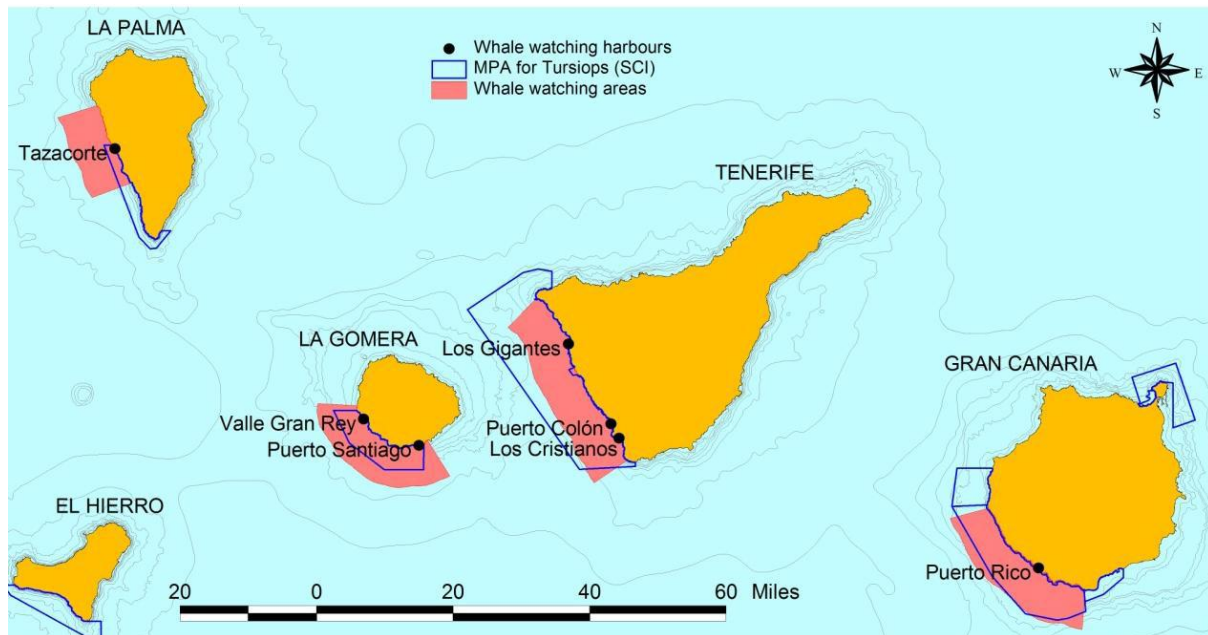
Figure 4: Whale watching harbours and areas in the Canary Islands Archipelago (Adapted from Elejabeitia & Urquiola, 2009)

Whale watching originated in Gran Canaria due to the first known filmed document of Tenerife's short-finned pilot whale community, made public by Jacques Cousteau in the late 80's (Elejabeitia & Urquiola, 2009). In response to the increasing demand, local fisherman and private boat owners started to recognize the potential whale watching had as a supplementary source of income. This caused an estimated 1,000,000 individuals to have participated in whale watching in 1998 (O'Connor et al., 2009). This year saw a booming number of vessels on the water , including reports of illegal boat trips occurring that year (O'Connor et al., 2009). At that time, Tenerife was regarded as the international black spot when it came to whale watching. There were hardly any regulations in place and there was a lack of educational, scientific and conservation benefits for the tourists as well as the local communities. This was a cause of great concern among all conservationists (E. Bentham, personal communication, February 8, 2010).

Over the past decade, the tours itself have met higher standards, enforced through one of the most advanced and complete whale watching regulations worldwide (Elejabeitia & Urquiola, 2009; O'Connor et al., 2009). This new legal framework was implemented in order to minimise the negative impact of a great amount of uncontrolled boats on the cetaceans. While the number of licensed boats was 52 in 1998, identified by a distinctive blue flag, there were 37 boats allowed to be near the cetaceans in 2008 (O'Connor et al., 2009). Currently, it is estimated that there are still around one million persons per year that participate in whale watching in the Canary Islands. According to authorities and local

organizations, the Average Annual Growth Rate (AAGR) of -4.8 per cent (see Table 1) was influenced by the fact that the whale watching season in 2008 was much shorter due to poor weather having an impact on days available to participate in whale watching tours.

Table 1: Long-term growth whale watching industry in the Canary Islands (as adapted from O'Connor et al., 2009).

Year	Number of whale watchers	AAGR	Number of operators	Direct expenditure (in $)	Indirect expenditure (in $)	Total expenditure (in $)
1991	40,000	N/A	N/A	1,114,000	2,860,000	4,004,000
1994	425,000	120%	N/A	7,150,000	17,875,000	25,025,000
1998	1,000,000	24%	24	17,770,000	44,425,000	62,195,000
2008	611,000	-4.8%	29	21,542,800	34,984,700	56,527,500

Whale watching has now become a fundamental instrument for the regional policy of environmental conservation and towards management of the marine natural resources (Elejabeitia & Urquiola, 2009). This turned it from being a very much uncontrolled industry in 1998 into a self-regulated, mature and competitive market, with international tour operators playing an important role on the islands (Elejabeitia & Urquiola, 2009). The regional environmental agency of the Canary Islands Government also published detailed information concerning some regulatory issues and the code of conduct was included in an informative leaflet (see Appendix A).

3.1.2 Whale watching in Tenerife

Whale watching in the Canaries has especially a strong focus on the Island of Tenerife, the largest of the seven islands that make up the Canary Islands. The whale watching industry in Tenerife accounts for an estimated 70 per cent of the vessels, 65 per cent of the operator businesses and 75 per cent of the passenger carrying capacity in the Canaries (Elejabeitia & Urquiola, 2009; O'Connor et al., 2009). Whale watching in Tenerife is suitable for over three hundred days of the year, except when the hot winds from the Sahara are producing a thick haze over the water. This makes these islands one of the world centres for whale watching where whale watching can be practices all year round, which is a rarity (Urquiola et al., 1999, as cited in Hoyt, 2003). Tenerife is concentrated on the most intensively watched population of whales in the world, in terms of the number of people who see them (one out of ten visitors that visit Tenerife) and the number of hours the whales are watched per day and per year. This has to do with the fact that Tenerife's great natural fortune is that it is situated right on a major whale migration route (Hoyt, 2003), making the waters surrounding the island rich in marine mammal species. Some 36 species of cetaceans pass through the deep water channel between Tenerife and the neighbouring island of La Gomera throughout the year, which makes up for about a third of all species of whales and dolphins.

One of the main reasons for attracting this big variety of cetaceans is because these warm and deep waters are filled with giant squid, which can grow up to be twenty meters in length. It is possible to see sperm whales, minke whales, and blue whales. As water temperatures are rising all over the world, more and more unseen species have been showing up between Los Gigantes and La Gomera. The most likely sightings, with a 99.9 per cent guaranteed sighting by the whale watching industry, are the members of the 500-strong colony of pilot whales that live and breed off the south coast of Tenerife. They are seen as resident species in Canarian waters but are being killed by Japanese whalers and

during the Grindadráp in the Faeroe Islands, which is an integral part of Faroese social culture. The International Union for the Conservation of Nature (IUCN) states that hunting pilot whales is localized and has not had a high impact on the status of the species globally. It is therefore not regarded by IUCN as an endangered species and animal rights organizations have largely shied away from the scenes in the Faeroe Islands due to the fact that this process is such an integral part of Faroese culture and because the Faroese are not involved in commercial whaling. Pilots are smaller whales that seem to have permanently smiling faces. The pod usually includes some very young whales being shepherded by an older relative. Bottlenose dolphins are the other species which are regarded as a resident population. The whale watching industry guarantees a 60 per cent sighting of seeing bottlenose dolphins on their trips offered. Research of the Atlantic Whale Foundation (AWF) has identified a family of 28 dolphins in the waters southwest of Tenerife. Common Dolphins also frequently pass through the narrow channel of water, often in huge pods of up to a thousand animals.

Whale watching in Tenerife is based around the SCI called "Franja marina Teno-Rasca," around the localities of Los Gigantes, Puerto Colón at the southern end of Playa Las Americas and the pier at Los Cristianos. These are also to be considered to be three of the most important tourist destinations on the island. The available trips offered vary from an hour on a pleasure boat to a week on a sailing yacht. There are 26 boats available in Tenerife, with an average boat capacity of 107 pax (Elejabeitia & Urquiola, 2009). At least ten of these offer dedicated whale watching with many others offering trips that combine whale watching with snorkelling (O'Connor et al., 2009). The boats that offer whale watching trips do not tend to be concentrated on the same sport as several groups of animals can generally be sighted in the same SCI. There are catamarans, sailing ships and glass-bottomed boats to choose from to see the whales and dolphins underwater. The whale watchers are mostly foreign visitors, of which the majority is European, specifically from Great Britain and Germany as well as nationals from the Spanish mainland (Hoyt, 2001). Although some of the visitors go to the Canary Islands specifically for whale watching, the vast majority are there on a sun and sand holiday and go whale watching as a diversion (Hoyt, 2001).

3.1.3 Atlantic Whale Foundation

The Atlantic Whale Foundation (AWF) is the organization that gave me the opportunity to conduct my field research for this experiment. AWF is a volunteer-led and non-profit organization, founded in 1999 to continue the work of the Spanish environmental agency, Proyecto Ambiental Tenerife. Although it is a UK-based organization, their operating base is in Tenerife, where AWF runs the volunteering programme on the whale watching boats and from where their global network of grass root conservation and community projects is coordinated. The main aim of AWF is to raise awareness worldwide and to encourage individuals to make a difference through positive action within communities, the environment and in nature, globally. The Tenerife organization works primarily towards helping to make Tenerife´s whale watching industry a global example of best practice. Activities revolve around education, conservation and research initiatives. Volunteers conduct research and inform tourists on whale watching boats, with the rest of the time processing their findings and working on individual contributions, e.g. film making, research or fundraising.

3.2 Methods of data generation

The research approach was drawn upon testing of the identified concepts as discussed over a large sample of research subjects by changing and focusing on one of the three proponents of the interpretation on-board the whale watch boat: knowledge, empathy and responsibility. In order to achieve this, an experimental design had been chosen in order to measure if there is a causal effect on the dependent variable of interest (the behavioural intention of whale watchers) by manipulating the independent variable (interpretation). In the strict sense of the word, an experiment is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables. In this study, a field-experiment was used as research method as the research was conducted in 'the field'.

Experimental designs tend to be high on internal validity because the research subjects are randomly assigned to treatment conditions while the influence of extraneous variables are either controlled or eliminated (Vaske, 2008). As this experiment took place in a real life situation, it can be assumed that the ecological validity was high as the materials that were used in this experiment, e.g. the whale watch boat and the setting of the study, being the original habitat of whales, were equal to the real-life situation that was under investigation. The interpretation on-board was the only actively manipulated independent variable while having randomized the rest of the variables as true as possible in order to observe the causal effect the independent variable produced on the behavioural intention of the research subjects. The research subjects were divided into groups, each group exposed to a different aspect of the independent variable. The specific purpose in this experiment was to compare these groups, based on the difference in the variable of interpretation. The groups were compared with respect to their answer to their behavioural intention.

Three experimental groups took part in this experiment. Each of these groups faced the same conditions, e.g. the same boat, the same tour guide, but every group received a different level of the independent variable, the interpretation on-board. In other words, one group of research subjects was exposed to interpretation that solely emphasized on transferring relevant knowledge (information and facts) about what there is to know about whales. Ergo, this group was not exposed to any of the other two aspects of interpretation, namely empathy and responsibility. These aspects of interpretation were exposed in its most isolated form of interpretation possible to two other groups of research subjects; one group was exposed to interpretation that was solely established to evoke empathy, while the third group consisted of whale watchers who were exposed to interpretation that provoked their feelings of responsibility.

As it was key to define my findings and research to whether or not interpretation in itself has an effect on the behavioural intention of whale watchers, a control group needed to be in place for comparison. The group of whale watchers in this fourth group was practically identical to the three experimental groups and were subjected to the same conditions as the three other groups that were exposed to the manipulated variable of interpretation. The key difference here was that the control group remained constant whereas the experimental groups were tested on using the manipulated variable of interpretation. In other words, while the three experimental groups were offered a supposedly more effective 'direct guided experience' (see chapter 2.1.1.1), the control group was offered a 'direct experience', referring to a real-life situation without a guide.

3.2.1 Sampling procedure

In order to create a situation in which each member of the population has an equal chance of being selected as a research subject, the technique of simple random sampling was applied in this experimental design. This means that whale watchers who boarded a whale watch tour walked straight into the experiment and were automatically selected as research subjects, without any bias and random pre-selection processes, upon which only the variable of their behavioural intention will be tested. In this sense, this experiment did not have any systematic difference except for the treatment applied. As is custom in field experiments, the participants were also unaware that they became part of the experiment. This in order to avoid demand characteristics. Demand characteristics refer to the research subjects being aware of the experiment and its purpose, which may lead to the research subjects seeking cues about how they think that they are expected to behave. As the research subjects were unaware of the purpose of this experiment, the research subjects were expected to not produce a distortion of behaviour. Due to avoiding this and taking into account the representativeness of samples of whale watchers obtained by simple random sampling, it should be reasonable to make generalizations from the results of the sample back to the population.

3.2.2 Role of the tour guide

Interpretation is commonly provided by tour guides, naturalists or on-site interpreters. Tour guiding is an educational activity and is considered to be part of the interpretation process (Knudson et al., 1995, as cited in Christie & Mason, 2003). Weiler and Ham (2000) claim that there is evidence that that what the guide says can directly influence visitor attitudes and behaviours towards the environment. Lück (2003) and Higginbottom (2004) also argue that there is a general belief amongst interpretive authors and protected area managers that interpretation through guides and/or on-site interpreters are the most effective method for increasing visitor learning. Moscardo et al. (2000, as cited in Ham & Weiler, 2002) and Muloin et al. (2001) identify guides as the most frequently used interpretive service when it comes to wildlife settings.

According to many proponents of whale watching and academic scholars (e.g. Elejabeitia & Urquiola, 2009), the tour guide is a fundamental part of the whale watching activity as it is this person on a whale watch tour that communicates the interpretation on-board the whale watch vessels and can therefore influence the tourists on-board. Therefore, the tour guide ought to be the primary source that administered the effect towards the whale watchers. With that, they need to create involvement with the issue of whales being in a critical situation, hereby strengthening the motivation for whale watchers to act (Petty & Cacioppo, 1979, as cited in Cialdini et al., 1981). This made the role of the tour guide a critical factor in shaping the overall experience and made me believe that it was key that in every three scenarios, as described in the former chapters, the tour guide had to be effective and one and the same person in order to strengthen the validity of this research. A different tour guide for every scenario would undermine this validity as one tour guide might have bigger influence over the audience while framing his/her story, e.g. knowledge, interpersonal skills, level of persuasion and charisma in comparison to another one. It is therefore one of the critical variables in this experiment.

Thus, the quality of interpretation and educating people mostly depends on the tour guide. However, personal observations and meetings with both tour guides and several tour operators revealed that the whale watch tours in Tenerife did not have a comprehensive

interpretation model in place. Elejabeitia and Urquiola (2009) state that whale watching guides in the Canary Islands have an acceptable level of quality, good knowledge and a notable level of enthusiasm, but that their role often shares resemblance to that of an entertainer instead of an educational guide. This, according to Elejabeitia and Urquiola (2009), is particularly the case among bigger crowds which can be traced back due to the characteristics of whale watching being a mass product in this region, which demands a close relation between guide and visitor, resulting in intense on-board service support, providing entertainment and a way of communicating in up to five different languages. This negatively affects the effectiveness of their interpretative function. For that reason, the role of the tour guide for this experiment was taken up by one of the volunteers of AWF who has strong communication skills and is able to share extensive knowledge on cetaceans due to having a university degree in Marine Zoology as well as the ability to transfer emotions and feelings of responsibility onto other persons.

To communicate the information as effectively as possible, psychology heuristics was to be used. Basically, heuristics are simple rules that enables persons to make decisions for themselves which might cause them to take action (Cialdini, 2001, as cited in Van den Putte, 2002). In this situation, the so-called authority heuristics was used as a rule of thumb. This rule states that if an expert (by either knowledge or experience) says something, it must be correct (Cialdini, 2001, as cited in Van den Putte, 2002). For this reason, an expert source of a communication was used, which strengthens the persuasive messaging more than a source who the audience does not believe (Albarracín et al., 2003). An additional advantage was the high level of enthusiasm and excitement the AWF-volunteer (hereinafter: "the tour guide") brought on the boat would both benefit stimulating the whale watchers. Apart from that, an enthusiastic and knowledgeable guide is highly awarded by tourists on-board (Lück, 2003).

3.2.3 Methods of creating knowledge

The aim of the first experimental scenario was to provide in-depth knowledge to the whale watchers in this group. As discussed earlier in chapter 2.1.1.1, knowledge on a whale watch tour can to be based on exposing whale watchers to dissonant information which can provide cognitive dissonance (Festinger, 1957, as cited in Orams, 1995) which motivates the whale watchers to take in the knowledge provided, learn and act accordingly. For this scenario, the tour guide used didactics that were provided by the AWF in order to update or redefine the knowledge base of the whale watchers in this group. The didactics provided detailed and in-depth knowledge about the cetaceans that are present in the waters. The whale watchers on the other end received information on species and learned about the whales present in the Tenerife waters and the marine environment as well as specific environmental problems. The information provided would inform whale watchers about e.g. what whales are, the pod size of the pilot whales and bottle nose dolphins, their age and life span, diet, habitat, morphology, hunting techniques and behaviour and the threats they are facing as well as with ways of how the whale watchers can help towards whale conservation.

Cognitive dissonance (see chapter 2.1.1.1) in the field of wildlife conservation does not seem to be too common, although it was used in research by Rose et al. (2003) towards conservation of mountain gorillas. They stated that perhaps "the most vital example of this in the field of conservation is the postulate that trying to save most of the gorillas still living in Africa is not worth the trouble" (Rose et al., 2003, p. 1). Cognitive dissonance was hereby reduced by individuals who are careful in exposing themselves to supportive input, this in order to prevent cognitive dissonance. In this way, individuals rationalized that the objective

of saving the gorillas was not worth to pursue by them. For all they know, they see the loss of animals as a minor tragedy. They could also believe that they think they are unable to help. Basically, it is easier for them to justify these beliefs and feel better about themselves for not doing something to change the faith of gorillas.

Forestell and Kaufman's interpretation model (see chapter 2.1.1.1) state that cognitive dissonance can be used on a whale watch tour in order to change their behaviour in support of conservation. The question that needed to be addressed towards the whale watchers on-board was if whales are worth to save. The whale watch trip needed to positively answer this question to the whale watchers by providing knowledge which would provide them with new information, causing "a modification of the existing scheme so that it is consistent with new information, presumably because the new information is so different and has sufficient credibility that it cannot be assimilated" (Orams, 1992, p. 87). As the whale watchers are in a confined area, they can be exposed by providing this input to cause cognitive dissonance, although they also might simply ignore and thus reject it. The AWF and I also believed it to be essential to expose whale watchers to those characteristics that make cetaceans biologically special and their importance in the ecosystem. This would show more than 'only' the whales' aesthetic value.

3.2.4 Methods of creating empathy

In the context of this study, empathy is defined as a positive emotional response characterized by feelings of compassion for the perceived welfare of the whale. The aim for this method was therefore to emotionally connect the whale watchers to the whales and create a sense of caring for them. Empathy is directed at the affective domain of interpretation, which has been described by Eiss and Harbeck (1969, as cited in Lück, 2003, p. 946) as "that part of human thinking that includes attitudes, feelings, emotions and value systems." Manfredo (2008) and Jacobs (2009) state, among others, that animals have the tendency to evoke a strong emotional response in humans. However, to explore if the aspect of empathy has an effect on the behavioural intention of whale watchers, the interpretation needed to elaborate on more than triggering a short extreme emotional reaction. The interpretation needed to trigger feelings of compassion towards the endangered whales through emotions and appeals to these emotions ought to consolidate stories and the desired calls to action. Evoking an emotional response from the whale watchers can thus increase the effectiveness of persuasive appeals (A. M. Lokhorst, personal communication, December 3, 2010). Edwards and Knight (2006) state that when using the emotional route to persuasion, the messages are most effective when they are kept simple and direct. For this study, the emotions of whale watchers, conceived as responses to whales and triggering bodily changes with the goal of motivating characteristic behaviour, were evoked by exposing the whale watchers with emotional arguments. Tafe (1996) states that emotional arguments appear to be more successful when there is a lack of factual information. According to this, the communication on-board the whale watch vessel thus had to be altered in order to solely evoke emotional reactions.

