An interview-based cognitive analysis of stakeholder perceptions of whale watching in Puget Sound, Washington

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Abstract

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Since 1986, when the commercial whaling moratorium was established, whale watching has become a prominent tourism industry. Accompanying this increase in the industry is the conflict between different stakeholders on the best management practices, protection guidelines and business plans that should be incorporated in whale watching. As whale watching in Puget Sound, Washington becomes increasingly important to the local economy and tourists alike, an understanding of such stakeholder perceptions will be an important part of the management process.

This paper analyzes stakeholder perceptions of whale watching in Puget Sound through the use of open-ended, elite interviews and cognitive testing. 'Perceptions' include stakeholder understanding, behavior and preference as it relates to whale watching. Historically, surveys have been used to gather information of this type. This research is designed to examine a new method for gaining this knowledge.

Interviews were conducted with 18 stakeholders that represent two key sectors within the whale watching industry: environmental groups and tour operators. The cognitive testing technique of a pile sort was used to gauge perceptions. During the pile sort, subjects were asked to sort a set of 25 terms into piles of their choosing based on the relationships they perceive between the terms. Based on the terms sorted with the term 'whale watching' and similarities between different data sets from individuals, a general understanding of each group's overall perception of whale watching was developed. The cognitive test was accompanied by a brief, open-ended interview.

Results show that both groups strongly associate whale watching with recreation. Additionally, while a majority of the respondents, regardless of their associated subject group, related whale watching with the ideas of 'work' or 'career,' those in the environmental field were more likely to associate it with conservation based activities, such as cleaning up a beach, as well

as recreational activities, such as ‘spear fishing’. Tour operators more strongly associated whale watching with recreation, and less prominently associated it with environmental activities. These resultant findings have potential to impact communication, resource use, and cultural value in the whale watching industry, while increasing cooperation and understanding among industry stakeholders. The results could be of considerable help to future management of Puget Sound whale watching, and whale watching worldwide. Additionally, the success of the pile sort method will allow for its use in future similar studies in a broad range of fields

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INTRODUCTION

The field of marine and environmental affairs covers topics ranging from marine pollution, fisheries management, coastal zone management, and marine tourism. The tourism[1] industry is arguably one of the most profitable and influential industries within this subject and in today's world. The industry represents nearly 5% of the global GDP (UNEP, n.d.), providing employment to one in every twelve people in both new and developed economies (UNEP, n.d.). Additionally, international tourism accounts for 30% of the global exports of commercial services, ranking fourth in that genre (UNEP, n.d.). Tourism is of particular importance in developing nations as the main source of 'foreign exchange' (UNEP, n.d.). Similar to the global tourism industry, tourism in the United States has continued to grow exponentially. As of 2010, tourism provided over 7 million jobs within the country, representing 2.6% of the nations GDP (International Trade Administration, 2013). One million of the total jobs provided are accounted for through international travelers alone.

While every region of the United States has benefitted from tourism, both international and domestic, in some form, the state of Washington, with its abundance of natural resources, scenic outlooks and rich cultural history, has gained increasing attention. Tourism in the state of Washington ranges from forested mountains, to rocky shores. The industry has been important to the state's development. Washington is renowned for its diversity of species and vibrant coastal zone, a region that has fully developed as a tourism opportunity only in the last decade (Miller, 1987). One of its most revered tourism opportunities is the pod of protected killer whales that resides seasonally in the Puget Sound region.

[1] For the purposes of this paper, tourism will be defined as the act of traveling, interacting with people and places and returning home, as defined by Miller et al. (Miller et al. 2015)

As tourism continues to grow as an industry, both domestically and internationally, an increasing number of challenges have become apparent. Key concerns include the availability of the necessary infrastructure, the capacity of the industry to operate sustainably, waste management, safety and conflict between brokers, locals and tourists (UNEP, 2011; Miller et al., 2014). Policy development has proven to be a solution to some of these concerns. When considering whale watching, as in Puget Sound, Washington, policy has been vital in managing the relationship between the whales, as a resource and artifact in the tourism system, and the humans that experience, explore and exploit this resource. However, the development of policy around such an economically and socially important industry is not a simple task. The many parties involved in the whale watching industry make it a complex issue to address. Different parties have varying interests in the whales, all which must be addressed through policy initiatives. The establishment of a policy requires support from stakeholders in the issue. When multiple stakeholders want different things from a policy, how do you develop one that will please enough groups to gain the support necessary for implementation? It is for this purpose that a foundation of understanding of stakeholder desires is vital in creating a culture of contentment, protection, and sustainability in a complex issue like whale watching.

In order to understand what stakeholders are looking for in particular policies, one must first garner an understanding of how they perceive the issue. There are many approaches one could take when viewing and understanding whale watching. For example, some see it strictly as a means to an end, a job. Others see it a spiritual experience, a conservation effort or an educational experience. Understanding how each stakeholder group views the industry will help determine what they are looking for in policy that surrounds it and how to go about developing policy that will not only achieve the desired results, but also gain support from involved parties

Plan of This Thesis

The plan of this thesis is to analyze stakeholder perceptions of whale watching in Puget Sound, Washington, through the use of open-ended interviews and cognitive testing. This thesis will attempt to address several important thematic and analytic questions:

- What are stakeholders overall perceptions of whale watching as an activity?
- Is the use of interviews and cognitive testing an effective means for studying perceptions?

This thesis addresses these objectives through two parts. Part I provides background information for the project. Chapter one informs on background and key concepts of whale watching including topics on the evolution of whale watching, tourism in Puget Sound, whale watching in Puget Sound, the research setting and current perspectives. Chapter two discusses the research question and chosen approach. Part II provides a detailed description and analysis of the project itself. Chapter three details data collection, including the process of selecting pile-sort stimuli, the model utilized for analysis, the respondent sample chosen and the raw data collected. Chapter four provides an analysis of the data and results, as well as a discussion of the findings. Finally, a conclusion remarks on the potential for and direction of future research.

PART I: *Conceptual Framework for Research*

CHAPTER 1: Background and Key Concepts

As the practice of whaling became less popular, the global tourism market for whale watching began to grow. Today, whale watching is a popular activity both in Washington and worldwide. As its popularity has grown, however, so has it become more complex. Whale watching is now a developed industry, with numerous actors, artifacts and systems playing a role in its success. This chapter will discuss the background and key concepts of whale watching, covering the evolution of whale watching, tourism in Washington, stakeholders in the industry, and the Human-Artifactual-Natural System as it pertains to Puget Sound and whale watching.