One way to achieve this is by creating human-animal intimacy by exposing the research subjects with intimate details of the whale- and dolphin families that will be visited acquired knowledge about animals can activate emotions reactions towards an animal and reinforce feelings that might create a bond with them (Jacobs, 2008) . These intimate details communicated included their names, social roles and describing a whale´s distinctive personalities and character. This is a form of using anthropomorphism, which can be defined

as "the use of human motives, values, and emotional responses to describe and explain animal behaviour" (Higginbottom, 2004, p. 240). Even though the use of anthropomorphism is criticized by some due to it perpetuating an anthropocentric and sentimental view of the environment (e.g. Ford, 1995, as cited in Higginbottom, 2004), it is a very useful tool for wildlife interpreters in building (emotional) connections between wildlife species and human experiences (Sandford, 1997, as cited in Higginbottom, 2004). Anthropomorphism plays a big role in whale watching as, according to Knight (2005), whale watch guides are often accused of anthropomorphism, where they ascribe human appearances and feelings to the cetaceans they spot. Einarsson (1993, as cited in Knight, 2005) explains that an important part as to why whales are so easily identified is because of this humanized image. He states that "it is the implicit and explicit projections of human motives on to the behaviour of cetaceans which has given rise to a whole body of cetacean mythology where the metaphor of anthropomorphism plays a major role" (Einarsson, 1993, as cited in Knight, 2005, p. 358). Another way to evoke emotions, in which the concept of anthropomorphism also plays a big role, is by storytelling.

Woodside et al. (2008) argue that people like to live stories and that through storytelling, one can play an active role in this story by helping someone in need, providing a positive emotional response. This should create a persuasive appeal which evokes emotion and, according to Manfredo (2008), can result in an effective method of decision making. Storytelling therefore provides an individual a key role in the way one understands and manages ones social worlds and relationships (Merchant et al., 2010). These stories need to have a point of conflict, or a problem, and should also point the way to a happy ending through the help of an individual. This is applied a lot in non-profit and charitable organizations. These non-profit stories are designed in a way to take an individual through different emotional stages (Woodside et al., 2008), starting off with an "inciting incident" (McKee, 2003, as cited in Merchant et al., 2010) or a case statement of someone in need (Seiler, 2001, as cited in Merchant et al., 2010). In this stage, individuals are exposed to a problematic situation or incident, resulting in evoking basic negative universal emotions as sadness, anger or a fear-appeal. Fear is a discomforting emotion and people seek ways in order to diminish discomfort (Johns, 2009). As the story unfolds, the individual is assisted in the story by being given the opportunity to take action in order to remedy the situation and reduce the tension of their unbalanced state of mind by positive anticipated emotions, which are "[e]motions experienced in anticipation of an imagined future goal success/failure" (Merchant et al., 2010, p. 4). These negative feelings thus translate into anticipated positive emotions when one is given the opportunity to help someone in need through a donation. These anticipated positive emotions trigger intentions and lead to behaviours which increase the likelihood of experiencing the anticipated emotions (Brown et al., 1997, as cited in Merchant et al., 2010). Cialdini et al. (1987) also argue that people tend to help others not because of selflessness and altruistic reasoning, but more as a means to repair ones negative mood state, implying that a person helps another person to overcome negative emotions that he or she might be experiencing.

In the context of this study, applying both the concept of anthropomorphism and framing a story was mainly realized due to the photo database of the AWF. They have conducted photo identifications of the distinctive dorsal fins of both the resident pilot whales and resident bottlenose dolphins over the past twelve years. This resulted in identified individual matriarchs, each with their own name and recognized family details of whales with each of the family members having their own name and personality. When

applying storytelling to this study, the reflected problem that needed to be solved was depicted as informing the whale watchers to the hardship that whales face. When taking both the storytelling and the individual characteristics of the observed whales into account, while projecting human emotions onto the whales, an intimate bond was created by depicting the whale as a friend or relative who is in need of support. Ham (1992) believes that audiences that are non-captive, like whale watchers, and non-attentive at a time can be expected to switch their attention to any information that is highly personal to them, including information that revolves around themselves, their families, their health or the quality of life that affects them. Subsequently, messages were promoted which aimed at eliciting emotions in the whale watchers which in turn should improve their level of satisfaction, influence their views and actions and evoke the feeling that the whale watchers are capable of performing advocated behaviour.

3.2.5 Methods of creating feelings of responsibility

The goal in this condition was to cater for a situation that heightens feelings of responsibility from the whale watchers towards whales and, therefore, creates more impetus for action while inspiring a feeling of personal involvement. It was mentioned already that Tilden (1957, as cited in Ham, 2007) advices that interpretation should not be aimed at simply teaching visitors facts, but it should be aimed at provoking visitors to think on their own. This scenario should therefore not simply educate whale watchers with new information, as is the case in the method of transferring knowledge (see 3.2.3.), but provide the tourists with connections between their own actions and wider beliefs from which whale conservation can emanate (i.e., "provocation" versus "instruction"). This goes hand in hand with an extensive range of research (Chaiken 1980, as cited in Ham, 2007; Petty & Cacioppo 1986, as cited in Ham, 2007), which states that influencing a visitor's attitude depends mainly on how the interpretation provokes the visitor to think about the presented information and the visitor's prior attitude. Kaiser and Shimoda (1999) state that a person's feeling of responsibility towards the environment is a promising predictor of that person's ecological behaviour. Ecological behaviour is commonly perceived to be related and determined by moral (Kaiser & Shimoda, 1999). Therefore, the theoretical frame in which the concept of feelings of responsibility is used will be based on moral.

One important aspect that caters for moral feelings of responsibility is that of guilt. Guilt can be seen as a negative emotion that occurs when someone realizes that a moral standard has been violated. In that sense, it can be regarded as being an emotion in the line of empathy as it is experienced when one considers how others have been hurt (Nelissen & Zeelenberg, 2009). According to research by Kaiser and Shimoda (1999), the feeling of guilt explain forty-four per cent of the variance of these responsibility feeling. They state that "the guilt that people feel for what they do or fail to do in respect to environmentally friendly behaviour promotes their self-ascription of responsibility and this, in turn, dictates the way in which they behave" (Kaiser & Shimoda, 1999, as cited in Russell & Jarvis, 2003, p. 360). The ascription of responsibility concept measures the degree of an individual's tendency to deliberately assign responsibility to his or her actions once this sense of responsibility has been aroused (Schwartz, 1973).

To build upon this, 'self-referencing' is also to be used in creating this scenario, which relates to getting the whale watchers to momentarily think about themselves as they are given some new piece of information and connect new given ideas to what they care about (Ham, 1992). One idea to provoke feelings of responsibility is by explicitly selling

conservation messages, e.g. "in the next forty years we will lose 37 per cent of our nature and mention that it is the fault of us humans, unless we, as an individual, act now," (E. Bentham, personal communication, February 8, 2010) as well as 'labelling', in which the tour guide classifies the whale watchers in either positive or negative boxes (Ham, 1992). The whale watchers would have to associate or disassociate themselves a label that is given, e.g. "If you're someone who feels responsible for the planet we all inhabit and cares about wildlife, then you probably would like to save these whales."

Several studies have shown that feelings of guilt result in compensatory behaviour (Vermandele, 2009). In that sense, guilt motivates people to take action to reverse actions they have done before which resulted in this negative feeling of guilt. The sense of responsibility that is generated along with the guilty feeling makes the individual look for a solution. When that solution is offered, the individual will respond more rapidly to follow up on that solution (Vermandele, 2009). The interaction between the guide and the tourists was therefore suggested to be based on individual empowerment by removing barriers to the whale watchers and provide them solutions to their feelings of guilt. The tour guide could hereby strengthen their perceived behavioural control as well as their locus of responsibility, which is a concept whereby individuals perceive that their actions can make a difference (Peake et al., 2009). This ought to create ownership as they know about the problem, know that they can do something to solve the problem and that it is important to them. Overall, it is the responsibility to do something that needs to be covered and sent out on an individual note. The tour guide's role in this scenario is to remind the whale watchers that marine life is in danger and to share ideas of how all of us can be part of a change, what someone can do as an individual. This provides the foundation on which the effectiveness of this aspect of feelings of responsibility rests as it attempts to influence the behavioural intention of the whale watchers.

3.2.6 Questionnaire design

The approach used to measure the effectiveness of interpretation towards the dependent variable of the behavioural intention of the whale watchers was through a pre-post design. A pre-trip and post-trip questionnaire enabled me to compare the four different participant groups and measure the degree of change of the behavioural intention of the whale watchers that occurred as the independent variable of interpretation had been manipulated. In the light of the specific purpose of this study, it was important that their initial intention was measured before the whale watchers were exposed to the whales and subjected to the interpretation on board. Therefore, the pre-trip questionnaire was designed to retrieve the whale watchers' initial intention towards three initiatives to support whale conservation before their trip as several other questions designed to avoid demand characteristics (for a full version of the pre-trip questionnaire, see Appendix B).

The concept of the behavioural intention of the whale watchers was measured by using multiple-item indicators, where the research subjects were asked to indicate their willingness to participate in a number of three initiatives: 1) the intention to encourage their friends and/or family to help save the whales, 2) the intention to donate an amount of money to a project that protects the whales and 3) the intention to volunteer a few hours a week with an organization that helps to protect the whales. These three initiatives were proposed ways by e.g. the Cetacean Society International and the WDCS of how the general public can contribute to the welfare of cetaceans. The respondents were asked to rate their intentions on these three initiatives by using a five-point Likert measuring their subjective

probability scale, ranging from very unlikely (1) to very likely (5) to make the score more reliable (Friedman & Taiwo, 1999). However, it is only after their whale watch experience that the difference in behavioural intentions can be compared and thus, the value that is of interest to me is the change score across all members of one class and per individual. For that reason, a post-trip questionnaire was also designed.

The post-trip questionnaire therefore contained the same three questions that measured their behavioural intention. The sequence of these intentions asked remained the same in order to create a consistent pattern in the whale watchers' answers as to reflect measurement reliability. In order to cover up the purpose of the experiment, which might have caused social desirability bias in the answers given by the research subjects and to distract the whale watchers from potentially noticing the same three questions that related to their behavioural intentions asked several hours earlier, this questionnaire was labelled to the whale watchers as a "visitor satisfaction questionnaire,", thus designed to measure their level of satisfaction. Several questions related to their whale watching experience were added as well as space for open-ended comments (for a full version of the post-trip questionnaire, see Appendix C). To make sure that the measurement of the pre- and post-trip questionnaire could be realized on an individual basis as well, the pre-trip questionnaire contained a section that involved five questions related to themselves, including three that targeted demographic information (gender, age and nationality). It were these questions that were also used in the post-trip questionnaire in order to make an individual match.

3.2.7 Behaviour as predicted in real life

Although this study aims towards measuring intentions, examining actual behaviour is an important addition to examining the intention to act to conserve the whales. I deem this to be essential when looking at the long-term goal in hand of protecting and saving the whales. Moreover, having good intentions is one thing, to make the choice to build up one ones intention and actually act is another. Good intentions in itself will not change anything, and therefore be of no significance. For that reason, an assessment of the whale watchers actual behaviour was also taken into account and tested three months after the experiment and corresponding measurement took place. It was therefore essential to attain e-mail addresses from the research subjects and their willingness to complete this post-tour questionnaire.

3.2.8 Limitations

One specific limitation has to do with the experimental design. As I am dealing with a field experiment, it will simply be impossible to completely control all variables. As it is important to investigate only the possible effect of the variable of interpretation on the behavioural intention of the whale watchers, the influence of other variables needed to be controlled as much as possible. Besides being more time consuming than an experiment in a confined laboratory, a field experiment is harder to control due to the existing confounding variables. Confounding variables are those variables which might affect the results and therefore provide a false set of results. This experiment might bring up a potential for error which results from individual differences between the groups of participants taking part in the different conditions. For instance, one experimental group of whale watchers might consist of a significant part of individuals who are already very emotional characters or have a high ascription of responsibility. According to research by Zuckerman, Siegelbaum and Williams (1977, as cited in Cialdini et al., 1981), they found that people who have a high ascription of

responsibility are more likely to act on their behavioural intentions than those who were low in the ascription of responsibility. This personal characteristics could thus influence a change in their intentions rather than the actual interpretation that is meant to cater for that. When these individuals would be unaware of the situation whales are facing and be subjected by interpretation that solely transfers knowledge and facts, they might still be enticed to positively change their intentions which were measured during the pre-trip. This could therefore not be realized thanks to the interpretation, but these individuals could already be emotionally moved to undertake action when they see people suffering, let alone when they find out that whales are the object in need.

Another important limitation in this study has to do with the difficulty of implementing an effective field-experiment in the context of tourism. Reason being is the participants on a whale watch tour are, in fact, tourists. Perhaps the tourists on-board will regard their whale watching trip as a passive form of ecotourism, which in this case occurs when the tourists are entertained by seeing a whale and enjoy the experience with their family while minimizing their impact on the environment (Orams, 1995). The goal of interpretation in this study is to push the visitor to the other end of the continuum, the active form of ecotourism and move them towards actively contributing to a long-term healthy ecosystem. However, although a whale watch tour is considered to be a learning environment, the participants in this setting are not students that need to learn or feel the need to pay attention in order to get a sufficient grade for an upcoming exam. Or, as Lück (2003, p. 944) has quite adequately put it, ''environmental education involves students while environmental interpretation involves visitors.'' Besides that a boat is not a formalised learning environment as a classroom where retention leads to effective education (Greenwald, 1968), the tourists on the boat are considered to be both a non-attentive (Lück, 2003; Rasoamampianina, 2004) and non-captive (Orams, 1999, as cited in Lück, 2003; Ham, 1992) audience. Typically, they will listen to or read information only if they wish. It is therefore voluntary for whale watchers to listen to what has been said and for that reason. Although the results of studies vary, Rasoamampianina (2004) states that, in many cases, tourists are not primarily interested in learning. Not knowing if one has actually paid attention to what has being interpreted, will determine whether or not interpretation has had an effect on their behavioural intentions being either changed or unchanged. It is therefore not retention that leads to an effective learning environment on whale watch boat, but rather it is acceptance that has to be considered as the essential criterion of effectiveness when it comes to the persuasive appeals on the boats (Greenwald, 1968).

One other limitation has to do with the Forestell and Kaufman's interpretation model (see chapter 2.1.1). The final of the three different stages to develop effective interpretation on a whale watch tour should, the post contact phase, ought to facilitate initiatives for whale watchers to actively follow up on. However, due to measuring three intentions towards supporting marine conservation, albeit not in detail, it is the first of the three stages that already brings solutions to the respondents in order for them to participate in. That said, these three intentions are again asked in the post-contact phase, which might make respondents change this answer, which is overall the aim to observe.

A final limitation has to be noted with regards to applying the pre-post trip design. It was expected to not attain a full 100% score on an individual match between pre-trip and post-trip results. This lies in the simple idea that a small number of passengers who were to fill in the pre-trip survey would decline to participate in the post-trip survey due to e.g. suffering from sea-sickness, sleeping upon the return trip or non-interest.

3.3 Data collection

The two questionnaire was pilot-tested three days before data collection with 56 whale watchers while using the same boat that would be used for the experiment. These whale watchers provided feedback on the length of the questionnaire, unclear questions and illogical orders of the questions. Two changes were made before wider distribution of the questionnaire. It turned out that I had to make the questions that were aimed at measuring their intentions more simple. The other change I had to make was one that I expected to make. One challenge that I faced was making sure I was able to measure the intentions on an individual level. At first I chose to do this by asking for the name and e-mail address in both the pre-trip as the post-trip questionnaires. This would cater for me to match both the pre-trip questionnaire and post-trip questionnaire on the basis of the answers to these two questions. It turned out that this was far from effective, with just three out of the 56 whale watchers providing this information, I was therefore not able to make an individual match and a corresponding comparison was not to be made. Thus, I thought of a system for comparison that included their gender, age and country of origin. This did turn out to be very effective during the next day of testing the questionnaires and the remaining experiment.

3.3.1 Procedures

The experiment took place over 25 trips between February 23rd and the 16th of March. This was considered to be part of the first high season in Tenerife. Data were collected over one boat, called the Must Cat which, on average, offered two daily excursions: a 3 hour trip at 10:00 and a 4,5 hour trip at 13:15. The Must Cat is a Catamaran, which could take up a maximum of 70 visitors, with an average maximum capacity per boat in Tenerife of 90.6 (Elejabeitia & Urquiola, 2009). It is safe to say that a representative sample of Tenerife's whale watching visitors was ensured, since a catamaran is the primary type of boat used by all whale watching companies in Tenerife. While the cost and length of the tour were two variables that might have reduced representation towards potential visitors, all tours for this experiment lasted 3 hours at a cost of €41 (at an average cost of €40 in Tenerife). The whale watching spots in Tenerife are located fairly close to the coast line, generally at a quarter of an hour sailing distance from the harbour with whales usually sighted in a 2.4 to 6.5 km radius. The selected tours of the Must Cat ran common routes as both the pilot whales and the bottlenose dolphins had, in general, known locations. This is due to the fact that the Must Cat is the only boat in Tenerife that departs from the port of the small fishing village of Las Galletas. Due to this, the captain knows the exact whereabouts of the pods that inhabit the waters they operate in and we did not have to share the groups of whales encountered with other operators. The common route included going north-west towards La Gomera to observe short-finned pilot whales, circling the perimeter around that area and heading south-east while passing by Puerto Colón, Las Americas and Los Cristianos (see Figure 5, p. 30), slightly offshore to observe bottlenose dolphins around the fish farms located there.

Figure 5: Area of Tenerife and La Gomera

On all trips examined, the distribution of the pre-trip questionnaire was announced by the tour guide after about ten minutes after departure. This was once the tour guide fulfilled the instrumental role in communication the guidelines on-board, this in order to have a pleasant experience for all parties involved and to ensure safety, and the camera crew member handed out a leaflet which provided information on how to order a DVD of the trip. The pre-trip questionnaire was then handed to the whale watchers by the AWF volunteers. This questionnaire took about two minutes to complete. The pre-trip questionnaires were subsequently collected by the AWF volunteers once the respondents completed it. My role during the time on the boat was that of an objective observer. This was in order to not have any influence on the experiment. This also provided me with the opportunity to listen to whale watchers talking to each other.

The post-trip questionnaire was handed out to the same respondents of the pre-trip questionnaires when returning to the harbour. Distributing questionnaires to whale watchers when returning to the harbour has proven to be very effective as passengers have something that keeps them occupied on their journey back to the harbour (Parsons et al., 2003). With about 30 minutes of the trip remaining, the tour guide briefly announced that there would be a visitor satisfaction questionnaire distributed by the AWF before returning to the harbour. On every trip, passing the lighthouse at Las Galletas was the indicator for the AWF volunteers to distribute the post-trip questionnaires and collect again once finished. This provided the whale watchers enough time to complete the questionnaire, which also took about two minutes to complete, and to have a remaining 15 minutes to enjoy the scenery as we headed to the harbour. Albeit not expecting a 100% score, a high questionnaire completion rate was expected as my rationale was that it would indeed provide the passengers with 'something to do' on the journey back to harbour, as Parsons et al. (2003) had concluded earlier.

Although some of the individuals arrived to Tenerife as a group and also gathered at the harbour as a group of individuals, all visitors on the selected tours were approached individually. This was done in order to avoid sampling error; the extent to which a sample is limited in its ability to perfectly describe a population because only some, and not all, elements in the population are sampled. Out of the four reasons for non-response (Israel, 1992), two were expected to be relevant for this study: non-response due to persons

contacted but refuse to answer (refusal) and non-response due to one being unable to answer. According to Israel (1992), low fluency of the language of the questionnaire, causing inability to respond, is one of the four reasons for non-response. Due to the expected diversity of nationalities embarking on a whale watch tour, the questionnaire was translated in several other languages (Dutch, French, German, Polish and Spanish) in order to have a precise measurement and to take out any inconsistencies that could be derived from a possible language barrier when reading the questions only in the English language.