1.1 The evolution of whale watching

Whaling, the act of hunting whales has occurred for thousands of years. Whaling began as a traditional practice, as early as 4,000 years ago (Marrero & Thornton, 2011; Reeves et al., 1999). Inuit in the Arctic, Basque in the Atlantic and Japanese in the Pacific all relied on whales for a number of goods and cultural identity. Skin was used for clothes, meat for food, and even baleen was fashioned as building materials and fishing line. Whaling continued to gain popularity as whale parts became more valuable commodities. Soon, the industry was worth millions of dollars and by the 1900s the industry was at its peak (Marrero & Thornton, 2011). Because the industry grew at such a rapid rate, there was little in the way of management. By the early 1970s, the United States alone had listed eight whales as endangered. A year later, the nation outlawed whaling entirely (Marrero & Thornton, 2011). Whaling continued internationally until 1982 when the International Whaling Commission (IWC) called for a moratorium on commercial whaling. However, not all countries supported the ban on whaling. Japan and Norway both voted against the moratorium (Marrero & Thornton, 2011). Both

countries continue to allow whaling in some form today. Norway allows whaling for meat, and Japan allows whaling for scientific purposes.

As the world began to move away from whaling, a new industry began to take shape. Whale watching began as a land based industry. In the late 1940s, land based whale watching 'counts' began through the University of California, a scientific effort to monitor local whale populations (Hoyt & Parsons, 2014). In 1950, this land-based whale watching was established as a tourist attraction when Cabrillo National Monument, an old US Army gun station, was converted into the first public whale watching platform (Hoyt 1984; Hoyt 2001). In its inaugural year, the viewing platform hosted around 10,000 people (Hoyt, 2001). Land based whale watching dominated the industry until the late 1970s (Hoyt & Parsons, 2014; Finkler & Higham, 2004). This was primarily due to the multiple lookout points established along the Western coast of the United States facilitating land-based viewing. Even less developed than boat-based whale watching was commercial whale watching, defined by Hoyt and parsons as whale watching where tourists pay to be taken to view the whales. The first commercial whale watching trips began in Mexican lagoons, where naturalists brought groups of tourists or school children out on fishing vessels or larger tourists boats (Hoyt & Parsons, 2014). The industry began to develop into the education and conservation based activity that it is today in 1975 when a fisherman hired a naturalist to begin studying whales (Hoyt, 1995; Hoyt 2009). The fisherman, Al Avellar, founded the Center for Coastal Studies, which developed a partnership between commercial whale watching and science. By the early 1990s, 18 of the 21 operators operating through the Center for Coastal Studies was working with a naturalist, setting the standard for future whale watching tours (Hoyt, 1995).

By the mid to late 1980s, whale watching was expanding across the globe at a rapid rate. In 1991, it was estimated that nearly 4 million tourists were taking part in a commercial whale watching excursion, valuing the industry at over $300 million USD (Hoyt & Parsons, 2014). The industry grew from 4 million to 9 million by 1998 (Hoyt & Hvenegaard, 2002). By the early 21st century, the industry had expanded to 87 countries, and 119 countries by 2008 (Hoyt, 2001; O'Connor et al., 2009). With the rapid increase in popularity, the industry began to feel 'growing pains.' Most industries began unassumingly and with little in the way of management. Consequently, as the industry grew, it became increasingly unsustainable (Orams, 2001).

The growth of the industry has had impacts on the whale populations in many regions. As whale watch operators established businesses, it became daily practice to dedicatedly follow the whales. Even in areas where limitations and guidelines have been put in place to restrict the number of vessels surrounding the whales, it is common practice to see the maximum number of boats around a group of whales at any given time (Hoyt & Parsons, 2014). When one boat leaves, another boat replaces it almost immediately, leaving the whales in a state of constant disturbance. Vessel crowding is a problem that has been uniquely experienced in the United States and Canada with concern to the southern resident killer whale population, an endangered population of killer whale (*Orcinus orca*). Such crowding is a concern for normal cetacean populations, but is of particular concern for endangered ones (Williams et al., 2009).

Additionally, as the industry has grown, so have the vessels. Ships designed specifically for whale watching and supporting a large number of tourists have become the norm for successful whale watching tours. Such large ships are likely to be accompanied by greater disturbance to the whales and their natural environment, and potentially higher amounts of pollution - a more recently identified threat to whale populations (Lachmuth et al., 2011; Ritter,

2003; Williams et al., 2014). The movement to larger boats and a larger industry also transitions whale watching from a specialist form of tourism to a form of mass tourism. As such, the industry now caters to a broader range of tourists, a wider tourist typology, and a broader set of expectations (Duffus & Dearden, 1990). Accompanying the increase in the size of common whale watching vessels is the increase in speed of the vessels. A faster ship means operators can get to the whales faster and potentially increase the number of trips possible per day. A high-speed whale watching vessel is one defined as exceeding 13 knots (IWC, 2005). Such ships increase the risk of ship strikes, a common risk of vessels being in close proximity to whales (Hoyt & Parsons, 2014; Ritter, 2003). If collisions occur, a vessel moving at a faster speed is more likely to cause a fatal injury to the whale than one moving at a slower speed, and the risk of collision is arguable increased as a result of decreased reaction time from both whales and ships to maneuver out of the way.

1.2 Defining Tourism in Washington

The state of Washington and greater Seattle area have been renowned as a popular tourist destination for decades. The state boasts a variety of outdoor recreational opportunities, including hiking, skiing and wildlife viewing, as well as a diverse cultural experience. Seattle itself is most notable for its downtown fish market, a staple in the traveler's agenda, the landmark Space Needle, and its offerings of freshly caught seafood. As tourism in the city and state continues to grow, it becomes increasingly important to the economic stability of the region, representing a major source of income and job production.

Last year, Visit Seattle, a private non-profit marketing firm that serves Seattle and King County as their official destination marketing organization, published year-end statistics for the 2014 tourism season. Visit Seattle worked through a third party research firm, Tourism

Economics, to develop a comprehensive overview of tourism in the greater Seattle area. Results showed an increase in 3.7% of overnight visitor volumes in the city, bringing the year total to around 19.2 million (Blandford, 2015). These visitors are estimated to have spent around $6.4 billion in the city and county, including the $643 million spent in state and local taxes (Blandford, 2015). The most recent statistics provided by the city show that in 2011, Seattle and King County boasted 34,459 hotel rooms, a number which has likely increased in the last five years (City of Seattle, 2014). Apart from an increase in regional revenue, the increase in tourism also provides an increase in supported jobs. In 2014, 5.7% of jobs (70,640) in the county were related to, or generated by the tourism industry. Jobs directly linked to the tourism industry paid nearly $2 billion in total income. Jobs associated with tourism in general generated $3.2 billion in labor income (Blandford, 2015). The revenue increase and growth of the industry is expected to continue in the coming years. The most recent U.S. Department of Commerce report shows Seattle as the 17th most popular U.S. city tourism destination for overseas visitors, only behind major cities such as New York City, NY, Los Angeles, CA, Las Vegas, NV and Washington, D.C. (U.S. Department of Commerce, International Trade Administration, 2014).