3.3.2 Transferring Knowledge
The following story was communicated on this trip that focused on transferring knowledge: "*We are now on our way to find some whales and dolphins. We have about 250 resident pilot whales here. Pilot whales belong to the same family as dolphins, called the Delphinidae. And just to let you know, every dolphin is a whale, but every whale is not a dolphin. It can be quite confusing, but both whales and dolphins belong to one family, which is also called cetaceans. The whale family is further divided into two distinct suborders. You have the toothed whales, to which the pilot whales and other dolphins belong to. Also the Orca belongs to this family. And then there are baleen whales ladies and gentleman. These whales are the big whales like the famous humpback whale or the blue whale, which is the largest animal in this world and to have ever existed. It can grow up to 33 meters long and it is bigger than any dinosaur to have ever lived. Sadly enough, most species of baleen whale are endangered. The blue whale is on the verge of extinction, with only around 2,000 of these animals swimming around worldwide. They used to be everywhere in the world until a hundred years ago. The last time we saw one here was around five years ago. We really hope to see one again very soon. Right now we are on our way to find pilot whales ladies and gentlemen. We will keep you informed.*"

Once the first whales were spotted and an advantage point was found, the following text was communicated, informing the whale watchers with more in-depth knowledge about the whales they were watching: "*Right here you can see pilot whales. Pilot whales tend to live in deep waters and the area where you are now is very deep, up to 3.000 meters. The name of the pilot whale comes from the idea that the pod has one leader. They tend to live in close family groups of 20 to 100 animals and can weigh between the 1000 and 3000 kg. These whales tend to separate themselves into pods according to age and sex, accompanied by one dominant bull. Females have a length in between 3.7m and 5.5m, the male pilot whale can reach a length up to 7.3m. The life span of a male pilot whale is about 45 years while females may live up to about 65 years old. Reason for this is that it is the males are the ones that provide the food for their pod. They live on fish and giant squid. For that reason, they go down very deep, up to 700 meters, where the giant squid resides. These squid can be up to 18 meters, which is about two to three times the size of an adult male pilot whales. It is understandable that the male pilot whales can easily be identified in the waters due to the many scars it has on their body, caused by the tentacles of the giant squid they fight with. As the whales can stay underwater for up to 30 minutes, their hunting for food can be quite a challenge. They are very fast and are compared to cheetahs. They are considered to be the greatest athletes of the deep-diving mammals, with diving speeds being recorded of up to 9 meters a second. They have also been recorded to keep up their sprint for 200m before either catching the squid or giving up the chase.*"

When the whales were spotted, there was a more detailed description given regarding their physical appearance and their behaviour at that time, e.g. if a pilot whale or

dolphin was logging, which means that they are sleeping in a semi-conscious state, resting one side of the brain for a short time then swapping over. Their behaviour was also specifically described, for when they were porpoising (leaping out of the water), spy-hopping (poking their head out of the water to have a look around), breaching (launching themselves into the air and fall back into the water) or fluking (lifting their tail before diving). At the end of the encounters with the whales, sailing away from the whales, the threats where mentioned which emphasis the hardship that whales are facing: "*What you have just witnessed here ladies and gentleman, were pilot whales. Pilot whales belong to the smaller species of whales. We have seen many great species of whales here as well, like the fin whale and the blue whale, which is the biggest animals ever. Apart from whales being beautiful creatures, they are very important for the balance in our oceans. Did you know that seven of the thirteen great species of whales are endangered. And not only by whaling, where whales are being hunted for their meat and oil which is used for medicinal purposes. Also pollutions, loss of food sources and also climate change. This impacts their populations, but it also has an impact on the ecosystems when they will be extinct. They play a very important role in the balance of nature. One example is that when they go extinct, their predators, like sharks and orcas will hunt for other prey and who knows, one day nothing might remain. But it are not only great whales that face extinction these days, especially the smaller species of whales are in serious danger and often overlooked. That is where the real conversation problems lie. What is also overlooked is the ease by how you can help their lives. For instance, you can sign a petition, which is very easy to do. Another way to help them is by donating money to projects that are set up for conservation of the whales. It doesn't even have to be a big donation, as many people believe. Small amounts do help. And you can even get a great experience by being a volunteer and work with them, for instance like these people from the Atlantic Whale Foundation. You can save the whales, perhaps you just didn't know it yet.*"

3.3.3 Evoking Empathy

The following text was provided to the whale watchers after the safety briefing: "*We are now on our way to find some whales and dolphins. We have about 250 resident pilot whales here. The family structures of whales are very fascinating as they resemble our own families. They are particularly intelligent mammals and, like us, they place a lot of value on their families and the role that each member plays within the unit. Just as us, these families exists of grandmothers, mothers, children and babies. It is very important that a family sticks together as they are very social animals and they look after one another. We once saw a pod of whales carrying and guarding a dead calf for a few weeks. It was such a sad experience to witness. Their unspoken cooperation with each and every member within their family shows their sense of responsibility. One reason for them having to stick together is that whale calves do not mature as quickly as some other mammals do, they require time to grow and develop within a protected environment. When the older mothers stop having children , they act as midwifes by helping their children to nurse their grandchildren. For example, they assist in making sure that the new-borns reach the surface of the water for air. I tend to mirror myself to them as my grandmother always came over to my house to visit my parents and she looked after me a lot when I was younger. They are very smart animals as well. We see calves approaching the boats many times out of curiosity and the mother is usually quite ok with that. It is so cute to see these little whales curiously approaching us and looking at us with their little eyes. You can see them thinking. It is another story when the grand mother is on an outing with her grandchild as she is more protective of her and tends to stay in*

between the boat and the calf when babysitting. You can see the little one trying to come close to us while she gets fended off by her grandma, who makes sure she can return her grandchild to the family without any harm done. We tend to think she has the kid on a leash, ensuring that that these calves are isolated from the dangers of the deep as well as from us. The males hunt during the night in order to maintain their family. This is also why they can age up to 45 years old in the wild, while females can live up to 65 years old. Compare this with whales and dolphins that are being kept in captivity, where the average age of survival, and yes, I did mean survival, is around five years old. They don't have a family there, nor friends or someone to look after or love. They are all alone in those circumstances, not belonging to anything except for the park itself. It is such a sad situation. And also, they are fed dead fish in captivity, but here they can catch food for their whole family, hunting and playing around as they go. So yes, it is a very special experience for you to see these magnificent animals in the wild as it is up to them to show themselves to us. They have a choice, compared to those in captivity. Think about that."

When the whale family was spotted and their presence was announced to the research subjects, the following story was communicated once we got closer: "*Wow look at this! This is quite special and we are extremely happy with who is here as the mother you are observing at this moment is called Trompa ladies and gentleman and she is in charge of the whole pod. It is actually amazing to see her again as we had not seen her in such a long time. Trompa is a very curious whale and very fond of seeing us every time. She is the caretaker of this family and she has been one of the long term resident whales here. Because we did not see her for a long time, we feared that something bad might have happened to her. As it happens with a lot of them, they tend to be very curious and we therefore believed she might have been caught in a fishing net and had drowned. But thankfully she is back. This is such a relief for us and her family as they would have felt her loss immensely. She truly is a beautiful specimen. Look how elegantly she looks in her natural environment! At the moment they are enjoying their time with us, playing around. And look, she is looking at us right now, smiling at us. You can see how happy she is to be surrounded by her family again. We are very happy to see she is unharmed.*"

When we left this family of whales, the following story was communicated: "*The family of Trompa you have just seen is one of the families that resides here in the Canary Islands year in year out. There are around 300 to 500 pilot whales that are migratory and visit these waters yearly. However, sadly enough this number seems to be dropping rapidly. For instance, we have had a few families here for quite a while but ever since they have migrated we have not been seeing them anymore. There is a big chance that this family has ended up in the Faroe Islands, where these whales are killed annually in the Grindagrap. This is an event that takes place in the Faroe Islands where about 2,000 of these whales that you are seeing right now are being hunted and slaughtered as some sort of right of passage. It is not only there that families are losing their relatives due to human involvement, it happens also in other parts of the world with other species of whales. We have seen Luke migrate through these waters many times. Luke is a beautiful Fin whale, which is the second biggest species of animals that lives in the world, with the blue whale being the biggest animal to have ever existed. But we have not seen Luke in years and we are afraid to never see Luke or any other part of his family here again as they are being hunted in several parts of the world and we believe they have become the victim of whale hunting as well. It is such a shame. It will get harder and harder to see these amazing creatures in the wild. We are seeing them now, but imagine losing the opportunity of seeing these amazing animals in a near future.*

And it is going fast, more and more species are on the verge of extinction. But are you aware that you can make a change? They need us to rescue them from extinction. You can help them. You can create a better environment for them and make sure that their families remain intact and that your children and grandchildren can still experience these whales as well. You can help them by signing a petition and encourage your friends to do so as well. This does not cost you money or time and still it will help these lovely animals. It is so easy to do. Furthermore, a small donation can make a huge difference. Every small donation to an organization that stands for the conservation of the whales adds up to a bigger amount of money that can help save them from extinction. One other thing you could do is do what these volunteers of the Atlantic Whale Foundation do and volunteer. There are plenty of volunteering options at organizations all over the world where you can be active in something. Thing is, it is such a dangerous situation these whales are facing nowadays but there are plenty of opportunities for you to give them that helping hand they need."

3.3.4 Provoking Feelings of Responsibility

One easy entry point towards provoking feelings of responsibility on this trip, or any other, was due to a question I had put in the pre-trip questionnaire. This question was asking the whale watchers if they knew how many species, out of the thirteen known great species of whales, are endangered. The answer to this question is seven, which was subsequently given to the whale watchers on this trip right after the safety briefing, followed by reasons why and the statement that it are actually the smaller species of whales we have to worry about, not the ones you would see in many campaigns but related species to the pilot whales you are all observing today. The actual text that was provided to the whale watchers after the safety briefing and when observing the whales was as follows:

"Ladies and gentlemen, what you are about to observe here are pilot whales. We have about 250 resident pilot whales here. The pilot whales belong to the smaller species of whales. We have seen many great species of whales here as well, like the fin whale and the blue whale, which is the biggest animals ever. However, throughout the years this amount has declined as they are now endangered. Out of the 13 great whale species, there are 7 of them endangered. And honestly, we are responsible for that. Only recently an entire species has gone extinct because of us humans and in the next forty years, we will lose 37 per cent more of species on our planet and this is the fault of us humans, unless we, as an individual, act now. We need to watch the wellbeing of whales in order to preserve them. We owe it to them as they suffer in their environment by poisons dumped into the ocean. The greatest threat that the whales are facing nowadays is not necessarily whaling. It is the increase of pollution by us humans. Because when we pollute our environment with these chemicals, from all sorts of products, these chemicals have been linked with a decline in whale populations. Are you aware of the Great Pacific Garbage Patch? This is a patch of 3,5 million ton of plastic in the Pacific, twice the size of Texas now which contains six times more plastic than plankton. Whales and fish eat this. We, as an individual, can help save the whales by already doing something small in our everyday life. Purchasing environmentally-safe products and recycling are very small, but important steps you can take as an individual as this prevents harmful materials like plastic from entering the water supplies. Thank you."

When we left this family of whales, the following text was communicated to the whale watchers: "Did you all enjoy seeing these whales? Did you have a close look at the mother and the calf pilot whale swimming together peacefully. It is hard to believe that both whales and dolphins are being caught in fishing nets in many places in the world. We owe it

to them and to humankind to watch the whales' well-being because, we need a healthy ocean to survive. Do you know where most of the oxygen we take in comes from? It comes from the oceans. But due to ocean acidification and pollution, this is having a major effect on whales and dolphins. The ocean can revive itself but we must be good custodians to help maintain it. If you are someone who feels responsible for the planet that we all inhabit and cares about wildlife, then you probably would like to save these whales. These whales have inhabited earth long before the development of human beings and it is our intrusion into the ocean ecosystem that causes all sorts of hazards to them, and to ourselves. You do not need money or a degree in marine biology to make a real difference in protecting endangered species. By making small, everyday choices or by educating friends and young people about the amazing qualities of whales, you can truly help to protect them. All you need to do is spread awareness among your friends and family. Or sign a petition. Donate an amount of money to an organization that looks after the wellbeing of the whales. Really, It doesn't have to be a lot. You could also have a car boot sale or cake sale to raise money for a conservation organisation. Or do what these people from the Atlantic Whale Foundation that are with us today are doing and become a volunteer at a conservation organization. There is so much you can do for these animals. We owe it to them and we <u>have to</u> make sure that your children and grandchildren will enjoy that what you are experiencing now as well. I cannot stress it enough, but these magnificent animals and the oceans they inhabit are in great danger. But it is not too late to make a change and fix things. However, it will be too late if people don't know about it and you do not act now. Now imagine this boat to be the Titanic. The major difference is that we can see the iceberg ahead of us. It have been us humans that have created this situation the whales are in, it is up to us to help them."

3.4 Difficulties

One major difficulty was experienced by me upon my first days in Tenerife. Initially I was given a green light for my research, as there had been several other MSc students as well as PhD students who had collaborated with the AWF and tour operators in Tenerife before. However, as my research was aimed to show whether or not whale watch tours showed effectiveness, it was therefore also a possibility for my research to show a whale watch tour to be ineffective. I did not anticipate on this in that sense that this was a controversial aspect among the whale watch business involved. Once the tour operator that I had planned to work with had a more in-depth conversation with the founder of the AWF and found out about my research goal, he became hesitant. He imagined that if my results would show that the trips taken on his boat would turn out to be ineffective, this could jeopardize his business if this research were ever to be published. A meeting with both the owner of the boat as the AWF founder lessened his worries as both the founder of AWF and I convinced the boat owner of the possibilities that would rise when his company would turn out to become an example of sustainable practices of whale watching in Tenerife, with the AWF recommending his boat as one of best practices in Tenerife. This would generate more business opportunities as the business would be promoted throughout the AWF website, which is one of the first results when one scouts the internet for whale watching in Tenerife.

Another struggle that I had encountered was dealing with the time constraint the whale watchers were under. It was key that the pre-trip questionnaire was completed before the whale watchers were subjected to the whales. This caused for some tense moments at times as the boat captain had granted us permission to hand out the pre-trip questionnaire only after the safety briefing was completed and the camera person had made

her round by informing the people individually about her business of selling a DVD. At certain trips, this resulted in not having been able to hand out the pre-trip questionnaire in time as the woman who was filming on the boat had not completed informing every whale watcher about the DVD sale, causing whales to be spotted in that time. This resulted in an several unused trips in that sense that I was unable to have a baseline to measure their post-trip intentions from as it would have been to late.

Apart from that, it is well-known that these experimental designs do not take into account any pre-existing factors or recognize that influences outside the experiment may affect the results. These results will not stand up to rigorous statistical scrutiny because I also needed to control other factors that may have affected the results. This is really hard to do properly. For instance, it turned out that there were around 25 per cent more visitors in the Canary Island, especially Tenerife, in my first week of collecting data than usual (GFK Travelscan, February 11, 2011). This was due to the political situation that occurred in Egypt in that time and, shortly after, Libya as well. This caused a large influx of tourists in Tenerife as these tourists were ordered to either leave Egypt and Libya or reschedule their original itinerary. At first this seemed a great opportunity to attain more data, but the opposite turned out to be. Reason for this was that suddenly there were many organized groups of tourists with the same nationality that left Egypt and Libya, which would have clouded my validity when having taken these groups into the analysis. For that reason, some trips were excluded for my research.

For the twenty-five trips that were used to create an as much as controlled situation for each scenario, there were nine of them which had the same situational variables, which included, most importantly, six pilot whales and three to seven dolphins around the fish farms. During the remaining sixteen trips, which were not used for analysis in this study, confounding variables were in effect that could have influenced the results instead of solely the interpretation offered and could have, for that reason, clouded the validity of the results. Most important confounding variables which resulted in unused research subjects had to do with the weather, as there were three trips in which a storm appeared on the water, causing many whale watchers becoming sick for the remainder of their trip. One major confounding variable I had to endure was dealing with uncontrollable marine wildlife. Many trips included more pilot whales and dolphins being spotted than usual or none at all, the presence of a fin whale, pods of dolphins playing with the boat and a change in weather being an important variable. Out of these trips, three were used in the analysis for this experiment, more specifically these were analysed for the trip in which interpretation focused on knowledge, empathy as well as the control group. The whale watchers that were present on their trip which offered interpretation that was focused on empathy observed five pilot whales and two dolphins. The following chapter will present the results from this study.

4. FINDINGS AND ANALYSIS

Descriptive and statistical methods were used to analyse the primary data that were collected from the pre-trip and post-trip questionnaires. Descriptive methods such as measures of averages and percentages and statistical methods in the form of the one-paired sample *t*-test and the one-way Analysis of Variance (ANOVA) were used to answer the research questions. There was a total of 182 persons used for analysis, which included both adults and teenagers (children were excluded). A total of 145 whale watchers completed both the pre-trip questionnaire as well as the post-trip questionnaire. The completion rate in this experiment resulted in an estimated response rate of 79.7 per cent over all groups examined. As only matched pairs can be used to perform a one-paired *t*-test, there were also some minor differences in the population sizes (*n*) among the three intentions measured as there were some missing values in various responses within various groups. Data missing from the three-items of behavioural intentions ranged from 0.68 per cent in the pre-trip questionnaire to 2.74 per cent in the post-trip questionnaire.

The analysis is based on four parts. First of all, a background analysis was made of selected demographic and background variables of the participants, this in order to have a closer look at the profile of the research subjects. Secondly, an independent comparison of the three intentions measured per group was made in order to see if the behavioural intentions were influenced by the form of interpretation offered. This was done to explore whether or not any of the three different aspects of interpretation has an effect on any or all of the three behavioural intentions measured. This part also offers several quotes from whale watchers which defines their impression on the scenario that was set up for them. Moreover, it was key to research which of these four groups showed the biggest effect compared to one another in order to establish if any of the four aspects has a significantly stronger effect on the behavioural intentions of whale watchers than the other aspects. This is where the third analysis will elaborate on. The fourth and final part of this chapter provides findings as to whether or not the behavioural intentions have guided corresponding action.

4.1 Results of background variables

Analyses were conducted to identify the frequencies and percentages of selected demographic and background variables of the participants. Table 2 summarizes the frequencies and percentages for the gender and the average age of the respondents per group.

Table 2: Background variables research subjects

		Control group	Knowledge	Empathy	Feelings of responsibility
Gender	Female	22 (51.2%)	23 (63.9%)	18 (56.2%)	19 (55.9%)
	Male	21 (48.8%)	13 (36.1%)	14 (43.8%)	15 (44.1%)
Average age (years)		35	43	44	48

It clearly shows that the sample of research subjects in this study contained more women (56.6%) than men (43.4%). The average age within the entire sample was 43 (42.76), with the youngest whale watchers who was on-board having an age of 15 and the oldest being

83. The vast majority came from Western and Northern Europe, of which 23.3 per cent from the United Kingdom and 30.8 per cent from Scandinavia with the rest of the research subjects were from other European countries and Canada, Russia and Jordan. Out of the research subjects, 70.5 per cent went whale watching for the first time.

4.2 Results of in-group comparisons

For this second analysis, the research question was based on group differences on one variable between two paired samples, where the values for each sample were collected from the same individuals. The appropriate test statistic to be used was an inferential statistic, in this case that of an one-paired sample *t*-test. Data of the four groups were transferred into SPSS and one-paired sample *t*-tests were executed between the pre-trip questionnaires and the post-trip questionnaires to compute the differences of the individually matched pairs, hereby examining if the effect of the treatment on-board is discernable from zero (no effect). Every group in this part of the analysis was measured independently of the other three groups, therefore not comparing these groups with one another. This is achieved in the second analysis of this study (see chapter 4.3), to which the results of this analysis will build up to.

On the basis of one-paired sample t-test and an analysis of each sample, I could test the first hypothesis and statistically conclude whether or not the aspects of interpretation that were offered had any effect on the behavioural intentions of the whale watchers and, as a result, improved the effectiveness of the whale watch experience. This all under the proven assumptions that the observations were independent of one another, the dependent variable is measured on an interval scale, sorted by a mean value with a maximum rating of 5, and the differences found are normally distributed in the population (with > 30 valid cases, the assumption of normality was satisfied by the Central Limit Theorem). Table 3 presents the pre-trip results and the post-trip results for the three intentions measured by the three various aspects of interpretation on-board as well as that of the control group.

Table 3: Pre-trip & post-trip results per intention by aspects of interpretation

		Encourage friends and/or family to help save the whales		Donate an amount of money to a project that protects the whales		Volunteer a few hours per week to help save the whales	
		Pre-trip	Post-trip	Pre-trip	Post-trip	Pre-trip	Post-trip
Control group	Mean	.58	.63	.27	.37	-.95	-.87
	St. dev.	1.159	1.113	1.119	1.220	1.089	1.166
Knowledge	Mean	.89	.97	-.14	.03	-1.06	-.92
	St. dev.	.979	.810	1.018	1.183	1.120	1.156
Empathy	Mean	.67	1.09	-.22	.38	-.91	-.64
	St. dev.	1.109	.843	1.157	1.157	1.071	1.113
Responsibility	Mean	.85	1.12	.15	.33	-1.06	-.88
	St. dev.	1.121	1.053	1.004	.957	1.043	1.066

Looking at the average scores of the pre-trip, the order of which behavioural intention was more favourable over another was similar in all groups. On average, the relative strongest intention to perform among all four groups, all associated with being somewhat likely, was

towards the behaviour to encourage friends and or family to help save the whales. It appeared to be neither likely nor unlikely to donate an amount of money to a project that protects the whales among the average respondent before a whale watch tour. Taking the negative scores into account, the intention to volunteer a few hours a week to help save the whales was deemed somewhat unlikely among all four groups before their whale watch experience. Post-trip results indicate an average positive change in all three intentions among all groups. This would suggest that a whale watch tour had a positive effect on the behavioural intentions among all four groups measured.