Tourism in Washington ranges from wildlife viewing and outdoor adventuring, a subset of tourism that will be loosely classified as ecotourism, to historic walking tours and viewing of notable landmarks, classified, for the purposes of this paper, as cultural tourism. The differences between ecotourism and cultural tourism indicate the broad range of tourism opportunities offered by the state. Cultural tourism, as defined by Reisinger, is “a genre of species interest tourism based on the search for and participation in new and deep cultural experiences, whether aesthetic, intellectual, emotional or psychological (Reisinger 1994, pp.24).” This definition includes festivals, museums, galleries, heritage sites, and historic structures, and is also often

referred to as heritage tourism or historical tourism (Smith, 1989). There is some debate as to whether cultural tourism may be applied to travel in which cultural interest is a secondary concern rather than the primary purpose for the trip, as opposed to a trip taken with the sole purpose of cultural immersion. Hughes argues that the term cannot be used indiscriminately in the two situations (Hughes, 1996). However, while the tourist may not travel to the city for its culture, the selection of activities in which to participate in would necessitate some consideration to the tourist's intentions. Because the tourist actively selects culturally based activities, implying an intention to learn more about a specific aspect of the regions culture, for the purposes of this paper, those activities can and will be classified as cultural tourism.

While cultural tourism focuses on the artifactual aspect of travel, ecotourism focuses on the nature aspect. Ecotourism is most commonly recognized as a type of tourism that works towards the protection of the surrounding environment. Many tourism typologies, such as wildlife tourism or nature tourism, have a similar connotation, but are vague and neglect some of the important goals of ecotourism. Valentine works towards a definition of ecotourism. He defines ecotourism using four key goals that ecotourism must meet: "based on relatively undisturbed natural areas; non-damaging, non-degrading, ecologically sustainable; a direct contributor to the continued protection and management of the natural areas used; subject to an adequate and appropriate management regime (Valentine, 1993 pp. 108-109)." While goals two, three and four seem aligned with the overarching aims of environmentally sustainable tourism, the first goal – based on relatively undisturbed natural areas – neglects many important ecosystems that could benefit from some form of environmental tourism. Consequently, for the purposes of this paper, ecotourism, loosely based on Valentine's working definition, will be defined as tourism that:

- Is based on the natural environment, regardless of prior use or non-use, of a region
- Is non-damaging, non-degrading and ecologically sustainable to the region of interest
- Contributes to the management and conservation of the environment, culture and economy of the region
- Subject to an adequate and appropriate management regime

This thesis will focus on aspects of ecotourism, as whale watching falls within this context and represents an important subset of the Washington tourism industry,

1.3 Whale watching in Puget Sound: defining stakeholders

The J, K and L pods are family groups of resident killer whales that can be found in Puget Sound during the summer months (May through September) and have been the focus of many protection and conservation outreaches in recent years. Every year, nearly 500,000 people travel to the Puget Sound region for whale watch tours (The Whale Museum, 2016). Increased pressure from tour boats, and a severe lack of salmon has proven a challenge for the recovery of this population (Washington Department of Fish and Wildlife, 2016).

A study conducted from 1998-2013 looked at the number of vessels, public or private, which followed the whales during peak viewing hours. The study found that an average of 15 to 20 vessels could be seen within a half mile of the whales at any given time during the period from 10:00 a.m. to 5:00 p.m. (Soundwatch, 2016). In 2008, voluntary guidelines for whale safety were established in an effort to minimize potentially dangerous interaction between the endangered populations and boats in the water. In the same year, the Washington State Legislature passed legal restrictions for activities near and around whales. These restrictions include regulations on the distance from whales vessels must observe, regulations on approaching whales, and restrictions of vessel speed when in the proximity of the southern residents. While the regulations may seem superficially sufficient, the population continues to

show signs of decreasing. Additional regulatory action has been considered, but many parties have conflicting views on the further interference of policymakers in the industry.

Due to the public nature of whale watching, and most marine environmental concerns, there are numerous potential stakeholders who have an interest in the industry at varying levels. These include tourists viewing the whales, operators conducting tours, naturalists educating on boats, environmental groups working towards environmental protection, animal rights groups in opposition towards the industry, locals that interact with the industry and its members daily, and even people at home that appreciate the industry purely for it's intrinsic, or existence, value. Considering this, nearly every individual has the potential to be a stakeholder. However, not all stakeholders have the same level of interest or stake in the industry and are more or less active in it's progress.

The term 'stakeholder,' in the 1700's referred to a person who "holds the stake or stakes in a bet (Ramirez, 1999; Pomeroy & Douvere, 2008)." The modern concept of a stakeholder, traditionally associated with management methods, can be traced back to the thinking of systems theorists and corporate planners as early as the 1930's (Barnard, 1938; March & Simon, 1958; Mason & Mitroff, 1981; Rowley, 1997; Pomeroy & Douvere, 2008). Freeman was the first to work towards a definition of the term in his 1984 work. Freeman defines stakeholders, from the management perspective, as 'any group or individual who can affect or is affected by the achievement of the organization's objectives' (Freeman, 1984). In this case, that organization would be the industry of whale watching. By this definition, the group of potential stakeholders is broad, including everyone from the tourists visiting the area that drive the business of whale watching, to locals that affect the nature of the industry strictly through proximity. For the purposes of this paper, Freeman's definition is too broad.

Mitchell et al. work to narrow the selection down by focusing on three key factors of stakeholders: their power to influence, the legitimacy of their relationship to the subject matter, and the urgency of their work. By this definition, the pool of potential stakeholders is narrowed to those people *actively* working in the industry, excluding those that may be impacted by it. The legitimacy of their relationship and urgency of their work stipulations necessarily exclude any potential stakeholders that are merely stakeholders by association – such as tourists. The danger in this exclusion is that people affected by an industry are very often those that speak out and act for change, a situation that has occurred within the whale watching industry and is discussed in further depth below. Considering the nature of whale watching, tourists are a key component of the success of whale watching, and are therefore major players in the developments within the industry. As such, it seems important that they are considered as legitimate stakeholders in the whale watching industry.