Paired sample *t*-tests were conducted to compare pre-trip and post-trip results. Table 4 shows these differences in intentions to support whale conservation before and after the trip for each of the four groups, and indicates whether these differences are statistically significant as indicated by t-tests. In order for a stronger power analysis, the effect size was also calculated by using Cohen's *d*. This can be seen as an indicator for practical significance, indicating if an observed association is strong, important and meaningful (Vaske, 2008).

Table 4: In-group comparison of differences in intentions after whale watch tour

		Encourage friends and/or family to help save the whales	Donate money to support whale conservation	Volunteer a few hours per week to help save the whales
Control group	Mean	.047	.098	.079
	St. dev.	.532	.374	.359
	Effect size (*d*)	.09	.26	.22
Knowledge	Mean	.083	*.167	.139
	St. dev.	.692	.447	.487
	Effect size (*d*)	.12	.37	.29
Empathy	Mean	*.424	**.594	*.273
	St. dev.	.867	.875	.574
	Effect size (*d*)	.49	.68	.48
Responsibility	Mean	*.273	.182	*.176
	St. dev.	.624	.528	.459
	Effect size (*d*)	.44	.34	.38

 * significant at p< .05
 * significant at p .001

For the control group, data does not provide any reason to conclude that simple exposure to whales without interpretation had an effect on any behavioural intention to conserve whales, as none of the differences were significant. For the knowledge group, the trip had an effect on the intention to donate only**.** Receiving interpretation which evoked whale watchers' feelings of empathy had a significant effect on all three intentions. Provoking feelings of responsibility warranted a significant change in both the intention to encourage friends and/or family to help save the whales and to volunteer for an organization in order to contribute to the conservation of the whale. Whereas most observed effects can be characterized by having a typical relationship, evoking empathy had substantially affected the intention to donate an amount of money to a project that supports whale conservation. As there was no effect observed within the control group, these results confirm the first

research hypothesis, stating that interpretation that is present on a whale watch tour has a positive effect on the behavioural intention of whale watchers.

A visual inspection of the means in the previous output suggests that a difference exists in the effect that the different aspects of interpretation have on the behavioural intentions of whale watchers, which would confirm the second research hypothesis. Data also puts forward that the aspect of empathy had the biggest overall effect in changing behavioural intentions of whale watchers, supporting the third research hypothesis, followed by focus on feelings of responsibility, and finally knowledge. However, looking at these differences between the means in itself neglects to judge the value of these means. The important question that remains is which aspect of interpretation has the biggest influence, if any, on fostering the behavioural intention of whale watchers towards whale conservation. Since table 4 depicts in-group comparisons only, additional analyses that compare these differences across the different trips are necessary to arrive at solid conclusions about differences between the four groups. The results of those analyses will be reported in section 4.3.

The results depicted in table 4 will be discussed in detail in the following four sections, where each aspect of interpretation is analysed independently, and all detailed methodological considerations and technical background is elaborated upon. The reader who is not interested in this detailed substantiation of the results, can easily skip these sections without losing sight on the general thrust of this thesis. The original data can be found in Appendices D to G.

4.2.1 Effects within the control group

There were 51 whale watchers on this boat. Out of this number, 46 of them filled in the pre-trip questionnaire with 43 of them also completing the post-trip questionnaires. As only matched pairs could be used for further analysis, this made the control group have a size of 43 research subjects ($n = 43$) with a 84 per cent completion rate. Before their whale watch experience, the intention among the whale watchers of them encouraging friends and/or family to help save the whales had the highest mean value ($M = 0.58$, $SD = 1.159$), leaning towards them being *somewhat likely* to act upon this intention. The intention of donating money towards conservation projects had a mean of 0.27 ($SD = 1.119$). The intention to donate a few hours a week to volunteer was of the lowest interest ($M = -0.95$, $SD = 1.089$), associated with an intention that was *somewhat unlikely* to pursue.

Based on past research, assumptions that have been stated in various articles and publicized statements by various proponents regarding whale watching, it is to be expected that interpretation does have an effect on the behavioural intentions of whale watchers. In this experiment, measurement of the control group by using a paired samples t-test also failed to reveal a statistically reliable difference between the mean number of pre-trip behavioural intentions ($M = 0.58$, $SD = 1,159$) and the post-trip behavioural intentions ($M = 0.63$, $SD = 1.113$) to encourage friends and/or family to help save the whales without any interpretation on-board. The mean difference was .047, with a 95% confidence interval ranging from -.117 to .210; $t(42) = .573$, $p = .570$. No significant difference was observed in the behavioural intention to donate money to a project that protects the whales, given that solely exposure to whales affects this intention, with a mean difference of .098; $t(40) = 1.668$, $p = .103$, $\alpha = .05$. The mean weight difference ($Mdiff = ,079$, $SD = ,359$, $n = 38$) towards BI3, the intention to volunteer, between pre-trip ($M = -.95$, $SD = 1.089$) and post-trip results

(M = -.87, SD = 1.166) was also not significantly greater than zero; t(37) = 1.356, p = .183, providing that this result is not sufficiently low to conclude that there is a change of effect.

On the basis of this analysis, it can be said that there is insufficient evidence to say there is a change in behavioural intentions against the null hypothesis in favour of the alternative hypothesis which states that *"interpretation that is present on-board a whale watching tour has an effect on the behavioural intention of whale watchers."* In the post-trip questionnaire, there was also room provided for additional thoughts or comments one might have. Some of quotes are presented now to back-up this notion as they seem to describe the overall thought of whale watchers on board of this trip without any interpretation, starting with a quote by a 25-year old female from Finland:

"The trip was really nice, but I don't feel the need to save whales, sorry mates. The whales were cute though."

Although she rated the trip with a score of 10 out of 10, this girl also stated that out of the four aspects that had an effect on her experience (see post-trip questionnaire, Appendix C), it was only the tour guide that had no effect on her experience today. This makes sense as the tour guide was physically present but not vocally. This was also marked by, among others, two other whale watchers who were quoted the following statements:

"I wished to have been told more facts about whales and the marine life, the nature experience is more important than the photos, music and free bar. Suggestion: let people who know more about whales be the guides at the microphone."

"Information on lifestyle of whales – feeding, breeding, behaviour etc. would be good."

4.2.2 Effects of transferring knowledge

On average, there was also a fairly positive intention among the whale watchers (n = 36) to encourage friends and/or family to help save the whales before commencing their whale watch experience (M = .89, SD = .979). Post-trip results showed an improvement in the behavioural intentions of whale watchers after their whale watch trip (M = .97 , SD = .810). With a mean difference of .083, this did however not appear to be a significant change to those whale watchers subjected to the transfer of knowledge; t(35) = 7.23, p = .475, α = .05. This same group of people had, on average, a behavioural intention that was strongly linked to being neither likely nor unlikely to donate an amount of money before they were exposed to whales and subjected to the manipulated variable of interpretation (M = -.14, SD = 1.018). A positive change in the mean value of this intention was measured after having observed the data of the post-trip (M = .03, SD = .1183), with the mean difference being .167 (SD = .447) with a 95% confidence interval ranging from .015 to .318. It also turned out that this result warrants analysis as the probability value for this pair was less than .05; t(35) = 2.236, p = .032 and can therefore be considered to be significant. The Cohen d statistic (.37) also indicted a somewhat typical relationship. Although the intention to volunteer also changed with a positive mean value ($Mdiff$ = .139, SD = .487, n = 36), this change score was not significantly greater than zero; t(35) = 1.711, p = .096.

As also taken into consideration during data observations in the control group, the voluntary commentary that was provided in the post-trip questionnaire could have offered more qualitative insight in how whale watchers received the interpretation that was offered

to them. Unfortunately, there was only one quote somewhat of use to assist in that, with a 48-year old British woman being quoted that she:

"[h]ad a *great day. Excellent knowledge from ecologists on board. They entertained my 8-year old who wants to be the next David Attenborough*."

In summary, the intention to donate an amount of money to a project that protects the whales, when this option is given, is the only intention that has been observed as to have been significantly mediated by the interpretation that emphasized the transfer of knowledge. I believe it should be noted that, although both the pre-trip as the post-trip mean score is associated with one being *neither likely nor unlikely* to donate an amount of money towards a project that protects the whales, one was, on average, skewed towards the unlikely side of this value before the trip took place whereas the trip made these whale watchers lean more towards a positive likelihood of donating money.

4.2.3 Effects of evoking empathy
On the pre-trip questionnaire, 33 whale watchers reported a mean of 0.67 (*SD* = 1.109) towards being somewhat likely to encourage their friends and/or family to help save the whales. In the post-trip questionnaire, the same sample reported a mean score of 1.09 (*SD* = .843) on this same intention. Those appear to be quite different scores and after analysis, it indeed turns out that the *p*-value of the mean difference (*Mdiff* = .424, *SD* = .867, *t*(32) = 2.811) of this pair is .008, which is less than the standard alpha of .05, with a 95% confidence interval ranging from .117 to .732 and an effect size of .49 implying a typical relationship. This indicates that the odds of these two scores being different due to random change, assuming they are actually the same, is less than 8 in 1000. The null hypothesis, which states that both behavioural intentions are the same, is therefore to be rejected in favour of the alternative. It can therefore be stated that interpretation, with an emphasis on eliciting emotions among the whale watchers, triggered a significant difference between the behavioural intentions of encouraging the whale watchers' friends and/or family to help save the whales. The results of the pair of intentions towards donating an amount of money to a project that supports whale conservation under the aspect of empathy showed the biggest mean difference in this study (.594, *SD* = .875, *n* = 32), making this result also considered to be significant; *t*(31) = 3.840, *p* = .001. The effect of empathy on this intention can be associated with being a substantial one (*d* = .68). Remarkably, the standard deviation did not change towards the likelihood of intending to donate, yet the mean change score did change positively. This signifies that the observed data are highly improbable given the null hypothesis and gives a reason to accept that there indeed has been a change of effect in this behavioural intention as mediated by this aspect of interpretation, with a substantial effect size of .68. For the likelihood to volunteer, the mean pre-trip intention of -0.91 (*SD* = 1.071) rose significantly to -0.64 (*SD* =1.113) in the post-trip (*Mdiff* = .273, *SD* = .574, *n*= 33), indicating an increased intention to volunteer; *t*(32) = 2.729, *p* = .010 with *d* = .48. Taking all three changes into account provides me with a statistically significant reason to state that receiving interpretation which emphasizes on empathy has a positive response on the behavioural intentions of whale watchers and leads to the conclusion that there is evidence of a significant (at the 0.05 level) change of behavioural intentions in these three subjects on average.

4.2.4 Effects of provoking feelings of responsibility

Before being subjected to this form of interpretation, this sample of whale watchers (*n*=33) had a mean behavioural intention level to encourage friends/and or family to support marine conservation of 0.85 (with *SD* = 1.121). After being subjected to the interpretation on-board, their score on this intention was 1.12 (*SD* = 1.053). When analysed, there was a significant difference in the mean scores of this sample of whale watchers (*Mdiff* = 0.273, *SD* = .626) before and after their trip; *t*(32) = 2.502, *p* = .018. Here we can determine that the chance of this number occurring by chance alone (given the null hypothesis of there being no change of effect) has a 1.8 per cent probability and suggest that there is thus a 98.2 per cent probability that the alternative hypothesis is correct and that there is indeed a typical effect (*d* = .44) from interpretation that provokes feelings of responsibility on to the intention from whale watchers to encourage their friends and/or family to help save the whales. Now the probability to intent to donate an amount of money in order to save the whales also changed. A mean difference between pre-trip (*M* = .15, *SD* = 1.004) and post-trip results (*M* = .33, *SD* = .957) was observed of .182 (SD = .528); *t*(32)= 1.979, *p* = .056, *d* = .34. This value may reveal that, even though interpretation with a focus on feelings of responsibility does in fact positively change ones behavioural intention to donate money, it does not produce a large enough change to speak of an occurred effect and thus, it is of little significance in this test. When turning to the intention to volunteer, there is also difference in means across the paired observations when having been subjected to interpretation that was focused on provoking feelings of responsibility before (*M* = -1.06, *SD* = 1.043) and after the tour (*M* = -.88, *SD* = 1.066), *Mdiff* = 0.177, *SD* = .459. It can therefore be stated that the observed data are highly improbable given the null hypothesis; *t*(33) = 2.244, *p* = .032, and a somewhat typical relationship (*d* = .38). We can therefore reject the null hypothesis and conclude that, when taking this data into consideration, that something other than chance has affected this outcome and that interpretation that emphasized on feelings of responsibility warranted a significant change in the behavioural intention of the whale watchers to volunteer for an organization in order to contribute to the conservation of the whales.

4.3 Result of across-group comparisons

In scope of this study, it needed to be determined if one given aspect of interpretation has a stronger significant effect on behavioural intentions across any of the four groups under study. One underlying question related to the second research question is to ask if the variation in treatment group means suggests a real difference in treatment means for the population. For this reason, the mean differences among the four groups used in this study needed to be systematically compared in order to judge whether or not a significant difference can be found among the four scenarios created. To examine the second research hypotheses of there being a difference in the effect of different aspects of interpretation on changing the several proposed behavioural intentions of whale watchers achieve this, a one-way ANOVA was employed to test the overall probability of the relationship between the behavioural intentions and the groups within the independent variable of interpretation. As the sample size for all groups is > 30, the normality condition has been met for each behavioural intention measured. On the basis of each of these samples and the conclusions we reach about the populations the samples come from, we should be able to determine within certain confidence levels whether the difference between the populations is real and whether or not there is a real difference between the different aspect of interpretation that

are compared and the behavioural intentions of the whale watchers the certain aspects of interpretation were meant to influence. The effect size statistic of eta (η) was used to estimate how large any difference is and whether the strength of the differences found between groups can be considered substantial or not.

Table 5 (see below) presents these differences across groups per intention. Data in this study suggests that the experimental group where interpretation induced empathy has a significant stronger effect on changing whale watchers' behavioural intention to donate an amount of money to a project that supports whale conservation than the control group where no interpretation was in place. Placing the emphasis on the size of the effect, rather than its statistical significance, shows that empathy is indeed an important aspect as the mean difference in the intention to donate money to support whale conservation between interpretation that evokes empathy is substantially different to having no interpretation on-board (Cohen's d = .74). This can be interpreted in that the score of the average person whose feelings of empathy were induced exceeds the scores of 73% of control group. In practical terms, this suggest that when having interpretation on-board with at least a strong emphasis on empathy will probably increase ones intention to donate money to an organization that supports whale conservation by about 63%.

Although a medium effect ($d = .53)$ was measured between the difference of having no interpretation and empathy influencing the intention of whale watchers to encourage friends and/or family to help save the whales, this did turn out to be of non-significance. No statistical differences have been observed in this study among the various groups towards having an effect on the intention to volunteer a few hours per week to support whale conservation.

Table 5: Cross-group comparison of differences in intentions after whale watch tour

Intention to encourage friends and/or family	Knowledge	Empathy	Responsibility
Control group	-.0368	-.3777	-.2262
Knowledge	—	-.3409	-.1894
Empathy		—	.1515
Responsibility			—
Intention to donate money	Knowledge	Empathy	Responsibility
Control group	-.0691	-.4962*	-.0843
Knowledge	—	-.4271	-.0152
Empathy		—	.4119
Responsibility			—
Intention to volunteer	Knowledge	Empathy	Responsibility
Control group	-.0599	-.1938	-.0975
Knowledge	—	-.1338	-.0376
Empathy		—	-.0963
Responsibility			—

* significant at p< .05

The following three sections will elaborate on the results portrayed in Table 5, where each change in intentions is analysed independently while comparing the mean differences among all four groups. All detailed methodological considerations and technical background

are explained. The reader who is not interested in this detailed substantiation of these results can easily skip these sections without losing sight on the general thrust of this thesis.

4.3.1 Intention to encourage friends and/or family

The one-way ANOVA compared the means for the control group (*Mdiff*= .0465, *SD* = .532), and those for interpretation with a focus on knowledge (*Mdiff* = .0833, *SD* = .692), empathy (*Mdiff* = .4242, *SD* = .867) and feelings of responsibility (*Mdiff* = .2727, *SD* = .626), all classified on to a change after a whale watch tour in the behavioural intention to encourage friends and/or family to help save the whales. Table 6 shows the descriptive statistics, which shows an average change in this intention of .1931 (*SD* = .690). The output also shows that, although not equal, all groups somewhat share the same standard deviation, with the largest (.867) being less than twice (1.6) the size of the smallest one (.532).

Table 6: Change across groups in intention to encourage friends and/or family

	N	Mean	St. dev.	St. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Control group	43	.0465	.53245	.08120	-.1174	.2104	-1.00	1.00
Knowledge	36	.0833	.69179	.11530	-.1507	.3174	-1.00	2.00
Empathy	33	.4242	.86712	.15095	.1168	.7317	-1.00	3.00
Responsibility	33	.2727	.62614	.10900	.0507	.4947	-1.00	2.00
Total	145	.1931	.69017	.05732	.0798	.3064	-1.00	3.00

The F-value in the one-way ANOVA provides information of whether any of the treatments is, on average, more effective to the others versus the null hypothesis of all four treatments yielding the same mean response. Table 7 displays the *F*-value for the mean of this specific being statistically insignificant (*F* = 2.398, *p* = .071). This would suggests evidence in support of the null hypothesis of there being no difference and thus, that all groups being compared are equal in its effect on encouraging friends and/or family to help save the whales. Only 4.8 per cent of the variability in changing the behavioural intention to encourage friends and/or family can be accounted for by the treatment effect on a whale watch tour. This assumes for a small insignificant difference between these four groups.

Table 7: One-way Analysis of Variance (intention to encourage friends and/or family)

	Sum of Squares	Df	Mean Square	F	Sig.
Between groups	3.330	3	1.110	2.398	.071
Within groups	65.263	141	.463		
Total	68.593	144			

However, the Levene Statistic test (see Table 8) indicates that the significance value for homogeneity of variances is <.05, assuming that the variances of the groups are significantly different (*p* = .025), which in its turn indicates that equal variances was not to be assumed and that the assumption of equal variances was violated. Since this is an assumption of ANOVA, we need to be very careful in interpreting the initially proposed outcome of this test as the *F*-test is extremely sensitive to violations of normality, especially when it comes to

small samples and unequal sample sizes (Box, 1953, as cited in Markowski et al., 1990), as is rather the case in this study.

Table 8: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
3.210	3	141	.025

Due to the overall one-way ANOVA's output being based on unequal variances, I decided to yield both six planned contrasts as well as six independent *t*-tests in order to find if a Type II error has occurred. These tests could also identify which means differ to each other related to the intention to encourage friends and/or family to help save the whales. With four levels of comparisons to be made within the independent variable of interpretation, six pairwise contrasts could be conducted (see Table 9), with the first three contrasts determining if there was an effect of any of the experimental manipulation.

Table 9: Contrast Test (intention to encourage friends and/or family)

Does not assume equal variances	Value of Contrast	St. Error	t	Df	Sig.
1	-.0368	.14102	-.261	65.002	.795
2	-.3777	.17140	-2.204	50.008	.032
3	-.2262	.13592	-1.664	62.668	.101
4	-.3409	.18994	-1.795	61.190	.078
5	-.1894	.15866	-1.194	66.991	.237
6	.1515	.18618	.814	58.237	.419

1) Contrasts no interpretation (control group) and interpretation emphasizing knowledge;
2) Contrasts no interpretation (control group) and interpretation emphasizing empathy;
3) Contrasts no interpretation (control group) and interpretation emphasizing feelings of responsibility;
4) Contrasts interpretation emphasizing knowledge and interpretation emphasizing empathy;
5) Contrasts interpretation emphasizing knowledge and interpretation emphasizing feelings of responsibility;
6) Contrasts interpretation emphasizing empathy and interpretation emphasizing feelings of responsibility.

Contradicting the *F*-value, the second pairwise contrast implies a significant difference (.3777) in interpretation on empathy (*Mdiff* = .4242, *SD* = .867, *n* = 33) having a significant more effective influence on changing ones intention to encourage friends and/or family to help save the whales than having no interpretation on-board (*Mdiff* = .0465, *SD* = .532, *n* = 43), with $t(50.008) = -2.204$, $p = .032$, with an effect size of .53 (see output below) indicating a typical relationship (Vaske, 2008).

$$\text{Cohen's } d = \frac{.0465 - .4242}{\sqrt{((.532)^2 + (.867)^2)2}} = .525$$

This would suggest that random sampling from identical populations leads to a difference that is smaller than observed in 68 per cent of experiments and larger than observed in 32 per cent of experiments. Six independent sample-test were also executed, with the alternative hypothesis of the independent sample t-test being that the mean difference of the two groups in each comparison is unequal. The same outcome was revealed in there

being a significant difference found in the intention to encourage friends and/or family between the group of whale watchers whose emotions were evoked by the interpretation and those who were not subjected to any form of interpretation, with, $t(50.008) = -2.204$, $p = .032$. However, it was also apparent that the assumption of equal variances was violated only in this pair of he six pairs under investigation, with the Levene's test for equality of variances turning out to be significant, $F = 9.064$, $p = .004$ (see Appendix H). For that reason, due to the case of unequal variances, the t-test requires the approximation of the degrees of freedom (Satterthwaite, 1946, as cited in Park, 2009) as the student's t-test is not reliable when there are unequal variances between underlying populations (Ruxton, 2006). Substitution of the Welch t-test for the Student t-test eliminated these effects of unequal variances and approximated the degrees of freedom. Results show that, even though the homogeneity assumption was violated, the results of the t-tests are practically equivalent in this circumstance as both variance formats lead to the same conclusion (Wieckiewicz, n.d.).

To provide definite judgement, I used two multiple comparison post hoc-tests of Tamhane and Games-Howell as these two tests do not assume that population variances, or sample sizes, are equal (Vaske, 2008). In accordance with the overall one-way ANOVA, both the conservative Tamhame and a more liberal Games-Howell post-hoc test support the initial output of the overall one-way ANOVA. There is not a significant difference between any of the four means (see Appendix I). Taking the violation of equal variances into account, which occurred and were detected at both the planned contrast tests and independent t-tests that showed a significant difference between the control group and empathy, it is therefore wise to only rely on exploratory and descriptive methods. This believes me to state that there is a rather substantial difference measured, rather than a significant one, between the control group and empathy, with the latter having a stronger influence on the likelihood of whale watchers to encourage friends and/or family to help save the whales.

4.3.2 Intention to donate money

With a sample size of 142 whale watchers, and divided in four groups (control group with no interpretation, n = 41; interpretation emphasizing knowledge; n = 36; interpretation evoking feelings of empathy, n = 32; and interpretation that provoked feelings of responsibility, n = 33), there was a significant difference found towards the intention to donate an amount of money to a project that protects the whales after having experienced a whale watch tour (*Mdiff* = .2465, *SD* = .598). This statistical evidence leads to rejecting the null hypothesis and suggests that there is at least a difference between two of the four mean scores and its effect on the intention of donating an amount of money to a project that protects the whales. Table 10 shows the descriptive statistics for this mean difference towards the respective intention between the four groups, with a total mean difference of .2465.

Table 10: Change across groups in intention to donate money

	N	Mean	St. dev.	St. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Control group	41	.0976	.37449	.05849	-.0206	.2158	-1.00	1.00
Knowledge	36	.1667	.44721	.07454	.0154	.3180	-1.00	1.00
Empathy	32	.5938	.87471	.15463	.2784	.9091	.00	3.00
Responsibility	33	.1818	.52764	.09185	-.0053	.3689	-1.00	2.00
Total	142	.2465	.59771	.05016	.1473	.3456	-1.00	3.00

The average mean difference towards this intention for those whale watchers present in the control group is .0976 (SD = .374, n = 41), this was .1667 (SD = .447, n = 36) for those who got transferred knowledge, a mean difference of .5938 (SD = .87471, n = 32) was found among those whale watchers whose emotions were evoked and those whale watchers whose feelings of responsibility were provoked reported a mean difference of .1818 (SD = .528, n = 33) towards changing their behavioural intention to donate an amount of money to protect the whales. A one-way ANOVA at α = 0.05 revealed a significant difference among these four differences, F (3, 138) = 5.222, p = .002 (see Table 11).

Table 11: One-way Analysis of Variance (intention to donate money)

	Sum of Squares	df	Mean Square	F	Sig.
Between groups	5.136	3	1.712	5.222	.002
Within groups	45.238	138	.328		
Total	50.373	141			

The variance in this sample is .36 (50.373/141), with a standard deviation of .60 ($\sqrt{.36}$). The percentage of variance of the differences in the behavioural intention to donate money, attributable to differences among the means of the different treatments of the four trips (η^2), is 10.2%, where the effect size (η=.319) indicates a substantial variability between groups towards the intention to donate. However, the Levene's test for equality of variances (see Table 12) was highly significant (p = < 0.01), which indicates that equal variances should not be assumed as the variances between groups are not equal. Looking at the descriptive statistics in Table 10, this was already expected. The biggest variance was .76 (=.874^2) and found in the group of interpretation with a focus on inducing empathy, whereas the variance found in the control group was .14 (=.374^2), over five times as small.

Table 12: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
13.941	3	138	.000

To identify the locus of effect and address the hypothesis that the difference between the means of two of the groups differ statistically, six independent sample t-test were employed. Due to the assumption of equal variances being violated, the probability of making a Type I error is underestimated. Because of the unequal variances, it is safe to say that the overall estimate of the error variance is affected. This affects the corresponding F-value in the ANOVA as well as the t-statistics, which, in turn, affects the reported p-value of .002 in the one-way ANOVA. In other words, the true p-value would be somewhat larger than the reported p-value of .002 as when sample sizes are small and unequal and when the populations have a heterogeneous variance, "the Type 1 error that is associated with the F-test is actually greater than what is reported" (Weinberg & Abramowitz, 2008, p. 322). The actual p-value might therefore turn out to be marginally insignificant. As the sample sizes are rather small, the larger any difference between group scores will have be in order to achieve statistical significance.

Having four levels of interpretation would lead to six comparisons. For each of these independent t-tests there is the probability of correctly rejecting H$_0$, by definition equals 1–

α, = .95 (1 − .05). For six of these tests, the probability of six correct decisions when H_0 is true is equal to $(1-.05)^6$. The probability of at least one incorrect decision is, by definition, equal to 1 minus the probability of having everything correct. Therefore, the risk of making a Type 1 error with six comparisons, with an alpha level set at .05, would lead to a new p-value of .26, virtually leading to a bigger chance of making a Type I error. Vaske (2008), Weinberg and Abramovitz (2008) therefore recommend to use a more stringent Type 1 error rate to be employed under these conditions in order to compensate for the tendency of the F-test to report a p-value that is closer to the actual value.

In order to adjust for an inflated probability of a Type I error in testing the pairwise comparisons, I decided to correct the appropriate p-value for testing statistical significance at $p < .05$ according to the Bonferroni correction, which "divides the desired p-value by the number of contrasts that are performed" (Vaske, 2008, p. 382). As the independent variable was a four-level categorical variable with six pairwise comparisons, a given contrast would thus be statistically significant if the p-value is less than .008. The results of the contrasts are found below in Table 13, which are equal to the independent t-tests (see Appendix J).

Table 13: Contrast Test (intention to donate money)

Does not assume equal variances	Value of Contrast	St. Error	t	df	Sig.
1	-.0691	.09474	-.729	68.609	.468
2	-.4962	.16532	-3.001	39.872	.005
3	-.0843	.10889	-.774	55.862	.442
4	-.4271	.17166	-2.488	44.931	.017
5	-.0152	.11829	-.128	63.031	.898
6	.4119	.17985	2.290	50.630	.026

1) Contrasts no interpretation (control group) and interpretation emphasizing knowledge;
2) Contrasts no interpretation (control group) and interpretation emphasizing empathy;
3) Contrasts no interpretation (control group) and interpretation emphasizing feelings of responsibility;
4) Contrasts interpretation emphasizing knowledge and interpretation emphasizing empathy;
5) Contrasts interpretation emphasizing knowledge and interpretation emphasizing feelings of responsibility;
6) Contrasts interpretation emphasizing empathy and interpretation emphasizing feelings of responsibility.

At first glance, there appear to be three significant pairwise comparisons: #2) control group compared to empathy, *mdiff* = .4962, $t(39.872)$ = -3.001, p = .005; #4) knowledge against empathy, *mdiff* = .4271, $t(44.931)$ = -2.488, p = .017; and #6) empathy compared against feelings of responsibility, *mdiff* = .4119, $t(50.63)$ = 2.290, p = .026. Thus, a significant difference appears to exist between a change in the intention to donate an amount of money to support whale conservation from those whale watchers that were subjected to interpretation that emphasized empathy (*Mdiff* = .5938, *SD* = .875) and those whale watchers of whom were in the control group (*Mdiff* = .0976, *SD* = .374), subjected to knowledge transfer (*Mdiff* = .1667, *SD* = .447) and those whale watchers whose feelings of responsibility were provoked (*Mdiff* = .1818, *SD* = .528). In other words, empathy does appear to have a significant difference among all the groups. However, due to the Bonferroni correction it has to be concluded that only the comparison between the control group and empathy turned out to be significant ($p < .008$), with a mean difference .4962. The estimated effect size of .74 (see output below) can be interpreted as there being a strong and substantial relationship (Vaske, 2008) between interpretation that emphasizes on

evoking emotional feelings under the whale watchers and a positive change in their behavioural intention to donate an amount of money to a project that protects the whales.

$$\text{Cohen's } d = \frac{.0976 - .5938}{\sqrt{((.374)^2 + (.875)^2)2}} = .737$$

The Games-Howell and the Tamhane post-hoc test (see Appendix K) were also used to identify the source of the significant omnibus F, and indicated that the mean behavioural intention to donate money for the group of whale watchers whose emotions were evoked ($Mdiff$ = .5938, SD = .87471, n = 32) was significantly bigger than the group of whale watchers who received no interpretation ($Mdiff$ = .0976, SD = .37449, n = 41), with the mean difference being .4962, p = .023 and p = .027 respectively. The two other groups, with a mean difference of .1667 (SD = .447, n = 36) for the group that was transferred knowledge and that group of whale watchers whose feelings of responsibility were provoked ($Mdiff$ = .1818, SD = .52764, n = 33), showed no significant difference with any of the groups. This result suggest that when having interpretation on-board with at least a strong emphasis on empathy will probably increase ones intention to donate money to an organization that supports whale conservation by about 63% (= $SD_{control\ group}$/ $Mdiff_{empathy}$).

4.3.3 Intention to volunteer

A sample of 141 whale watchers showed an average change of .1631 (SD = .472) in their behavioural intention to volunteer to support whale conservation (see Table 14).

Table 14: Change across groups in intention to volunteer

	N	Mean	St. dev.	St. error	95% confidence interval for mean		Minimum	Maximum
					Lower bound	Upper bound		
Control group	38	.0789	.35880	.05820	-.0390	.1969	-1.00	1.00
Knowledge	36	.1389	.48714	.08119	-.0259	.3037	-1.00	2.00
Empathy	33	.2727	.57406	.09993	.0692	.4763	.00	2.00
Responsibility	34	.1765	.45863	.07865	.0164	.3365	.00	2.00
Total	141	.1631	.47244	.03979	.0845	.2418	-1.00	2.00

The proportion of variance explained in this sample is .22, whereas the sample sizes are nearly equal with the largest sample standard deviation (.574) not being more than twice the size of the smallest sample standard deviation (.358). The F-value for the mean of the third behavioural intention (see Table 15) signifies statistically insignificance (F = 1.036, p = .379), which suggests that there is no difference between the four mean scores. Six contrasts and independent t-tests (see Appendix L) resulted in the same outcome.

Table 15: One-way Analysis of Variance (intention to volunteer)

	Sum of Squares	Df	Mean Square	F	Sig.
Between groups	.693	3	.231	1.036	.379
Within groups	30.555	137	.223		
Total	31.248	140			

Due to Levene's test for equality of variances (Table 16) resulting in non-significance ($p = 0.50$), equal variances ought to be assumed. This dictated the use of Tukey's *Honestly Significant Difference* (HSD) and the liberal post/hoc tests of the *Least Significant Difference* (LSD) pairwise comparison test for equal variances.

Table 16: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
2.672	3	137	.050

Taking the results of these two tests also into account (see Appendix M) it can indeed be stated that there is no difference of statistical significance among the four groups in regards to the average whale watcher to change his or her intention to volunteer a few hours a week with an organization that helps to protect the whales, where the effect size implies a minimal relationship ($\eta=.149$).

4.4 Actual behaviour

A measurement of actual behaviour was performed two to three months after the experiment took place. In this time period, the research subjects could have lived up to their intentions and either encouraged their friends and/or family to help save the whales, donated an amount of money to a project that helps protect the whales or took some time to volunteer or have looked up information or doing so. A personalized e-mail was sent on the 25th of May to those research subjects who had left their e-mail address in the pre-trip questionnaire, which was a total of 69 out of the 142 research subjects. Those research subjects who had an unlikely intention towards any of the three initiatives were also contacted. Eventually it turned out that twenty e-mails bounced back for unknown reasons. This led me with a potential response of twelve from the control group, fifteen from the group of whale watchers who were subjected to knowledge transfer and both eleven research subjects for the remaining two groups of empathy and feelings of responsibility. Within four days, I received four responses and this amount did not increase after three weeks. These four responses came from individuals who were all in the group of whale watchers whose feelings of responsibility were provoked. Three out of the four indicated to have lived up to their intention of having encouraged their friends and/or family to help save the whales. The remaining intentions remained merely a good intention.

4.5 Other findings

During my analysis, I also came across one rather important and interesting finding in this study. This is related to the knowledge question I had put in the pre-trip questionnaire. This question asked the whale watchers if they could provide the amount of great species of whales they believe to be endangered. Out of the thirteen species of great whales, which was mentioned in the question, seven of them are endangered or vulnerable at the time of this study (e.g. WWF, n.d.). Remarkably, all means are higher than the actual number of seven (see Table 17, page 52), indicating that the whale watchers believe there to be a very high number of great species of whales being endangered.

Table 17: Awareness of whales endangerment

	Mean	St. dev.	N
Control group	10.13	3.003	32
Knowledge	10.00	2.887	31
Empathy	8.47	3.401	30
Responsibility	8.88	2.643	26

This would suggest to represent a strong belief among the whale watchers about the urgency and importance of saving the whale (saliency). Out of the four groups, it was the control group who showed the largest overestimation of this amount with a mean of 10.13. In total, a frequency table made clear that 74.8 per cent of the research subjects was in the belief that there are more whales endangered than there actually are, with 25.2 per cent thinking that all thirteen great species of whales are endangered. There were 27 missing values recorded, of which the majority was found in the control group (11 out of 43). Some of those that did not complete this question had no idea to the correct answer and seemed unwillingly to take a guess, as some comments written next to this question made clear.

Another interesting finding is related to the level of satisfaction, which was simply measured on a 1 to 10 overall rating. Table 18 suggests that whale watchers who were on the trip where the manipulation emphasized on feelings of responsibility scored the highest when it comes to the mean level of satisfaction. An independent t-test revealed that this scenario was significantly more satisfying than to those whale watchers who were only subjected to knowledge; $t(64) = -2.406$, $p = .019$.

Table 18: Overall grade of satisfaction

	Mean	St. dev.	N
Responsibility	8.58	1.025	31
Empathy	8.44	1.413	32
Control group	8.27	1.694	37
Knowledge	7.85	1.372	33

5. DISCUSSION

In this chapter I will summarize, integrate and discuss the results of this study. The primary purpose of this study was to determine which aspect of interpretation has the biggest effect, if any, on various behavioural intentions of whale watchers to help save the whales. It was hypothesized that interpretation on-board of a whale watch tour has more effect at promoting behavioural intentions towards whale conservation than observation alone. The three independent experimental experiences, based on various aspects of interpretation that were expected to have an effect on the behavioural intentions of whale watchers, include knowledge, empathy and feelings of responsibility. Data in this study confirms this first research hypothesis.

Post-trip results of a one-paired t-test revealed that once the whale watch trip came to an end, significant changes were measured in the mean score of the behavioural intentions of those whale watchers that were in the experimental groups with interpretation on-board. This stood in contrast to whale watchers who were not exposed to any interpretation during their experience. Interpretation that transferred knowledge significantly changed the behavioural intentions of whale watchers to donate an amount of money to a project that aims to protect the whales. Interpretation that evoked whale watchers' emotions clearly changed their intention to help save the whales by encouraging their friends and/or family to do the same, to donate an amount of money to a project contributing to whale conservation as well volunteering for an organisation. Interpretation that provoked feelings of responsibility was successful in significantly changing the behavioural intention of whale watchers towards them encouraging friends and/or family to help save the whales and for them to volunteer for an organisation that aims to help the whales. Since all three aspects of interpretation triggered a significant change over one or more behavioural intentions of whale watchers, compared to those intentions measured within the control group, I can therefore draw a strong conclusions, based unequivocally on causality: hereby claiming that interpretation on a whale watch tour has a measurable and positive impact on the behavioural intentions of whale watchers.

These findings were not only corresponding to the first research hypothesis, they were also somewhat consistent with previous research that was based on interpretation in captive wildlife settings (e.g. Muloin, 1998; Lück, 2003; Zeppel and Muloin, 2008) where e.g. Swanagan (2000, as cited in Higginbottom, 2004), Manfredo and Driver (2002, as cited in Higginbottom, 2004) and Lück (2003) found connections between changes in knowledge and conservation attitudes that were correlated with structured, quality, interpretation programs and not merely exposure to wildlife. A fair amount of research subjects within the control group felt that that was lacking as they stated that more information should have been provided. This is a direct result from the fact that during this trip, the boat did not have a tour guide on board who offered interpretation. This is strongly supported by additional comments, such as "*The trip was really nice, but I don't feel the need to save whales,*" "*I wished to have been told more facts about whales and the marine life,*" and "*Information on lifestyle of whales – feeding, breeding, behaviour etc. would be good.*" This shows that an amount of whale watchers expected to be given information on their whale watch tour but it also conforms as to what Gilbert (1997, as cited in Lück, 2003) states when he proposes that "ecotourists are looking to gain an understanding about the environment of the local area, including its culture and wildlife" (p. 945). This can be mirrored to a study conducted by Lück (2003) in which he researched if whale watchers actually want to learn on whale watch

tours. His study revealed that the majority of whale watchers are indeed eager to learn. Combining that with the measured ineffectiveness of the results for the control group in this study, it can be argued that demand for interpretation is indeed an important driving force for effective interpretation. However, these results deserve closer examination as there are some concerns with the results and these former assumptions, which somewhat cloud the validity and reliability of the evidence of the samples and methodology used.

The perfect situation for this experiment would have been to have the same mean in all of the behavioural intentions measured during the pre-trip for all four conditions. This would make the occurred differences after a tour really stand out to one another. Unfortunately, this was not the case. The only two pre-trip means that were in equilibrium were those of the knowledge- and feelings of responsibility group in regards to the intention to volunteer a few hours a week to help save the whales, with a significant change depicted in the latter. The other results ignore this as the differences encountered between each group did not result from an overall equal pre-trip mean of every behavioural intention to start with (see Table 3,   p. 38). With e.g. a mean of 0.58 representing the pre-trip behavioural intention for the control group to encourage friends and/or family to help save the whales, this constitutes a slightly less of a value compared to the mean of the same pre-trip behavioural intention from all three experimental groups. That said, the highest pre-trip mean was to be found in the control group when it comes to the intention to donate an amount of money to help save the whales, with 55 per cent of the whale watchers in this group already showing a moderate to strong intention to donate an amount of money prior to their trip. A significant difference was not found in this intention among this group of whale watchers, with 61 per cent of respondents in this group showing a moderate to strong intention to donate on their way back to the harbour. Yet a significant change was found in the groups of knowledge and empathy. The pre-trip means in these two groups were also the lowest pre-trip means among the four scenarios, as well being the only two typifying an unlikely intention to donate before the trip, this against a more likely probability among the whale watchers in both the control group and responsibility group.

This sheds light on the limitations of both the samples used and type of methodology used in this study. It is to be suggested that research subjects in the control and responsibility group already had positive intentions, or favourable attitudes, towards donating money and moderate feelings of responsibility prior to the various experience that were hypothesized. Therefore, they would be less likely to show a change in the positive direction (hereby taking a negative change out of the equitation). In other words, one cannot choose a higher score when one has already stated that one is very likely to donate an amount of money, ergo a significant change due to having or not having interpretation on-board is highly unlikely in these cases. This could imply for a high correlation, measuring of how closely two variables change in relationship to each other. As the same people are measured twice, a high degree of correlation between the two scores was to be expected as a research subject who was likely to donate an amount of money to help save the whales before the whale watch experience should still have a fairly likely level score to do so afterwards. This in comparison to those whale watchers who might have had a more negative likelihood of donating money before their whale watch experience. Similarly, someone who was considerably likely to encourage friends and/or family would probably still have one of the highest likelihood scores afterward. A high correlation was in fact found in the control group (.891 for the first behavioural intention and .952 for both the second

and third behavioural intention), with the lowest correlation found in the empathy group (.635, .714 and .832 respectively to the three behavioural intentions measured).