Consequently, Mitchell et al.'s definition narrows the pool of stakeholders, for the purposes of this paper and with regards to the specific subject of whale watching, too strictly. However, there is validity to some of the factors considered by Mitchell et al., specifically the power to influence and the legitimacy of the relationship to subject matter. Carroll also notes the importance of legitimacy and power with regards to stakeholders, defining power as the ability to impact the industry (Carroll, 1993). An individual or group's relationship to the subject matter, whale watching, is key in whether or not they are considered as a stakeholder. A lack of involvement in the industry, regardless of the nature of this involvement, implies less concern, interest or 'stake' in the industry, and, consequently, less influence. Suchman defines legitimacy, in terms of stakeholder involvement, as "a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed systems of

norms, values, beliefs and definitions (Suchman, 1995).” In other words, a stakeholder’s relationship with the whale watching industry must be appropriate and relevant.

In the case of whale watching, many groups have a legitimized relationship to the industry, but have less power to influence change over it. The power held by various stakeholder groups depends on their positioning within the industry and society, and how involved in the politics of the industry they are, which often depends on the capital they have in the industry. Clarkson (1995) argues that all stakeholders have some form of capital, whether financial or human, at risk when involved with an industry or organization, but this capital varies between groups (Clarkson, 1995). A group with more to lose will be more involved in the workings of the industry, proving to be a more powerful stakeholder. In the example of whale watching, the capital of the tourist is one of human experience. If the industry failed or no longer existed, the only loss to the tourist would be the opportunity to have the experience of whale watching. While this is surely a loss, it is not one that will prompt the tourist to become actively involved in an industry they are typically removed from. However, a tour operator has a high financial capital in the industry. In this case if the industry were to fail, he or she would lose their livelihood, security, and their family may be put at risk. The operator has a much higher incentive to become involved in the industry workings in an active way.

Power also relies on positioning within the industry. The whale watching industry relies on the existence of tour operators. Without tour operators, the industry could not operate. For this reason, they have a heavy voice in the stakeholder arena. Similarly, environmental, non-profit groups often have greater capacity (members, resources, etc.) and better internal organization that allows them to be successful as stakeholders. Conversely, while locals may have an opinion on the industry, they are typically poorly organized and do not have an abundance of resources at

their disposal and are often unsuccessful in campaigning for or against issues. Consequently, they are much less powerful as stakeholders. Because this research looks to inform future policy decisions by providing knowledge of stakeholder perceptions on the industry, the analysis of perceptions of more powerful stakeholders will provide the most influential data. Therefore, power was considered when selecting stakeholder groups for interviewing.

Darnall et al. divide stakeholders into two groups: primary and secondary. Primary stakeholders are those groups with a direct economic stake in the topic, and secondary stakeholders do not have a direct economic stake, but still have intentions and goals within the industry (Darnall et al. 2010). In the case of whale watching, primary stakeholders would include, primarily, researchers in the field and tour operators. Secondary stakeholders would include tourists (although tourists may pay for a tour and could therefore be considered to have an economic stake, it is not generally seen as a long term or permanent stake and the group, therefore, remains a secondary stakeholder), locals and policy makers.

This thesis strictly focuses on primary stakeholders, analyzing perceptions from subjects working in the environmental sector of the whale watching industry, specifically from non-governmental organizations, and subjects working directly on whale watching boats. While these two groups are primary stakeholders, they also, arguably, have the most power over the direction and success of the industry and are therefore most valuable to this analysis.

Considering the above evaluation, for the purposes of this paper, stakeholders may generally be defined as individuals, groups or organizations who are, in one way or another, involved or affected (positively or negatively) by a particularly project, industry, company or action, an adaption of Pomeroy and Rivera-Guieb's definition (Pomeroy & Rivera Guieb, 2006). Stakeholder groups chosen for analysis were chosen based on their position in the industry, their

stake or capital in the industry, and their relationship with the industry. These qualifications narrowed the selected stakeholder groups down to the two key players in the Puget Sound whale watching industry: environmental groups and tour operators.

1.4 Puget Sound as a Human-Artifactual-Natural System (HANS)

While many studies focus on the social-ecological system (SES) framework for analyzing an environment, Miller et al. (2014) has developed an expanded framework for addressing the many components of a complex natural and human built system. The Human-Artifactual-Natural System (HANS) framework (figure 1) differs from the SES framework in that it includes the artifact component to an equal degree in the system evaluation. Miller et al. (2014) define artifacts as items made or developed by people or animals. The inclusion of such elements takes human behavior and decisions into account, as well as their influence on the natural world. While humans are considered part of the natural world, the artifactual component measures their distinct impact on nature, separate from just their role in the natural environment. Miller et al. (2014) recognize two distinct types of artifacts: hard artifacts and soft artifacts. Hard artifacts are tangible items created by humans or animals, those that can be easily manipulated, counted or used. Such items include tools, machines, or cultural items. Soft artifacts are less tangible, and include man-made items such as policies, laws, and values. The HANS framework is becoming increasingly popular as a framework for use in analysis of complex systems due to its flexibility and adaptability to various systems. Carter et al., 2014, Fidelman, 2014, and Miller et al., 2015 all utilize HANS as an evaluation tool.

In this thesis, the area of Puget Sound and its surrounding waters, stretching into the regional waters of British Columbia, exemplify a Human-Artifactual-Natural System (HANS). The industry of whale watching in particular influences each aspect of the HANS. Humans are

the drivers of the industry, influencing the behavior of the whales with their presence and proximity, as well as through the use of the selected artifacts. Artifact use in the whale watching industry is broad, including both hard and soft artifacts, and influencing human impact on the natural component. Hard artifacts include watercrafts, such as boats and kayaks, cameras used in surveys and recreationally by tourists, and other educational and pragmatic tools, such as books, photo charts and binoculars. Soft artifacts include the policies developed to sustain the whale watching industry and protect the natural environment, and the cultural heritage that surrounds the whale's presence in the Puget Sound region. Both hard and soft artifacts influence human's impact on the natural environment. Hard artifacts directly influence the natural component through boat exhaust, pollution, and noise. Soft artifacts influence human behavior towards the natural environment – policies and cultural value govern behavior as it relates to whales and whale watching. This study focuses on perceptions of brokers, both private sector and civil society.

Within the HANS framework is a separate concept termed the 'Broker-Local-Tourist' (BLT) model. The BLT model sits within the human component of the HANS system. This model refers to interactions between three key players within a community – the brokers[2], locals and tourists. Within the whale watching industry, all three components are present. However, this research deals primarily with brokers. Tour operators are private sector brokers, while those in the environmental groups are considered civil society brokers. This research characterizes part of the broker-broker interaction between these two groups, whether of consensus or conflict, and how it influences the whale watching industry within Puget Sound.