With that knowledge, the biggest variance within each group to the differences of all three intentions measured was always observed in the group of empathy. The smallest variance over all three intentions measured turned out to be found in the control group. This could imply that the differences in ones' intention changed most drastically when one was subjected to interpretation that emphasized on empathy, whereas the smallest change in changing ones intention was found among those whale watchers who received no interpretation during their whale watch tour. Out of the four groups, it was also the control group that showed the largest overestimation of the amount of perceived endangered great species of whales, with a mean of 10.13 in regards to the actual number being seven (see Table 17, p. 52). This might imply that even though these whale watchers are aware of the situation the whales are facing is very critical, having no interpretation on-board is even less effective. After all, this group did show the least change in their behavioural intentions while actually thinking that there are more endangered whales than there actually are. Perhaps if interpretation had been offered on this trip, this would have strengthened the likelihood for them to participate to help save the whales and might have made them act more strongly on their positive intention gained.

5.1 Knowledge
The social psychology literature has demonstrated that a factor as knowledge directly or indirectly influences intentions (e.g. Fishbein & Ajzen, 1975). As my findings have shown, it can be said that when whale watchers gain more knowledge and become aware of that what is happening with the whales through interpretation, there is a small to moderate relationship to be found between this variable of interpretation and promoting a change in behavioural intentions towards help saving the whales. Out of the three experimental settings studied, it showed that knowledge had the least impact on the behavioural intentions of whale watchers. That said, the simplistic premise of gaining knowledge through providing information has resulted in a significant change found in the behavioural intention to donate money towards whale conservation. This result is similar to that in a study by Christensen (2007), which first of all revealed that whale watchers who had participated in a free outreach program that educated participants about whales and the marine environment were on average, and in comparison to those who weren't educated, significantly more likely to agree that it is important to protect whales and the marine environment and to make a monetary donation in order to achieve this. Secondly, this study showed that whale watchers who were educated with information and facts significantly changed their intention towards donating an amount of money to a project put forward protect whales.

As exposure to dissonant information can provide cognitive dissonance (Festinger, 1957, as cited in Orams, 1995), this would be one of the reasons for interpretation focussing on transferring knowledge to be effective. However, if there would be no cognitive dissonance taking place among the whale watchers, it would be either 'consonance' or 'irrelevance' that takes place (Orams, 1992). The concept of consonance refers to two cognitive elements being supportive with one another. When irrelevance takes place, whale watchers might not have cared about what was communicated, this in order for them to reduce their discomfort by not exposing themselves to supportive input. They might have presumed that being on a boat and paying a ticket will help towards them donating funds. In

both cases, there would be not much potential for learning and thus, no real trigger in knowledge providing a big change in changing the behavioural intentions of whale watchers. As eager as whale watchers might be in learning about the whales and their environment, this does not necessarily mean that one will spend much time reflecting on it and actually does something practical with the information that was given to them. This is supportive of previous research, where both Ajzen (1992, as cited in Ham, 2007) and Holbrook et al. (2005, as cited in Ham, 2007) noted that the 'learning leads to liking hypothesis' (changing someone's attitude by making him think about what has been communicated and thereby deepening his knowledge) has not performed well in experimental studies, with psychologists understanding that a more complex picture is involved. Several studies also suggest that there is no necessary relationship between the simplistic premise of a communication's retention and its effectiveness (Greenwald, 1968, p. 148), suggesting that there is more to it to persuade people to do something by merely educate persons and for them to retain this information. This is especially the case with interpretation involved, seeing as its goal is to manage and change the behaviour of tourists.

This can be supported by Tilden (1957, as cited in Ham, 1992) who states that providing facts through interpretation is never the goal of interpretation. Facts should be the means to an end and therefore be supportive, illustrative and illuminating, as this study has brought forward as well. Therefore it seems appropriate to suggest that while educating whale watchers by using interpretation as a tool that transfers information might spark interest among whale watchers to conservation, which could eventually spark a change in attitude, it can be considered to be more effective when it acts as an agent of change that aims to strengthen the perception towards the whale watchers as being valuable conservation agents.

5.2 Empathy
One important finding that can be drawn from this study is that in order to create an effective learning environment on-board of a whale watch tour, the aspect of empathy has to be embedded in the interpretation to evoke emotions among the whale watchers. It has also been observed that it is this aspect of interpretation that has turned out to be the biggest mediator of change, predominantly compared to the control group. This would confirm the second, third as well as the third research hypothesis of there being a difference of effect on changing behavioural intentions among the four groups (H2), with empathy being the biggest mediator of change (H3) as well as having a stronger effect on changing the behavioural intentions of the whale watchers whose feelings of empathy were evoked compared to those in the control group who were not subjected to any form of interpretation (H4).

With regards to the fourth research hypothesis, there was a significant change found in independent *t*-tests between the two groups in changing both the intentions to encourage friends and/or family and the intention to donate an amount of money to help save the whales. One-paired *t*-tests showed that having empathy on board significantly changed all three intentions. In total, this aspect of interpretation managed to change the intentions of whale watchers whose emotions were evoked by a score of 1.291. When looking at the pre- and post-trip results, hereby taking the values of the Likert scale into consideration, this would mean that a positive change had occurred from one value to another one as the score is higher than 1.0. The biggest difference in pre-trip and post-trip results found under the aspect of empathy was related to the intention to donate an amount of money. Prior to their

whale watch experience, 18 per cent indicated a moderate or strong intention to donate an amount of money. By comparison, 53 per cent indicated a moderate or strong intention to donate an amount of money after the trip, resulting in a change of 194 per cent. Interestingly enough, the standard deviation remained the same in the pre- and post-trip results of the intention to donate.

A side note should be in place which relates back to the limitations set forward before having conducted my field research. Emotion in the field of psychology can be theorized by three main categories: physiological theories, in which responses within the body play an important role in forming emotions; neurological theories, in which brain activity is the cause for emotional responses; and cognitive theories, arguing that mental activities lead to emotional responses. It is also assumed that tourism is "driven by seeking worthwhile experiences and visiting places that are expected to provide those experiences" (M. H. Jacobs, personal communication, November 3, 2009). The whale watch experience in itself is a leisure experience that is, most commonly, different from ones daily life experience. Being on a boat can already be considered an out-of daily life experience for most, if not all tourists on-board. The whale watching experience in itself can therefore be assumed to be the event or situation that is the immediate external cause of emotions (Jacobs, 2008), with individual affective constituents often being responses that occur at the point of the experience (Peake et al., 2009). Emotions are also typically directed at objects (Jacobs, 2008), as well as interpretation which was defined as it being an educational activity which aims to reveal meanings and relationships through the use of, among others, original objects. Seeing objects such as whales is therefore the object aimed for through interpretation on a whale watch tour as well as that this object can be considered to have been something extraordinary and therefore be an emotional stimuli towards an immediate external cause of emotion. Jacobs (2008, p. 31) even states that "animals belong to the extremist when it comes to the potential emotions, positive or negative, evoked in humans", which seems to be especially the case for charismatic mega fauna as whales and dolphins (Amante-Helweg, 1996, as cited in Peake et al., 2009; Orams, 2000). Even though there is a variance in the quality and strength of these feelings (Jacobs, 2008), it is safe to assume that a strong positive emotion as happiness was evoked upon observing a whale as observing a whale in the wild is the core target for people booking a whale watch tour and that what people are waiting to see.

As happiness is one of the six universal basic emotions (Ekman, 1992, as cited in Jacobs, 2009), it can therefore be said that emotions have come into play in this experience already and effect the whale watchers in some level, regardless of what group they were in during this study. Thus, it can be argued that strong emotions were evoked in every whale watcher, without any influence of interpretation. However, as argued before, solely exposure to wildlife does not have enough impact towards strengthening individuals to act on behalf of conservation (Muloin, 1998; Swanagan, 2000, as cited in Higginbottom, 2004; Lück, 2003; Zeppel and Muloin, 2008). It can be argued that, while emotions were aroused among whale watchers upon encountering a whale on every trip, strengthening these feelings provided a strong foundation for a very effective aspect of interpretation in fostering whale conservation among whale watchers.

5.3 Feelings of responsibility

In this scenario, the storytelling on board was aimed to make whale watchers more aware, make them think about the actual reality and make them feel responsible for their actions

that negatively affect whales and their environment. On the other hand, the whale watchers were confronted that they are capable of fulfilling a few initiatives to restore their provoked feelings of guilt. Provoking these feelings of responsibility have been shown to significantly change both the intention to encourage friends and/or family and the intention to volunteer at an organization to help save the whales. Kaiser and Shimoda (1999) also suggest that when people are feeling guilty for what they do, or fail to do, they also feel a moral responsibility for the environment. However, it is difficult to use responsibility feelings as a predictor for people's intentions or behaviour. This has to do with the idea that although the feelings of being morally responsible were provoked in this scenario, which were based on an individual's self-ascribed responsibility and guilt, feelings of responsibility do not always have to be of a moral kind. One can also feel conventionally responsible (Kaiser & Shimoda, 1999).

This feeling of responsibility occurs when someone feels a responsibility to act due to social influences and social norms. It requires knowledge of expectations of what one should do (Kelman & Hamilton, 1989, as cited in Kaiser & Shimoda, 1999) and his or her readiness to fulfil those social expectations from society (Kaiser & Shimoda, 1999). Therefore, as these feelings of responsibility on this trip have been provoked to induce whale watchers to feel guilty and act on those feelings, these feelings have also been conventional in the sense that they were affected by the tour guide as well as by the questionnaires that brought up solutions in the form of initiatives to restore these feelings of guilt and, with that, expectations of what one can do. The tour guide also used labelling by e.g. stating that "if you're someone who feels responsible for the planet we all inhabit and cares about wildlife, then you probably would like to save these whales." This was part of a social expectation in the sense that when you care about animals, you should save the whales by e.g. donating money to a project that supports whale conservation.

As there are thus two feelings of responsibility used in this scenario, I am wondering if the provoked feeling of guilt towards a moral responsibility would have been enough to produce a change in their intentions, or were bringing up solutions and expectations the key aspect in making the whale watchers feel responsible? In other words, was a change in behavioural intentions on this trip caused by the tour guide provoking these feelings of guilt and a whale watcher's self-ascribed responsibility by emphasising on human actions that have had a negative impact on the whales environment (moral), or was it caused by one feeling guilty for not having taking the responsibility to act once one became aware of what they can do to save the whales but did not do (conventional). With that in mind, were whale watchers actually aware of the social expectations of what one can do before their trip and what was their readiness to fulfil these expectations?

To build upon that, Kaiser and Shimoda (1999) argue that guilt is one of the predominant factors that caters towards one feeling responsible and guilt dictates the way in which one ecologically behaves. For instance, they state that people feel morally rather than conventionally responsible towards recycling behaviour (Kaiser & Shimoda, 1999), predicated by current society and it suggests to be influenced by personal norms, awareness of consequences as well as social norms. However, I believe that this is quite different in the context of this study as the issue that is brought up at whale watch tours is a bit more complex as it deals with marine ecology. A whale watcher's knowledge of expectation of what one can do to help save the whales is more abstract and unknown to them, presumably rather inconsistent. And even when one is brought a solution to e.g. donate money or volunteer at a whale conservation project, one might believe that their money

won't help and that one is not ready or able to help save the whales as a 'simple' individual. This compared to recycling, which is an easy and accessible thing to do for everybody, with many facilities inviting persons to do this. That said, it is also a very valuable step to help support the marine environment. From observations and anecdotal conversations that I had overheard on the boat as well as discussions at the AWF research centre with marine scientists and environmentalists, the general public does not seem to relate recycling with saving whales as one tends to think of merely the bigger picture involved: helping out nature. Being more specific in how to save these giants of the oceans can be challenging.

Saying that, the whale watchers on this trip were provoked to think for themselves by the information given and although whale watchers are regarded as both a non-captive audience as eager to learn (Ham, 1992), they might have refused to listen to the messages that the tour guide tried to provoke onto the whale watchers as they might not have felt any feelings of responsibility for whales what so ever. After all, one key aspect of a non-captive audience is that the participants do not have to pay attention. As one limitation to this study already stated, it is up to the individual to first of all choose to listen to the interpretation offered. Even more so, if they did listen to what was being said it is ultimately up to the individual to make a choice and to make sense of their choice. This brings me to Sawyer (1980, as cited in Cialdini et al., 1981, p. 363) who argues that when a repetitive message reaches a tedious level, objective processing ceases which causes the receiver to become motivated to reject the message, regardless of the message's quality. With that in mind, I am wondering how whale watchers experienced these provocations. This also leads me to question how much provocation would be necessary for a tour guide to have influence on changing the intentions of the whale watchers.

In the International Workshop on the Educational Values of Whale Watching (IFAW, 1997), it was noted that it is important to find a balance between too much interpretation and not enough. As it is up to the whale watchers themselves to either listen to what is being communicated or not, I am truly wondering if the people on-board want to be told that they are responsible. Would they be fed up after having heard several conservation messages already? They might not have wanted to feel any feelings of responsibility as they might have been on board to relax, enjoy being on the water, see some whales and unwind from their stressful daily life. Motivation might play a role in determining the influence of the messages given on the intentions. Not only in this scenario but I believe it might play a bigger role when responsibility feelings are addressed, i.e. with the tourists having shown interest in observing whales, is it likely for them to be interested in what there is to know about the whales as well? Or, to speak in the terms of Moscarco (1996), did whale watchers remain 'mindless' or did they want to increase their knowledge about whales? Perhaps they went on-board to merely seek adventure, pleasure, enjoy their time on the water, mix with fellow tourists or get closer with nature. It might even be possible that some of them did not want to go whale watching in the first place but that they have been dragged along by family members or wanted to do their children a favour.

Ham (1992) believes that a non-captive audience, a category under which whale watchers are to be included as well, might have been motivated due to e.g. interest in whales, entertainment, self-enrichment or just passing time as they have nothing better to do. As whale watching is considered to be a form of marine ecotourism (e.g. WDCS, 2009), it can thus be said that whale watchers are also regarded as ecotourists who are said to have specific motivations which are centred on first-hand experience of natural environments (e.g. Lee & Moscardo, 2005, as cited in Peake et al., 2009). However, keeping in mind that

there are many different types of eco-/nature tourist (Gale & Hill, 2009), I do suspect that the motivations that drive the "genuine" eco/nature tourist are different when it comes to the motivations from the majority of whale watchers in this study.

Reason being for this thought is the idea that the whale watch industry in Tenerife is considered to be a mass industry (Elejabeitia & Urquiola, 2009), attracting tourists whose primary motivation to go to Tenerife is focused on the '3S' segment, with 55.5 per cent of the whale watchers in this study not having had the intention to go whale watching when they booked their holiday. This idea is supported by Elejabeitia and Urquiola (2009), who state that the whale watcher in Tenerife does not seem to differ from any generalist tourist who decides to visit the island. It might therefore be just as simple as to suggest that the tourists who go whale watching in Tenerife do not want to feel any form of responsibility when being on their holiday and just want to enjoy themselves. When taking Goodwin et al. (1997) distinction between nature tourism, related to the enjoyment of nature, and ecotourism, which requires a form of contribution to the long-term conservation of an area, into perspective, it could mean that the tourists who go whale watching in Tenerife fall in the former category. However, this is merely an assumption that I cannot back up, with a measurement for motivations lacking in the questionnaires.

With the previous thoughts in mind, what is very interesting to observe though are the rated means of satisfaction per group during the post-trip. Weiler and Ham (2001) claim that researchers are finding increasing evidence that visitors do not just expect information, but that high quality interpretation is a major contributor to their satisfaction as part of their wildlife experiences. Indeed, there seems to be mounting evidence that interpretation enhances the experience and that like most nature-based tourists, even the experienced ones that are both well-travelled and well-educated, wildlife tourists seek out and appreciate quality interpretation (Ham & Weiler, 2002). Moscardo and Pearce (as cited in Lück, 2003) and Higginbottom (2004) note that interpretation is designed to both provide an educational aspect and stimulate interest and enthusiasm. Thus, interpretation has both an entertainment and a pedagogic role, hereby contributing to the overall satisfaction of the tourist which can be seen as the outcome of an experience as well as the result of having effectively communicated a conservation message (Peake et al., 2009). The highest overall level of satisfaction in this study was awarded to those whale watchers whose feelings of responsibility were provoked, with an 8.58 on a scale of 1 to 10 (see Table 18, p. 52). Data also showed that these whale watchers were significantly more satisfied than those whale watchers who were 'only' given information. It can therefore be suggested that whale watchers on this trip, though solely based on this one rating of their level of satisfaction, enjoyed their trip the most among the other three. This can be explained by a study from Peake et al. (2009), in which is suggested that satisfaction that is generated by "an experience such as whale-watching, which accommodates both the cognitive and affective aspects, may empower individuals to take some responsibility for, and contribute to, whale conservation" (Peake et al., 2009, p. 110). These feelings of responsibility are indeed both provoking emotions (guilt) as well as well as there being cognitive related in the sense that they provide knowledge and make someone think about what one can do in order to make one feel better. Overall, it makes the whale watchers leave their experience on somewhat of an optimistic note by making them feel empowered as they perceive that their actions can make a difference in the area of marine conservation and its wildlife.

5.4 Intentions

Out of the three behavioural intentions that were proposed to the whale watchers, the intention to donate an amount of money to a project that aims to protect the whales showed the biggest change among the total group of whale watchers. Although not hypothesized, this does disconfirm my assumption that the intention among whale watchers to encourage friends and/or family would show the biggest positive change due to this intention being quite generally formulated and easy to act upon. It was not specifically formulated in the sense of how one can help, as was phrased in the second and third intention. It could also be argued that the intention to donate an amount of money is, in practical terms, easy to perform as one does not have to leave the house and it is also not time consuming, besides writing a cheque, donate online or through any other means possible. In this day of age, one would only have to go online to actively seek an organization that has projects that support whale conservation and donate money through the internet. This all could be related to whale watchers having a high perceived behavioural control about these intentions, which is defined by the perceived ease or difficulty of performing a specific behaviour (Ajzen, 1991; Bamberg, 2003) and also acts as one of the three determinants that forms a behavioural intention. The third behavioural intention, that of donating a few hours a week to volunteer and work with an organization that helps to protect the whales volunteer, turned out to be the least affected by interpretation. This was, with the perceived behavioural control in mind, expected as volunteering for an organization that helps protects the whales is not as easy to perform as the other two and could therefore see the perceived behavioural control play a big part in ones perceived probability of actually doing so.

Compounding factors affecting this study include individual differences between the groups of participants taking part in the different conditions and sampling during different tourism high seasons, with the majority being older tourists in this study. I also suspect that these findings are somewhat linked with the demographic factors in this study. As the majority of the research subjects in this study were between 40 and 50 years old. It can be suspected that they are working fulltime and might have children to look out for. Even though they might feel responsible towards their (grand) children, their age might simply be the reasons for them to not feeling able to volunteer. Their assumed working life/career might be another reason for not having the actual time available towards the intention to donate a few hours a week to volunteer. Another reason might be that the proximity of doing so would be rather difficult to achieve as an organisation that exists and builds its portfolio towards protecting the whales is not to be found at every corner in every city where one would just go to. It remains to be seen if the research subjects were simply unaware of any of such opportunities as this was not provided to them. Confronting whale watchers about their capability of what they specifically can do for certain organizations and thereby make the aspect of volunteering less abstract, might have yielded different results.

5.4 Actual behaviour

Overall, the way I see it is as follows: If gained knowledge and/or evoked emotions and provoked feelings of responsibility on a whale watch tour had no effect on the whale watchers to actually commit themselves to help the whales, when the good intentions were in fact in place, I do not see how whale watching is effective in whale watchers creating a better environment for the whales. This is without taking into consideration that the money paid by whale watchers for their tour is sometimes used to fund conservation actions. That

said, when all is said and done there was hardly any behaviour performed towards the three initiatives, as proposed in the three intentions written in the questionnaires. At least, that is what I suspect after having received only word from four of the 69 research subjects I was able to contact. Therefore, this cannot be judged strongly and has therefore to be taken lightly. Out of these four responses, all of which had their feelings of responsibility provoked, three of them said that they had followed up on the intention to encourage their friends and/or family to help save the whales but did not act towards the other two intentions. My suspicion is that if one did act upon at least one of the tree proposed intentions, one would have responded positively to my sent e-mail that specifically asked for a very short response from them. Since intentions were measured three months prior to the behavioural observation, the intention may have changed. It can be said that this comes back to what Higham and Lück (2008) had argued in that a wildlife experience in a scenic natural area as whale watching may intensify visitor concern and appreciation for marine wildlife, but that behavioural changes may not always follow up as there is often a risk that behavioural changes will not last in the long-term. The findings in this study could suggest that, due to a positive change observed in their intentions, whale watchers indeed feel enticed to commit themselves to activities that supports conservation once they have returned from their whale watching experience but, just as Manfredo (1995, as cited in WDCS, 2009) and Goodwin (1996, as cited in WDCS, 2009) have questioned, this does not seem to be last as no concrete actions were followed up with the aim of living up to their intentions. This could be assigned to one important construct of a behavioural intention: attitudes.