[2] A broker refers to a person who engages in the business and management of an industry - in this case, tourism (Miller et al., 2014).

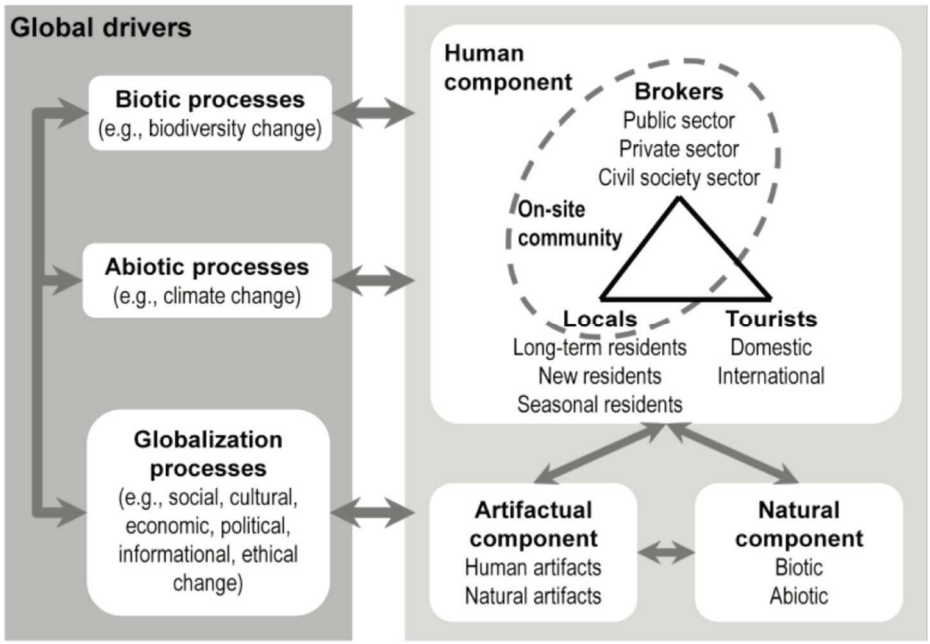


Figure 1: Human-Artifactual-Natural System (HANS) conceptual framework, as developed by Miller et al. for application to National Park Governance (Miller et al., 2015).

CHAPTER 2: Research Question, Setting and Approach

Interviewing has long been proven as an effective means of data gathering for both qualitative and quantitative studies. However, recent uses of cognitive testing techniques have shown success as well. This chapter discusses the specific methods of cognitive testing and interviewing applied in this study. The chapter will cover the research setting and research question, which focuses on stakeholder perceptions, as well as the interviewing methodology and cognitive approach.

2.1 Research Setting

The state of Washington is well known for its abundance of wildlife, land and environmental resources. The Puget Sound region specifically has attracted people for years for recreation and economic purposes alike. The Puget Sound incorporates Hood Canal, and the U.S. portions of the Straight of Juan de Fuca and Georgia Straight. It is connected to and interdependent on Canadian waters and watersheds, and consists of nearly 2,380 miles of shoreline. Native Americans living along the river shores and coasts first inhabited the Puget Sound Lowland. The populations likely did not exceed 20,000 members, and may have been closer to 10,000 (Washington State University, 2004). This people group was reliant on harvesting marine and terrestrial plants and animals. The Territory of Washington was not established until the mid-1800s, and done so by fewer than 5,000 settlers (Vaccaro et al., 1998). This population grew rapidly, increasing to 350,000 people by 1890 and 800,000 by 1960. Today, the central Puget Sound region continues to grow in population, reaching a current total of 3,898,720 (Gelfenbaum et al., 2006; Puget Sound Regional Council, 2015), or about 70

percent of the total state of Washington population. The Puget Sound region incorporates, broadly, the areas of Seattle, Tacoma, Everett, Bellingham and Olympia. It is anticipated that the population will increase to nearly 5.33 million by the year 2020.

Puget Sound was created 13,000 to 15,000 years ago, as a result of the retreating and advancement of glacial ice sheets (Booth, 1994). As such, the Puget Sound lowland region is predominantly made up of glacially derived sediment. During the movement of the ice sheets, meltwater from the glaciers and scouring by the ice sheets resulted in the carving of deep troughs that now hold the sounds marine waters and lakes (Johannessen & MacLennan, 2007). The melting of the ice sheets and resulting sea level rise brought about the uplifting of earth's crust beneath the region (Johannessen & MacLennan, 2007). It is thought that during this time is when the unique landscape of the Puget Sound shoreline first began to form. Most coasts, through prolonged evolution of the shoreline, tend to see straightening. However, the Puget Sound coasts are much more immature than many. Erosion and the formation of large spits have straightened some portions of the coast, but much remains in a less cultivated state (Johannessen & MacLennan, 2007). In total, over 805 miles of the Puget Sound and Northern Straights shoreline has been modified in some way, whether natural or unnatural (WDNR, 2001). Beach composition along the coast ranges from mixed sand and gravel to pebbles or boulders in some areas. Most beaches also contain significant shell composition. Coastal bluffs, a defining feature of the shoreline, are the primary source of this sediment deposition to Puget Sound beaches. The bluffs are a result of the regions glacial past, reaching up to 400 feet in elevation. Bulkheads and other shoreline characteristics that hinder sediment movement and erosion lead to significant changes in sediment supply and habitat stability (Johannessen & MacLennan, 2007). Some river deltas have expanded after volcanic eruptions in the region, primarily the Cascade Range

(Collins et al., 2003), and other shoreline sections, as mentioned briefly earlier, have been uplifted or subducted during earthquakes (Haugerud et al., 2003).

While the greater Puget Sound region typically experiences a temperate maritime climate (Gelfenbaum et al., 2006), the waters are generally cold, ranging from 6°C in deep waters to 13°C in surface waters, at its warmest (Gelfenbaum et al., 2006). The Sound has an average depth of 62 meters, and a maximum depth of nearly 370 meters. The region is nutrient-rich and abundant in marine life. Its biological richness includes over 200 species of fish, 100 species of birds, 26 marine mammal species, and nearly 7,000 marine invertebrate species.

To support such a diverse ecosystem, the Sound is also home to over 625 species of marine algae, 6 species of seagrasses and hundreds of species of phytoplankton, all of which are vital primary producers to the communities in the area (Gelfenbaum et al., 2006). The most common marine mammal species include harbor seals (*Phoca vitulina*), California sea lions (*Zalophus californianus*), Stellar sea lions (*Eumetopias jubatus*), and Northern elephant seals (*Mirounga angustirostris*) (Gustafson et al., 2000). As noted, much of the shoreline has been heavily altered and developed to accommodate the millions living near the water. Additionally, this population owns nearly 500,000 boats, sailboats and other watercraft, all of which contribute to further degradation of the regional marine habitat. It is estimated that over 70 percent of the marshes in the area have been destroyed. Such decimation and development has led to an expected decline in many key species of Puget Sound. Many fish and wildlife species have seen dramatic population declines in recent years (West, 1997). Most notably, Pacific herring (*Clupea pallasii*) have declined by 84 percent in the last decade, and surf scoters (*Melanitta perspicillata*) by more than 50 percent (Gelfenbaum et al., 2006). Similarly, common murres (*Uria aalge*) and marbled murrelets (*Brachyramphus marmoratus*) have declined by 50 percent in the same period

(Nysewander et al., 2001). Other species listed or soon to be listed under the Endangered Species Act (ESA) and other protective conservation regulations include bull trout (*Salvelinus confluentus*), Chinook salmon (*Oncorhynchus tshawytscha*), chum salmon (*O. keta*), several rock-fish species (including *Sebastes paucispinis*, *S. pinniger*, and *S. ruberrimus*), and the Southern Resident killer whale population (*Orcinus orca*) (Gelfenbaum et al., 2006). Because many of these species rely, at least in some way, on nearshore environments, it is likely that the development of the region has played some role in the declines.

2.2 Stakeholder Perceptions

As stated, this paper seeks to gain an understanding of stakeholder *perceptions* of whale watching. Perception is a metric utilized throughout a wide variety of fields and is used to measure a range of topics from risk and tourism, to power and social status. For examples of the use of perception as a metric, see Ap, 1992; Bagire et al., 2011; Byrd et al., 2009; Clark et al., 2010; Liu et al., 1987. Hochberg (1956) works towards a clear definition of the term perception, a necessity when using the concept as a measurement. The definition of the term, Hochberg points out, has varied widely throughout its history. The word first had a limited meaning, referring merely to 'sensation' (Hochberg, 1956), but has since widened in definition to include a wider cognition. Hochberg suggests that perception is widely determined based on past experiences and motivations, driven by 'desire and habit' (Hochberg, 1956). John Ap notes that perception and attitude, two intangible terms referring to a persons feelings towards an object, situation or event, are often used interchangeably, however incorrectly (Ap, 1992). Ap suggests that the term perception is a more general term used to indicate 'the meaning attributed' by a person to an object, situation or event (Ap, 1992). Alternatively, the term attitude, Ap defines as a persons 'enduring predisposition (Ap, 1992).' Considering these definitions, for the purposes

of this paper, perception will be defined as a way of regarding, understanding or interpreting an experience, event, image or other factor based on the perceiver's past experiences, beliefs and habits.

Perceptions of whale watching globally have evolved throughout history. Whale watching, as an industry, developed out of the environmental movement of the 1970's and the move away from international whaling (Marrero & Thornton, 2011). Initially, whale watching existed as a small form of coastal tourism, primarily taking place on land (Hoyt & Parsons, 2014). Whale watching was seen as a small-scale activity for those living or visiting specific regions that had developed the industry. Early whale watching tours catered primarily to local school children and wealthy tourists. As the industry grew, people began to see the activity as more than just a novelty experience. Boats began hiring and bringing naturalists and educators on board tours to inform tourists and visitors of oceanic and marine knowledge, and conservation concerns. Still, the industry was new and marine themed fun parks, such as Marine Land and Sea World, were more accessible to the average person. Whale watching remained to be seen as an elitist attraction until it became more widespread in the early 1990's.

Today, the industry has become as accessible, and arguably more popular than marine parks, frequented by tourists and locals alike. This change in the industry brought along an increase in stakeholders, opinions and issues. As the industry grew, a subset of stakeholders began to see the industry as potentially harmful to the whales and environment. Others, locals, saw the industry as a nuisance. Some local residents, living in the area, that once could watch the whales from their backyards or nearby lookout points, now see only the whales followed by dozens of boats. Additionally, increases in boats leads to an increase in boat noise and noise

pollution, leading to the negative perception of the industry. Still others notice only the move from whaling to whale watching and the significant advances in whale conservation that resulted.

As perceptions of whale watching have changed over the years, it remains unclear which perceptions dominate various stakeholder groups. As stakeholders play an important role in policy influence surrounding the industry, both for the protection of the whales and environment, as well as the protection of the industry, knowledge of how they perceive the industry will play an important role in predicting which policies will likely gain their support, and how the industry will evolve in the future.

2.3 Interviewing Methodology

For this research, interviews accompany the pile sort cognitive test in an effort to develop an understanding of the sorting approach taken by the subject. For the purposes of this paper, an interview may be defined as 'the strategic process of gathering information on the knowledge, opinions and experiences of the person being interviewed on a specific subject or problem through observational and inquiry driven discussion.' The method of interview utilized loosely followed an open-ended format. Respondents were asked to explain their reasoning for each pile formed during the cognitive test, including a description of how the terms in the piles related, and what approach was taken by the subject to develop the piles.

Interviews were conducted via remote web-based video communication, through platforms such as Skype and Apple Facetime and ranged in time from 30 to 60 minutes. This allowed for face-to-face contact with respondents involved in the Puget Sound whale watching industry that are not locally based in Seattle. Pile sort stimuli were communicated to the respondents vocally at the time of the interview. This prevented any premeditation on the terms,

and allowed for a more organic, honest sorting. Interviews lasted approximately one hour in length per respondent.

2.4 Cognitive Approach

An interpretation of perception requires a method that allows for a wide range of responses. The method chosen is well established in the fields of anthropology and environmental sciences (Quintiliani et al., 2008; Miller et al., 2015). The pile sort technique is such that it lies in between purely qualitative and purely quantitative methodologies. There are two distinct pile sort methods, unstructured and structured. The unstructured pile sort is one in which the respondent makes a list of all terms he or she can think of in response to the question posed, and then sorts these terms into meaningful groups (Weller & Romney, 1988). This study utilizes the structured technique, in which all respondents are provided with the same pre-determined list of terms to sort in response to a given topic (Weller & Romney, 1988). An interview is conducted upon completion of the pile sort to allow participants to describe the meanings and cognition behind the piles they developed.

The purpose of this thesis is to focus specifically on the use of the pile sort method in analyzing stakeholder perceptions, specifically with regards to touristic activities. This method provides a framework for identifying information from various stakeholder groups on a topic, which can be used in future research. The methodology of the study was designed so that responses may be analyzed with hierarchical clustering, with the use of scaling software. This method has been proven effective through studies such as Miller et al., 2015; Johnson & Miller, 1983, and Shepard et al., 1972. The cluster analysis is designed to distinguish differences in cognitions of whale watching from various industry stakeholder groups.