Besides the perceived behavioural control, as discussed earlier, intentions are based on a person's attitude towards the behaviour as well as the subjective norm regarding the behaviour (Fishbein & Ajzen, 1975). I would assume that the subjective norm, the extent to which a person feels that significant others believe that the behaviour ought to be performed, is not an issue here because someone would not reject the idea to act towards saving the whales. For that reason, I will be referring to Schwerin and Newell (1981, p. 7, as cited in Hogh & Vaughan, 2008, p. 191), who state that behavioural change 'obviously cannot occur without [attitude change] having taken place." Taking the theory of planned behaviour (Ajzen, 1991) into perspective, this could mean that with the majority not having lived up to their behavioural intentions and changed their behaviour according to their proposed intentions, it is indeed the factor of attitude that strengthened and limited this action, hereby assuming that both the subjective norm as well as the perceived behavioural control would not really limit an individual in fulfilling the first two initiatives at least. Fishbein and Ajzen's (1991) also state that the attitude towards the behaviour is the distinctive variable in how one intends to act towards a conservation initiative before the trip, with research indicating that these are distinctive among ecotourists (Peake et al., 2009).

Hovland et al. (1953) argue that in order to change ones attitude when being confronted with persuasive messages, one has to do four things in order to achieve this: 1) give attention to this message, 2) comprehend it, 3) accept the message as well as 4) remember it before a change in attitude can take place. This could again be related with the sheer notion of an important study limitation in the idea that these whale watchers were a non-attentive audience and, for that reason, might have not paid attention to that what was communicated. This, according to Hovland et al. (1953), could have resulted in missing at least one of these steps mentioned that are all necessary to follow for a attitudinal change towards a change in behaviour.

6. CONCLUSION

The purpose of this study was to study the role of interpretation on board of whale watch tours and to what extend the various aspects of interpretation have an effect on fostering a change in the behavioural intentions of whale watchers towards them supporting various initiatives with respect to whales and whale conservation. In that sense, this research was to determine whether a targeted interpretive program could lead to prove the on-going assumption that whale watching leads to conservation behaviour by providing an array of measurable outcomes in order to substantiate the importance of interpretation on a whale watch tour. The study was designed around a series of three research questions. One whale watch boat in Tenerife was used as research setting, where four scenarios were created based on the experimental manipulation of the interpretation. These scenarios were created based on the three aspects of environmental concern that are embedded within interpretation, namely transfer of knowledge, evoke empathy, and provoke feelings of responsibility. In each of the four scenarios, the interpretation offered to the whale watchers on-board emphasized on only one of these aspects, with a control group making up for the fourth scenario. An additional aim was to compare these aspects in relation to their effectiveness among one another and to determine actual performed behaviour that corresponded with the proposed behavioural intentions.

A number of persuasive communication theories, frequently used in research to understand interpretive communication, and various approaches to understand the bases of voluntary action were used in this study to create three effective 'learning' environments. These theories included those from a psychology focus such as the cognitive map theory (Hammitt, 1981; Kaplan, 1978; Orams,1997), attitude theory (Fishbein & Ajzen, 1975), the theory of planned behaviour (Ajzen, 1991), cognitive dissonance (Piaget, 1970) and affective domain (Orams, 2000). Behavioural intentions were defined as intentions of performing observable outcomes and were chosen since they can be good indicators of behaviours (Ajzen & Fishbein, 1980). In this study, the behavioural intentions were measured by asking whale watchers to indicate the likelihood for them to participate in a number of three initiatives: (1) to encourage friends and/or family to help save the whales, (2) to donate an amount of money to a project that protects the whales, and (3) to volunteer a few hours a week with an organization that helps to protect the whales. These intentions were asked by using a pre-trip and post-trip design. The pre-trip questionnaire was handed out once the boat was on its way to find whales and no interpretation was yet offered. The post-trip questionnaire was offered about three hours later, once the boat was heading back to the harbour and the whale watchers had experiences their whale watching trip, thus they had observed whales and were subjected to either of the four manipulated scenarios.

6.1 Effectiveness

Several important findings can be drawn from this study. First it showed that interpretation had significant effects on behavioural intentions. The behavioural intentions to encourage friends and/or family to help save the whales and to volunteer at an organization that strives to save the whales were significantly improved in response to interpretation that emphasized on empathy and feelings of responsibility. The behavioural intention to donate an amount of money was changed by the aspects of knowledge and empathy. These findings contributed in answering the first research question that asked if *interpretation on-board of whale watch tours has more effect at changing behavioural intentions towards whale*

conservation than observation alone? With respect to this question, the answer is clearly yes. Even though changes appeared to exist in the group of whale watchers who had observed whales without any form of interpretation, the occurred changes were not significantly. This was especially so when comparing these changes with changes found in other scenarios. Of particular interest in this study was determining whether one aspect yielded a bigger effect towards changing intentions than others.

Several notable differences were discovered when comparing the changes in whale watchers' intentions after a whale watch tour as an effect by, and across, the four created scenarios. The overall effect across conditions towards the behavioural intention to donate an amount of money to a project that protects the whales showed the biggest overall change after a whale watch tour (*Mdiff* = .2465, *SD* = .598 F (3, 138) = 5.222, *p* = .002). Planned contrasts as well as independent t-tests identified that whale watchers whose feelings of empathy were induced were significantly more likely to donate an amount of money towards a project that protects the whales after than whale watchers who received no interpretation after having experienced a whale watch tour, with post-hoc comparison tests confirming this result (*Mdiff* = .5938, *SD* = .875 versus *Mdiff* = .0976, *SD* = .374). The score of the average person whose feelings of empathy were evoked surpassed the scores of 73% of control group. Specifically, 53 per cent of this sample reported a strong or moderate intention to donate after their whale watch experience, in contrast to 18 per cent of whale watchers in the same sample before their whale watch experience. The mean differences among the four conditions on a whale watch tour towards changing the behavioural intention to encourage friends and/or family members from the whale watchers to help save the whales were statistically insignificant (*F* = 2.398, *p* = .071). However, a possible relationship suggested by independent t-test analysis tempered this conclusion. Six independent *t*-tests implied one significant difference where evoking empathy had a significantly stronger effect on changing this intention than having no interpretation on-board (*Mdiff* = .4242, *SD* = .867 versus *Mdiff* = .0465, *SD* = .532; *t*(50.008) = -2.204, *p* = .032, *d* = .53). As this indicates a typical relationship (Vaske, 2008), it can be said that evoking emotions towards whale watchers is more effective in changing their behavioural intention of encouraging their friends and/or family to help save the whales, yet no significant difference can be suggested. No further significant differences among experimental groups were observed towards the final intention to volunteer a few hours a week with an organization that helps to protect the whales (*F* = 1.036, *p* = .379). Independent t-tests and post-hoc comparisons also strongly suggest that no statistical difference has been observed in this study towards the several aspects of interpretation on a whale watch tour significantly changing this intention. Taking these findings into account, evoking feeling of empathy can therefore be regarded as that aspect of interpretation that has the biggest influence on the behavioural intention of whale watchers towards whale conservation.

While emotions are already into play when people observe animals (Jacobs, 2008), these findings suggest that evoking these emotions through interpretation is a good foundation with regards to creating an effective learning environment on a whale watch tour. Arousing a positive emotional response in the whale watchers and make them feel compassion for the perceived welfare of the whale seems to be the most important aspect involved for whale watchers in order to predispose their actions towards supporting whale conservation. Provoking negative emotions of guilt and bringing up solutions in the form of initiatives to restore these feelings of guilt also resulted in the whale watchers showing considerable and positive significant changed in their intentions. Unfortunately, even though

a measurement for performed behaviour was administered two to three months after the experiment, it yielded little but no response from the whale watchers in order to confidently determine whether or not the behavioural intentions were followed up and that their whale watch experience fostered behaviour that supports whale conservation. For that reason, the third research question that tried to answer *"to what extent interpretation is effective at promoting conservation behaviour in the long run"* remains unanswered.

In addition to measurement of the behavioural intentions, it also turned out that those whale watchers whose feelings of responsibility were provoked expressed to be the most satisfied with their total experience on a scale from 1 to 10. This shows that this aspect of interpretation was effective towards the experience, as enjoyment is one of the key components of successful interpretation (Ham, 2007). It can therefore be suggested that it are the emotional aspects that predispose the intention to do so, both towards fostering intentions as well as towards the enjoyment of the whale watching audience. Sharing information and facts, albeit having produced a significant change towards donating money, seemed to have less influence towards changing behavioural intentions than the aspects of empathy and feelings of responsibility. In addition, solely transferring knowledge also showed the lowest level of satisfaction measured, even less than mean level of satisfaction measured within the control group. Thus, although it is key to expose the whale watchers to new information about key issues and behaviours that threaten the whales, doing so ought to be used as supportive, illustrative and illuminating towards the goal in hand, which is supporting conservation (Tilden, 1957).

6.2 Implications for the whale watching industry

Seeing as we are now in the third wave of environmental concern (A. Gupta, personal communication, November 3, 2009) which puts sustainable development up as its core concept and has large segments of society as its social carriers, I believe that it is quite important in explaining the whale watching audience the need to put conservation high up the political agenda. With the whale watching industry growing rapidly and whales still being and becoming more and more endangered, it is necessary to act now. Whale watchers encouraging friends and/or family to help save the whales would thereby operate as social carriers of environmental concern. With tour guides being an essential part of the tour and guided by these results among others, I believe tour guides should use a critical-issues focused approach and act as a tour guide/conservation agent and advocate responsible behaviour while heightening feelings of responsibility. Tour operators that would merely provide information and facts about whales and marine life would not make full use of that what they can do to in order to support whale conservation and hereby protecting their own business. It might be safe to assume that playing with emotions on a whale watch tour has a positive effect towards achieving action. Positive emotions need to be evoked as well as the negative emotion of guilt to be provoked in order to create the most effective environment in both learning as well as towards tourists becoming proactive.

For all that has been argued up to this point, it would be wise for whale watch tour operators to provide opportunities for whale watchers to donate money to an organisation of their choice on the spot. The reason for my thinking here is that a significant change in whale watchers intention to donate took place when their feelings of empathy were aroused by the interpretation as well as when they were solely informed. It could have been that the emotional appeal took the upper hand on the spot and the whale watchers were clouded in their rational thinking. When one is back in their daily life setting, this emotional appeal to

donate money to save the whales can be suppressed again, as well as that the information can already be forgotten.

6.3 Further research

Having evaluated on this study design and reflected upon the study results, several issues come to mind which I deem important for further research. As these various aspects have been researched independently of one another, it could be useful to find out if a certain combination of evoking empathy and provoking responsibility feelings would produce the biggest effect on changing whale watchers behavioural intentions. As the intention to donate turned out to be the most probable intention to pursue, it would be worthwhile to follow-up on this in order to find out characteristics of those whale watchers who were more likely of doing so, e.g. the socioeconomic characteristics. The same goes for those whale watchers who did not intend to do so. The question that arises is if socioeconomic characteristics play a big factor in ones intention to donate money towards saving whales. On that note, it would also be interesting to conduct research into current donators and see if a certain experience has led them towards donating money to wildlife conservation. That said, the intention to financially donate towards a whale conservation project in this research was directed to an unspecified amount as described in the question. A new study design would have to include certain amounts of money. The goal for this would then be to identify if there is an actual monetary value that is, generally, to be considered most likely to be donated to help save the whales.

When it comes to effective communication on conservation messages, Peake et al. (2009) also state that travel motivations combined with knowledge and previous experience provides a complex constellation of factors that yet have to be examined. Motivation has been accepted in the literature as an important component of wildlife tourism (Peake et al., 2009). Combining the variables of motivations and responsibility feelings for future research might provide better insight as to if whale watchers can be made to feel responsible while their sole motivation towards booking a whale watch tour is relaxation. In this study, 55.5 per cent of the respondents did not intent to go whale watching when they booked their holiday to Tenerife. They suddenly became whale watchers as soon as they boarded a whale watch boat while their main interest is in sun, sand and sea. The question is if the various aspects of interpretation that were seen to have an effect on the behavioural intentions of the whale watchers in Tenerife would produce the same effect on these whale watchers with different motivations, e.g. whale watchers who primarily choose a tourism destination because of its whale watching and can be regarded as "typical" ecotourists. I would suspect that the latter whale watching audience would already be very likely to encourage their friends and/or family to help save the whales, to donate an amount of money or donate some time to volunteer in order to save the whales. For that reason, interpretation might have less of an effect on their intentions because, as I suppose that these would be on a positive level already. Interpretation that focuses on transferring information and facts about the whales and their environment could however be more appreciated by these whale watchers and lead to a higher level of satisfaction and intentions than was seen during this study in Tenerife, as these whale watchers are motivated by increasing their knowledge and sharing an interest in the natural environment and environmental awareness (e.g. Moscardo, 1998, as cited in Lück, 2003, Russell, 2001b).

This brings me to believe that more "effectiveness" is to be found in those whale watching destinations where the activity in itself is not the main tourist destination, e.g.

Tenerife. Because even though one might consider that they see their whale watching experience as part of their relaxation time away from their home, it are these groups of people that can actually cater for interpretation to actually live up to its full potential as these are the individuals that a) might need to be persuaded towards whale conservation and b) can be persuaded by interpretation. In the light of these observations and my assumption, it would also be fruitful to conduct future research while applying a similar study methodology in a certain whale watch destination geared towards tourists whose main aim is to go whale watching when booking their holiday, e.g. New England, Massachusetts in the United States of America. This would also bring another very important aspect into account when the factor of observed cetaceans are involved. Due to the fact that the cetaceans that are mainly observed in the Canary Islands are pilot whales, which are smaller species of whales, having whale watchers observe bigger species of whales, actual mega fauna, might yield stronger results towards accepting conservation messages and act.

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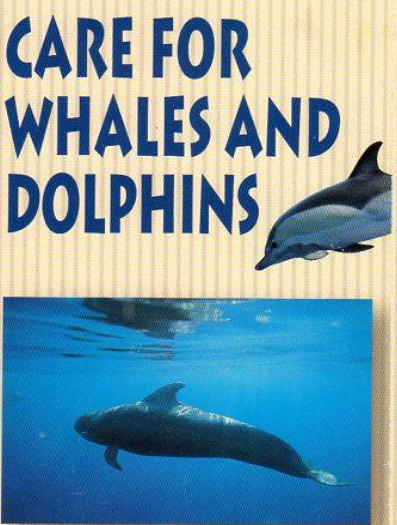
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Appendices

Appendix A Code of Conduct

CARE FOR WHALES AND DOLPHINS

*T*he waters of the Canary Islands are a privileged site for whale watching. Over 27 species have been reported in recent years. The high degree of diversity is due to the special oceanographic, geo-morphological and climatic characteristics. The fact that they are oceanic islands with very little shelf around them means that both coastal and oceanic species are found in the Canary Islands, as the Islands are on the route of migratory species and represent the habitat for other resident species like the short finned pilot whale (*Globicephala macrorhynchus*) and the bottle nosed dolphin (*Tursiops truncatus*). These two species are the most frequently seen by boats.

*W*hale watching is not a negative activity per se, but it should be done with suitable regulation. Marine mammals constitute one of our most attractive and fragile natural resources.

Gobierno de Canarias
Consejería de Medio Ambiente
y Ordenación Territorial

FEDER

INTERREG III B
AÇORES · MADEIRA · CANARIAS

FRIENDS OF THE WHALES AND DOLPHINS

BARCO AZUL
BLUE BOAT
2008

The "blue boat" flag is an emblem awarded to vessels that are authorised for tourist whale watching activities. The year for which the activity is authorized appears on the flag.

ONLY USE BOATS FLYING THIS FLAG!

PRINTED IN ECOLOGICAL PAPER

Decree 178/2000, adopted by the Canary Island Government, regulating the activity of whale watching, requires compliance with a code of conduct and a special authorization for whale watching boats, wich must also have a monitor/guide who is a specialist in cetaceans on board (BOC 133 of the 6/10/2000).

Royal decree 1727/2007 for the establishment of protection measures for cetaceans also regulates all and any activities that could have an impact on the conservation of whales, dolphins and porpoises anywhere in Spain territory (BOE nº 11 of the 12/01/2008).

Any activity wich might have a negative effect on the survival and conservation status of cetaceans is regulated, and any activity within the mobile area for the protection of cetaceans must comply with rules of conduct, with certain exceptions for scientific, educational, technical, cultural, awarness or conservation reasons, or for some shell fish, aquaculture, professional fishing, civil protection, maritime rescue and anti-pollution, public maritime and air safety, national defence, maritime charting and maritime environment measurement system activities.
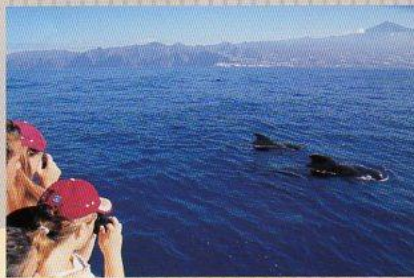
CODE OF CONDUCT

OBLIGATIONS

1. Do no intercept the course of the whales, sail through or around a group of them and never get between a mother and her calf.
2. Keep at least 60 m from the animals, except in an emergency situation or with express authorisation.
3. Avoid the presence of more than two boats at the same time within 100 m and of three boats at the same time within 500 m. of the whales and dolphins.
4. No swimming or diving in the proximity of the animals without explicit authorization and do not throw food or waste material into the sea around them.
5. No whale watching from the air in a motorised aircraft within 1500 feet (500 metres) of the cetaceans.
6. No whale watching from jet ski within 500 m of the cetaceans.

BEHAVIOUR WITH THE ANIMALS

1. Leave the area if you see any sign of alarm, alteration or anxiety, such as a sudden change of direction or speed, successive dives or blowing air under water.
2. Do not make any noise that can disturb the animals under water and do not make any noises to attract them.
3. If two or more vessels approach the same animal or group of animals, they should coordinate their approach and manoeuvres to keep their impact on the whales to a minimum.
4. Should you cause serious harm to one of the animals, or should you find a dead or injured animal floating in the water, please inform the competent authorities, indicating the position of the specimen: **telephone number 112.**
5. If, while diving outside of the exclusion zone, a group of cetaceans were to approach the divers, they should not interact with the cetaceans and, if behaviour associated with the presence of divers is observed, the divers should move away as soon as possible, while always bearing in mind the safety of the divers.

MOBILE AREA FOR THE PROTECTION OF CETACEANS

Mobile cetacean protection area

Aerial zone 500 m.

- Exclusion zone 60 m.
- Restricted stay zone 300 m.
- Approach zone 500 m.
- Submarine zone 60 m.

DO NOT TAKE UP STATION
DO NOT APPROACH
APPROACH ZONE

0-60 Exclusion zone
60-300 Restricted stay zone
300-600 Approach zone
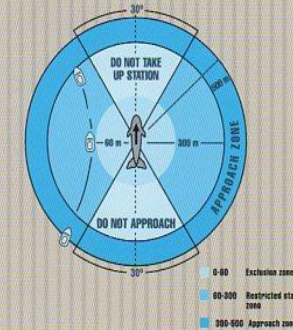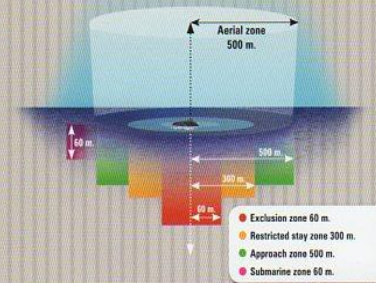
METHODS OF APPROACH

1. Whales and dolphins should be approached gradually and on a converging course with their direction. Never approach them from head on and under no circumstances impede their movements.
2. During the approach, all vessels will try to maintain a course running parallel to that of the cetaceans and they will avoid any sudden change in direction or speed.
3. If a vessel finds itself within 500 m of the cetaceans, it should maintain its speed below that of the slowest animal in the group and not exceed four knots at any time.
4. Never enter the restricted stay zone (300 m) if there are isolated adults with calves or isolated calves.
5. Do not remain within 100 m of an animal or group of animals, for more than 30 minutes.
6. Do not start the engine, or increase speed if the engine is running, while the whales and/or dolphins remain within 60 m of the vessel.
7. Should animals approach to within 60 m of the vessel or appear suddenly, all efforts will be made to cease whale watching activities, or the vessel will continue, but without making any sudden changes.
8. Whenever a vessel intends to make a stop to watch the whales, it must put the engines in neutral. Vessels should also put the engines in neutral if a whale approaches them.
9. Never engage reverse gear, except in situations of emergency or to prevent a collision with another boat or cetacean.

Appendix B Pre-trip Questionnaire

Appendix C Post-trip Questionnaire

Getting to know each other

Dear visitor,

The Atlantic Whale Foundation would like to get to know the persons that visit these waters. We would therefore like to ask you to take a short moment of your time and answer the following questions by simply circling the appropriate answer. We will be collecting these questionnaires again as soon as we are on our way to the whales. Thank you very much ☺

1. I intended to go whale watching when I booked my holiday to Tenerife.   *Yes / No*

2. Is this your first whale watch experience?   *Yes / No*

3. I intend to encourage my friends and/or family to help save the whales.

very unlikely   somewhat unlikely   neither likely nor unlikely   somewhat likely   very likely

4. When you are given the option to donate an amount of money to a project that protects the whales, how likely would it be for you to fund such a project?

very unlikely   somewhat unlikely   neither likely nor unlikely   somewhat likely   very likely

5. I intend to volunteer a few hours a week with an organization that helps to protect the whales.

very unlikely   somewhat unlikely   neither likely nor unlikely   somewhat likely   very likely

6. Out of the 13 great whale species, how many do you believe are endangered?   _____

Almost there! A little about you to finish it off ☺

Your name please:

_____

Your e-mail address:

_____

What is your gender and age?   Male / Female   &   I am _____ years old.

Where are you from?   Belgium / Denmark / Finland / France / Germany / Ireland / Norway

Poland / Sweden / The Netherlands / UK / Other (please specify): _____

On behalf of the Must Cat crew and the Atlantic Whale Foundation, we would all like to thank you for your time and wish you a wonderful whale watch experience today!

Visitor Satisfaction Questionnaire

Dear visitor,

The crew from the Must Cat and the AWF would like to provide our visitors with a high quality experience. For that reason, we would like you to shortly give feedback to us on how satisfying your experience has been by simply answering the following nine questions.

1. Please circle where you are from: Belgium / Denmark / Finland / France / Germany
Ireland / Italy / Norway / Poland / Spain / Sweden
The Netherlands / UK / Other: _____

2. Please tell us how old you are: _____

3. Please circle your gender: Male / Female

4. Please indicate if the following four aspects had a positive effect on your experience today.

The amount of whales I saw   *Yes / No*   The beauty of the area   *Yes / No*
The tour guide   *Yes / No*   The AWF volunteers   *Yes / No*

5. I intend to encourage my friends and/or family to help save the whales.

very unlikely   somewhat unlikely   neither likely nor unlikely   somewhat likely   very likely

6. When you are given the option to donate an amount of money to a project that protects the whales, how likely would it be for you to give money to fund such a project?

very unlikely   somewhat unlikely   neither likely nor unlikely   somewhat likely   very likely

7. I intend to volunteer a few hours a week with an organization that helps to protect the whales and our planet's environment.

very unlikely   somewhat unlikely   neither likely nor unlikely   somewhat likely   very likely

8. This whale watching experience was how I expected it would be   *Yes / No*

9. On a scale from 1-10, how satisfying has your whale watch experience been today?   _____

Please use the space below to add any additional thoughts or comments you might have on your experience today.

_____

_____

That's it! Thank you so much for your time! The crew of the Must Cat and the Atlantic Whale Foundation would like to wish you an enjoyable remainder of your stay in Tenerife.

Appendix D One-paired *t*-tests control group

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to tell about and raise awareness among friends and family	,63	43	1,113	,170
	Pre-trip intention to tell about and raise awareness among friends and family	,58	43	1,159	,177

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to tell about and raise awareness among friends and family & Pre-trip intention to tell about and raise awareness among friends and family	43	,891	,000

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to tell about and raise awareness among friends and family – Pre-trip intention to tell about and raise awareness among friends and family	,047	,532	,081	-,117	,210	,573	42	,570

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to donate	,37	41	1,220	,190
	Pre-trip intention to donate	,27	41	1,119	,175

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to donate & Pre-trip intention to donate	41	,952	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to donate – Pre-trip intention to donate	,098	,374	,058	-,021	,216	1,668	40	,103

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to volunteer	-,87	38	1,166	,189
	Pre-trip intention to volunteer	-,95	38	1,089	,177

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to volunteer & Pre-trip intention to volunteer	38	,952	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to volunteer – Pre-trip intention to volunteer	,079	,359	,058	-,039	,197	1,356	37	,183

Appendix E One-paired *t*-tests Knowledge

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to tell about and raise awareness among friends and family	,97	36	,810	,135
	Pre-trip intention to tell about and raise awareness among friends and family	,89	36	,979	,163

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to tell about and raise awareness among friends and family & Pre-trip intention to tell about and raise awareness among friends and family	36	,716	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to tell about and raise awareness among friends and family – Pre-trip intention to tell about and raise awareness among friends and family	,083	,692	,115	-,151	,317	,723	35	,475

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to donate	,03	36	1,183	,197
	Pre-trip intention to donate	-,14	36	1,018	,170

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to donate & Pre-trip intention to donate	36	,928	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to donate - Pre-trip intention to donate	,167	,447	,075	,015	,318	2,236	35	,032

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to volunteer	-,92	36	1,156	,193
	Pre-trip intention to volunteer	-1,06	36	1,120	,187

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to volunteer & Pre-trip intention to volunteer	36	,909	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to volunteer - Pre-trip intention to volunteer	,139	,487	,081	-,026	,304	1,711	35	,096

Appendix F One-paired *t*-tests Empathy

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to tell about and raise awareness among friends and family	1,09	33	,843	,147
	Pre-trip intention to tell about and raise awareness among friends and family	,67	33	1,109	,193

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to tell about and raise awareness among friends and family & Pre-trip intention to tell about and raise awareness among friends and family	33	,635	,000

Paired Samples Test

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Post-trip intention to tell about and raise awareness among friends and family - Pre-trip intention to tell about and raise awareness among friends and family	,424	,867	,151	,117	,732	2,811	32	,008

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to donate	,38	32	1,157	,205
	Pre-trip intention to donate	-,22	32	1,157	,204

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to donate & Pre-trip intention to donate	32	,714	,000

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to donate - Pre-trip intention to donate	,594	,875	,155	,278	,909	3,840	31	,001

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to volunteer	-,64	33	1,113	,194
	Pre-trip intention to volunteer	-,91	33	1,071	,186

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to volunteer & Pre-trip intention to volunteer	33	,863	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to volunteer - Pre-trip intention to volunteer	,273	,574	,100	,069	,476	2,729	32	,010

Appendix G One-paired *t*-tests Feelings of Responsibility

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to tell about and raise awareness among friends and family	1,12	33	1,053	,183
	Pre-trip intention to tell about and raise awareness among friends and family	,85	33	1,121	,195

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to tell about and raise awareness among friends and family & Pre-trip intention to tell about and raise awareness among friends and family	33	,836	,000

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to tell about and raise awareness among friends and family - Pre-trip intention to tell about and raise awareness among friends and family	,273	,626	,109	,051	,495	2,502	32	,018

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to donate	,33	33	,957	,167
	Pre-trip intention to donate	,15	33	1,004	,175

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to donate & Pre-trip intention to donate	33	,856	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to donate - Pre-trip intention to donate	,182	,528	,092	-,005	,369	1,979	32	,056

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-trip intention to volunteer	-,88	34	1,066	,183
	Pre-trip intention to volunteer	-1,06	34	1,043	,179

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post-trip intention to volunteer & Pre-trip intention to volunteer	34	,906	,000

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Post-trip intention to volunteer - Pre-trip intention to volunteer	,176	,459	,079	,016	,336	2,244	33	,032

Appendix H Independent *t*-tests - change in intention to encourage friends and/or family

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI1	1 control group	43	,0465	,53245	,08120
	2 knowledge	36	,0833	,69179	,11530

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI1	Equal variances assumed	2,090	,152	-,267	77	,790	-,03682	,13782	-,31125	,23760
	Equal variances not assumed			-,261	65,002	,795	-,03682	,14102	-,31846	,24481

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI1	1 control group	43	,0465	,53245	,08120
	3 Empathy	33	,4242	,86712	,15095

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI1	Equal variances assumed	9,056	,004	-2,341	74	,022	-,37773	,16134	-,69922	-,05624
	Equal variances not assumed			-2,204	50,008	,032	-,37773	,17140	-,72199	-,03347

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI1	1 control group	43	,0465	,53245	,08120
	4 Feelings of responsibility	33	,2727	,62614	,10900

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI1	Equal variances assumed	2,859	,095	-1,700	74	,093	-,22622	,13303	-,49129	,03886
	Equal variances not assumed			-1,664	62,668	,101	-,22622	,13592	-,49785	,04542

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI1	2 knowledge	36	,0833	,69179	,11530
	3 Empathy	33	,4242	,86712	,15095

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI1	Equal variances assumed	2,161	,146	-1,812	67	,074	-,34091	,18809	-,71634	,03452
	Equal variances not assumed			-1,795	61,190	,078	-,34091	,18994	-,72070	,03888

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI1	2 knowledge	36	,0833	,69179	,11530
	4 Feelings of responsibility	33	,2727	,62614	,10900

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI1	Equal variances assumed	,010	,922	-1,188	67	,239	-,18939	,15936	-,50748	,12869
	Equal variances not assumed			-1,194	66,991	,237	-,18939	,15866	-,50609	,12730

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI1	3 Empathy	33	,4242	,86712	,15095
	4 Feelings of responsibility	33	,2727	,62614	,10900

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI1	Equal variances assumed	2,209	,142	,814	64	,419	,15152	,18618	-,22043	,52346
	Equal variances not assumed			,814	58,237	,419	,15152	,18618	-,22114	,52417

Appendix I Post-hoc tests - change in intention to encourage friends and/or family

Multiple Comparisons

Dependent Variable:DiffBI1

	(I) Aspect of interpretation on-board	(J) Aspect of interpretation on-board	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Tamhane	1 control group	2 knowledge	-,03682	,14102	1,000	-,4195	,3458
		3 Empathy	-,37773	,17140	,178	-,8472	,0918
		4 Feelings of responsibility	-,22622	,13592	,472	-,5955	,1430
	2 knowledge	1 control group	,03682	,14102	1,000	-,3458	,4195
		3 Empathy	-,34091	,18994	,384	-,8573	,1755
		4 Feelings of responsibility	-,18939	,15866	,802	-,6195	,2407
	3 Empathy	1 control group	,37773	,17140	,178	-,0918	,8472
		2 knowledge	,34091	,18994	,384	-,1755	,8573
		4 Feelings of responsibility	,15152	,18618	,962	-,3555	,6586
	4 Feelings of responsibility	1 control group	,22622	,13592	,472	-,1430	,5955
		2 knowledge	,18939	,15866	,802	-,2407	,6195
		3 Empathy	-,15152	,18618	,962	-,6586	,3555
Games-Howell	1 control group	2 knowledge	-,03682	,14102	,994	-,4087	,3350
		3 Empathy	-,37773	,17140	,136	-,8332	,0778
		4 Feelings of responsibility	-,22622	,13592	,351	-,5849	,1325
	2 knowledge	1 control group	,03682	,14102	,994	-,3350	,4087
		3 Empathy	-,34091	,18994	,286	-,8426	,1607
		4 Feelings of responsibility	-,18939	,15866	,633	-,6074	,2286
	3 Empathy	1 control group	,37773	,17140	,136	-,0778	,8332
		2 knowledge	,34091	,18994	,286	-,1607	,8426
		4 Feelings of responsibility	,15152	,18618	,848	-,3409	,6439
	4 Feelings of responsibility	1 control group	,22622	,13592	,351	-,1325	,5849
		2 knowledge	,18939	,15866	,633	-,2286	,6074
		3 Empathy	-,15152	,18618	,848	-,6439	,3409

*. The mean difference is significant at the 0.05 level.

Appendix J Independent *t*-tests – change in intention to donate money

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI2	1 control group	41	,0976	,37449	,05849
	2 knowledge	36	,1667	,44721	,07454

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI2	Equal variances assumed	2,271	,136	-,738	75	,463	-,06911	,09365	-,25567	,11746
	Equal variances not assumed			-,729	68,609	,468	-,06911	,09474	-,25813	,11992

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI2	1 control group	41	,0976	,37449	,05849
	3 Empathy	32	,5938	,87471	,15463

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
DiffBI2	Equal variances assumed	35,801	,000	-3,273	71	,002	-,49619	,15160		-,79848	-,19390
	Equal variances not assumed			-3,001	39,872	,005	-,49619	,16532		-,83035	-,16203

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI2	1 control group	41	,0976	,37449	,05849
	4 Feelings of responsibility	33	,1818	,52764	,09185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI2	Equal variances assumed	3,021	,086	-,802	72	,425	-,08426	,10502	-,29361	,12509
	Equal variances not assumed			-,774	55,862	,442	-,08426	,10889	-,30240	,13389

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI2	2 knowledge	36	,1667	,44721	,07454
	3 Empathy	32	,5938	,87471	,15463

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI2	Equal variances assumed	20,993	,000	-2,577	66	,012	-,42708	,16575	-,75802	-,09615
	Equal variances not assumed			-2,488	44,931	,017	-,42708	,17166	-,77283	-,08134

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI2	2 knowledge	36	,1667	,44721	,07454
	4 Feelings of responsibility	33	,1818	,52764	,09185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI2	Equal variances assumed	,169	,682	-,129	67	,898	-,01515	,11744	-,24955	,21925
	Equal variances not assumed			-,128	63,031	,898	-,01515	,11829	-,25153	,22123

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI2	3 Empathy	32	,5938	,87471	,15463
	4 Feelings of responsibility	33	,1818	,52764	,09185

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI2	Equal variances assumed	14,020	,000	2,307	63	,024	,41193	,17855	,05514	,76873
	Equal variances not assumed			2,290	50,630	,026	,41193	,17985	,05080	,77306

Appendix K Post-hoc tests – change in intention to donate money

Multiple Comparisons

Dependent Variable:DiffBI2

	(I) Aspect of interpretation on-board	(J) Aspect of interpretation on-board	Mean Difference (I-J)	Std. Error	Sig.	74% Confidence Interval	
						Lower Bound	Upper Bound
Bonferroni	1 control group	2 knowledge	-,06911	,13077	1,000	-,3358	,1976
		3 Empathy	-,49619*	,13505	,002	-,7716	-,2208
		4 Feelings of responsibility	-,08426	,13390	1,000	-,3573	,1888
	2 knowledge	1 control group	,06911	,13077	1,000	-,1976	,3358
		3 Empathy	-,42708*	,13910	,015	-,7108	-,1434
		4 Feelings of responsibility	-,01515	,13798	1,000	-,2965	,2662
	3 Empathy	1 control group	,49619*	,13505	,002	,2208	,7716
		2 knowledge	,42708*	,13910	,015	,1434	,7108
		4 Feelings of responsibility	,41193*	,14205	,026	,1223	,7016
	4 Feelings of responsibility	1 control group	,08426	,13390	1,000	-,1888	,3573
		2 knowledge	,01515	,13798	1,000	-,2662	,2965
		3 Empathy	-,41193*	,14205	,026	-,7016	-,1223
Tamhane	1 control group	2 knowledge	-,06911	,09474	,977	-,2590	,1208
		3 Empathy	-,49619*	,16532	,027	-,8320	-,1604
		4 Feelings of responsibility	-,08426	,10889	,970	-,3035	,1349
	2 knowledge	1 control group	,06911	,09474	,977	-,1208	,2590
		3 Empathy	-,42708*	,17166	,096	-,7745	-,0797
		4 Feelings of responsibility	-,01515	,11829	1,000	-,2527	,2224
	3 Empathy	1 control group	,49619*	,16532	,027	,1604	,8320
		2 knowledge	,42708*	,17166	,096	,0797	,7745
		4 Feelings of responsibility	,41193*	,17985	,147	,0491	,7748
	4 Feelings of responsibility	1 control group	,08426	,10889	,970	-,1349	,3035
		2 knowledge	,01515	,11829	1,000	-,2224	,2527
		3 Empathy	-,41193*	,17985	,147	-,7748	-,0491

Games-Howell	1 control group	2 knowledge	-,06911	,09474	,885	-,2442	,1060
		3 Empathy	-,49619[*]	,16532	,023	-,8042	-,1882
		4 Feelings of responsibility	-,08426	,10889	,866	-,2860	,1175
	2 knowledge	1 control group	,06911	,09474	,885	-,1060	,2442
		3 Empathy	-,42708[*]	,17166	,076	-,7462	-,1079
		4 Feelings of responsibility	-,01515	,11829	,999	-,2340	,2037
	3 Empathy	1 control group	,49619[*]	,16532	,023	,1882	,8042
		2 knowledge	,42708[*]	,17166	,076	,1079	,7462
		4 Feelings of responsibility	,41193[*]	,17985	,114	,0782	,7457
	4 Feelings of responsibility	1 control group	,08426	,10889	,866	-,1175	,2860
		2 knowledge	,01515	,11829	,999	-,2037	,2340
		3 Empathy	-,41193[*]	,17985	,114	-,7457	-,0782

*. The mean difference is significant at the 0.26 level.

Appendix L Independent *t*-tests – change in intention to volunteer

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI3	1 control group	38	,0789	,35880	,05820
	2 knowledge	36	,1389	,48714	,08119

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI3	Equal variances assumed	1,590	,211	-,605	72	,547	-,05994	,09909	-,25747	,13759
	Equal variances not assumed			-,600	64,184	,551	-,05994	,09990	-,25950	,13962

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI3	1 control group	38	,0789	,35880	,05820
	3 Empathy	33	,2727	,57406	,09993

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI3	Equal variances assumed	8,707	,004	-1,729	69	,088	-,19378	,11208	-,41737	,02981
	Equal variances not assumed			-1,676	52,199	,100	-,19378	,11565	-,42582	,03826

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Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI3	1 control group	38	,0789	,35880	,05820
	4 Feelings of responsibility	34	,1765	,45863	,07865

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI3	Equal variances assumed	2,004	,161	-1,010	70	,316	-,09752	,09653	-,29004	,09500
	Equal variances not assumed			-,997	62,360	,323	-,09752	,09785	-,29310	,09805

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI3	2 knowledge	36	,1389	,48714	,08119
	3 Empathy	33	,2727	,57406	,09993

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI3	Equal variances assumed	2,183	,144	-1,047	67	,299	-,13384	,12783	-,38900	,12132
	Equal variances not assumed			-1,039	63,065	,303	-,13384	,12876	-,39113	,12345

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI3	2 knowledge	36	,1389	,48714	,08119
	4 Feelings of responsibility	34	,1765	,45863	,07865

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI3	Equal variances assumed	,005	,943	-,332	68	,741	-,03758	,11324	-,26354	,18838
	Equal variances not assumed			-,332	68,000	,741	-,03758	,11304	-,26315	,18799

Group Statistics

	Aspect of interpretation on-board	N	Mean	Std. Deviation	Std. Error Mean
DiffBI3	3 Empathy	33	,2727	,57406	,09993
	4 Feelings of responsibility	34	,1765	,45863	,07865

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DiffBI3	Equal variances assumed	2,170	,146	,759	65	,450	,09626	,12675	-,15687	,34939
	Equal variances not assumed			,757	61,166	,452	,09626	,12717	-,15803	,35054

Appendix M Post-hoc tests – change in intention to volunteer

Multiple Comparisons

Dependent Variable:DiffBI3

	(I) Aspect of interpretation on-board	(J) Aspect of interpretation on-board	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1 control group	2 knowledge	-,05994	,10984	,948	-,3456	,2257
		3 Empathy	-,19378	,11237	,315	-,4860	,0985
		4 Feelings of responsibility	-,09752	,11149	,818	-,3875	,1924
	2 knowledge	1 control group	,05994	,10984	,948	-,2257	,3456
		3 Empathy	-,13384	,11382	,643	-,4299	,1622
		4 Feelings of responsibility	-,03758	,11294	,987	-,3313	,2562
	3 Empathy	1 control group	,19378	,11237	,315	-,0985	,4860
		2 knowledge	,13384	,11382	,643	-,1622	,4299
		4 Feelings of responsibility	,09626	,11540	,838	-,2039	,3964
	4 Feelings of responsibility	1 control group	,09752	,11149	,818	-,1924	,3875
		2 knowledge	,03758	,11294	,987	-,2562	,3313
		3 Empathy	-,09626	,11540	,838	-,3964	,2039
LSD	1 control group	2 knowledge	-,05994	,10984	,586	-,2771	,1573
		3 Empathy	-,19378	,11237	,087	-,4160	,0284
		4 Feelings of responsibility	-,09752	,11149	,383	-,3180	,1229
	2 knowledge	1 control group	,05994	,10984	,586	-,1573	,2771
		3 Empathy	-,13384	,11382	,242	-,3589	,0912
		4 Feelings of responsibility	-,03758	,11294	,740	-,2609	,1857
	3 Empathy	1 control group	,19378	,11237	,087	-,0284	,4160
		2 knowledge	,13384	,11382	,242	-,0912	,3589
		4 Feelings of responsibility	,09626	,11540	,406	-,1319	,3245
	4 Feelings of responsibility	1 control group	,09752	,11149	,383	-,1229	,3180
		2 knowledge	,03758	,11294	,740	-,1857	,2609
		3 Empathy	-,09626	,11540	,406	-,3245	,1319