PART II: *The Case Study: Concept Applications*

CHAPTER 3: Data Collection

Setting up a study in an unbiased, scientific manner is arguably as important as a developing a good research question. Having already looked at the methods for data collection, this chapter will explore the data collection process and how it was carried out to avoid bias. This chapter includes a list of the pile sort stimuli used with respondents, a look into how these stimuli were selected, the software utilized to model and analyze the results, who was chosen to participate in the study and how, and the resultant data collected.

3.1 Selection of pile-sort stimuli

Twenty-five pile-sort stimuli reflect common activities, over a variety of special interests, including recreational, serious leisure and non-recreational activities (3.1.1). The selected stimuli were chosen for their simplicity and common understanding to the general public. Additionally, stimuli chosen cover a range of consumptive and non-consumptive activities. While many of the activities are such that the subject may not choose to participate in them, or have never had the opportunity to, they are activities that are familiar in understanding to the respondents.

3.1.1 Pile sort stimuli

1. Going to work
2. Going to the zoo
3. Going fishing
4. Going swimming with sharks
5. Going on a hunting trip
6. Eating a steak
7. Going paddle boarding

8. Reading a book
9. Walking through a museum
10. Attending a protest
11. Volunteering
12. Going bird watching
13. Going on a hike
14. Going shopping
15. Playing a game
16. Farming
17. Going on vacation
18. Attending a conference
19. Going scuba diving
20. Going spear fishing
21. Cleaning up a beach
22. Collecting seashells
23. Paying annual taxes
24. Going to church
25. Going whale watching

3.2 Anthropac modeling

Anthropac is a free program designed for 'cultural domain analysis,' developed by Analytic Technologies, a small technology firm based out of Kentucky. Anthropac allows for the collection and analysis of data on cultural domains and phenomena. Anthropac's unique development allows for the analysis of a variety of data types that most other programs do not have the capacity for, including freelists, pilesorts, and ratings. The program allows for such analyses as the cluster analysis, used in this study, multidimensional scaling, and correspondence

analysis. The software also allows for data transformations, presentations and management, including recoding, normalizing, standardizing and other normal data adjustment practices.

This study utilized Anthropac's ability to analyze proximity data to compare similarities and dissimilarities in data sets provided by interviewees. The term 'proximity' is used to indicate the level of similarity between data sets. Anthropac performs metric and non-metric multidimensional scaling of up to 180 items. This study utilized 25 different terms for comparison and 18 individual data sets.

Anthropac is a DOS program, designed for DOS compatible operating systems. While most systems today are not DOS compatible, a DOS emulator is necessary for proper functioning of the software. For this research, DOSbox, an open source DOS emulator compatible with Linux, Mac OS X, OS/2 and Windows was utilized. DOSbox works as a platform for launching DOS technologies, such as Anthropac. To import and export data, data files were first converted to Windows compatible text files, then to DOS compatible files that could be read by Anthropac. Data was displayed with the use of UCINET software, an Analytic Technologies software developed for analysis and display of social data. While Anthropac has the ability to display data, it is in the manner of DOS and relatively rudimentary. Display through UCINET provides a clearer, more concise display that represents the results in a readable and simple way, ideal for presentation of scientific data.

3.3 Respondent Sample

Recruitment of interviewees is vital in obtaining viable data. Interviewees widely influence research results, often, as noted by Kristensen and Ravn in their 2015 paper on the topic, in unexpected and unforeseen ways (Kristensen & Ravn, 2015). Consequently, the process of selecting interviewees can be tedious and stressful.

For this study, respondents were selected based on a variety of factors. First, respondents necessarily were involved in the whale watching industry in some way, and may thus be considered stakeholders of the industry. Involvement in the industry was not limited to specific factors or levels of engagement for the purposes of this paper. Stakeholder groups with traditionally differing views were prioritized. For example, environmental groups and animal rights activists' views on animal-centered industries, such as whale watching, traditionally differ from economically focused groups such as tour operations, and both may differ from local stakeholder views, or those stakeholders that are stakeholders simply as a result of proximity. Due to time and resource constraints, respondent groups were limited to only the two key stakeholder groups in the whale watching industry: non-profit, environmentally focused groups and tour operators. Interviewees were contacted initially through email, followed by, in most cases, a phone conversation before the full interview.

Environmental non-profit groups play a large role in the political and social climate of the state of Washington, and cover a broad spectrum of environmental concerns, from whale watching to water quality to waste management. Two organizations were selected for this study. While both companies requested to remain unnamed, both work towards the protection of the Southern Resident killer whale populations in Washington's waters, through education, awareness programs, and policy. Subjects chosen for interviewing not only work at the organization, but also do work specifically focused on killer whales. While the backgrounds of each subject may vary widely depending on their education, their respective work through their organizations provides that they have similar views and goals within the industry. It is these views, outlooks and perceptions that are accounted for and of interest in this study. Variation among characteristics of each interviewee within the non-profit subject group is not controlled

for in this study. However, the software and methodology utilized determine overall trends, still present despite unique variations. Consequently, varietal responses allow for a realistic data set that still represents the overall views of the group.

Tour operators were selected as the second group in the study due to their close involvement in the whale watching industry. As operators, they necessarily have a different stake in the success of whale watching, many of them relying on it as a livelihood. As such, priorities of tour operators are expected to differ than other groups in the industry. Tour operator interviewees were not selected based on experience, or years in the industry. Additionally, because several whale watch tour companies working in Washington waters, interviewees were selected from several organizations in order to remove familial bias. It was important to the study that interviewees, as with those members of the non-profit subject group, come from a variety of backgrounds, interests and levels of knowledge - the unifying factor of their industry involvement being the key focus of this study.

3.4 Pile Sort Data

Environmental Group Pile Sort Data
Labels and corresponding numeric value: (1) Going to work; (2) Going to the zoo; (3) Going fishing; (4) Swimming with sharks; (5) Going hunting; (6) Eating a steak; (7) Going paddle boarding; (8) Reading a book; (9) Walking through a museum; (10) Attending a protest; (11) Volunteering; (12) Bird watching; (13) Going on a hike; (14) Going shopping; (15) Whale watching; (16) Playing a game; (17) Farming; (18) Going on vacation; (19) Cleaning up a beach; (20) Attending a conference; (21) Going scuba diving; (22) Going spearfishing; (23) Collecting seashells; (24) Paying taxes; (25) Going to church
Data:
Respondent1: 10 25 3 4 5 7 8 9 12 13 14 16 18 19 21 22 23 1 2 11 15 17 20 6 24
Respondent 2:

2 8 12 3 5 7 13 16 18 21 22 20 10 17 25 1 4 11 15 19 9 23 6 14 24
Respondent 3: 1 17 20 2 3 7 8 13 14 16 18 22 23 4 9 11 12 15 19 21 5 6 10 24 25
Respondent 4: 1 2 12 15 19 23 3 4 5 7 13 16 18 21 22 23 6 14 24 8 9 20 10 11 25 17
Respondent 5: 2 3 4 5 7 12 13 15 16 18 21 22 23 6 14 1 8 9 17 20 24 10 25 11 19
Respondent 6: 1 11 15 20 24 2 5 10 12 13 18 22 3 4 7 8 14 16 17 21 9 19 23 6 25
Respondent 7: 1 4 8 9 11 12 15 17 19 23 2 3 5 7 13 16 18 21 22 6 10 14 20 24 25
Respondent 8:

2 3 7 8 9 13 14 15 16 18 21 23 1 4 5 6 10 12 17 22 24 11 19 20 25
Respondent 9: 1 24 2 8 9 11 15 19 20 3 5 6 7 12 13 16 21 23 4 18 22 10 17 25 14

Tour Operator Pile Sort Data
Labels and corresponding numeric value: (1) Going to work; (2) Going to the zoo; (3) Going fishing; (4) Swimming with sharks; (5) Going hunting; (6) Eating a steak; (7) Going paddle boarding; (8) Reading a book; (9) Walking through a museum; (10) Attending a protest; (11) Volunteering; (12) Bird watching; (13) Going on a hike; (14) Going shopping; (15) Whale watching; (16) Playing a game; (17) Farming; (18) Going on vacation; (19) Cleaning up a beach; (20) Attending a conference; (21) Going scuba diving; (22) Going spearfishing; (23) Collecting seashells; (24) Paying taxes; (25) Going to church
Data:
Respondent 1: 1 4 12 15 21 2 8 9 19 20 3 5 6 7 13 14 16 17 18 22 23 10 11 24 25
Respondent 2: 1 8 9 10 24 25 2 3 4 5 7 12 13 15 16 18 21 22 23 6 14 17 11 19 20
Respondent 3: 1 4 7 11 12 13 15 19 21 23 2 3 5 14 16 18 22 25 6 8 9 10 20 24 17
Respondent 4:

1 10 11 20 24 2 3 4 5 12 15 17 22 6 7 8 13 14 16 18 9 19 21 23 25
Respondent 5: 1 2 3 4 12 13 15 17 19 5 6 22 25 7 8 14 16 21 9 18 23 10 11 20 24
Respondent 6: 1 14 20 24 25 4 2 9 12 13 18 23 3 5 6 7 8 16 10 11 17 19 15 21 22
Respondent 7: 8 11 12 13 15 18 21 23 25 3 7 17 22 1 2 4 8 9 10 16 19 20 5 6 14 24
Respondent 8: 1 10 15 17 20 24 25 2 4 5 7 8 9 14 16 18 3 22 21 6 11 19 12 13 23
Respondent 9: 1 6 11 13 15 18 2 3 5 8 9 14 17 20 25 4 22 7 12 16 21 23

10 24 19

CHAPTER 4: Analysis and Results

Having completed the data collection, the software ANTHROPAC was utilized to analyze the data according to a hierarchical clustering analysis and proximity matrix. The analysis revealed major groups identified by each respondent group (environmental and tour operators) based on each individual pile-sort. This chapter will provide an analysis and discussion of the results and major groups identified.

4.1 Model Results

Figure 2: This figure presents the data management product of the Anthropac analysis of raw pile sort data. This includes a correlation matrix, showing individual correlations of each term per respondent for the environmental group.

Aggregate Proximity Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		WORK	ZOO	FISHI	SHARK	HUNTI	STEAK	PADDL	BOOK	MUSEU	PROTE	VOLUN	BIRDS	HIKE	SHOPP	WHALE	GAME	FARMI	VACAT	BEACH	CONFE	DIVIN	SFISH	SEASH	TAXES	CHURC
1	WORK	1.00	0.22	0.00	0.33	0.11	0.11	0.00	0.22	0.22	0.11	0.44	0.33	0.00	0.00	0.56	0.00	0.56	0.00	0.33	0.44	0.00	0.11	0.22	0.44	0.00
2	ZOO	0.22	1.00	0.44	0.11	0.33	0.00	0.44	0.44	0.22	0.11	0.22	0.44	0.56	0.22	0.56	0.44	0.11	0.56	0.22	0.22	0.33	0.44	0.44	0.00	0.00
3	FISHING	0.00	0.44	1.00	0.44	0.67	0.11	1.00	0.44	0.22	0.00	0.00	0.33	0.89	0.44	0.22	1.00	0.11	0.78	0.11	0.00	0.89	0.67	0.67	0.00	0.00
4	SHARKS	0.33	0.11	0.44	1.00	0.44	0.11	0.44	0.33	0.33	0.11	0.33	0.56	0.33	0.22	0.44	0.44	0.33	0.44	0.44	0.00	0.56	0.56	0.44	0.11	0.00
5	HUNTING	0.11	0.33	0.67	0.44	1.00	0.33	0.67	0.11	0.11	0.22	0.00	0.56	0.78	0.11	0.11	0.67	0.11	0.67	0.11	0.00	0.67	0.78	0.44	0.11	0.00
6	STEAK	0.11	0.00	0.11	0.11	0.33	1.00	0.11	0.00	0.00	0.11	0.00	0.22	0.11	0.33	0.00	0.11	0.11	0.00	0.00	0.00	0.11	0.11	0.11	0.33	0.11
7	PADDLEB	0.00	0.44	1.00	0.44	0.67	0.11	1.00	0.44	0.22	0.00	0.00	0.33	0.89	0.44	0.22	1.00	0.11	0.78	0.11	0.00	0.89	0.67	0.67	0.00	0.00
8	BOOK	0.22	0.44	0.44	0.33	0.11	0.00	0.44	1.00	0.67	0.00	0.22	0.33	0.33	0.44	0.33	0.44	0.33	0.33	0.33	0.33	0.33	0.22	0.44	0.11	0.00
9	MUSEUM	0.22	0.22	0.22	0.33	0.11	0.00	0.22	0.67	1.00	0.00	0.33	0.33	0.22	0.22	0.44	0.22	0.22	0.22	0.56	0.33	0.33	0.11	0.56	0.11	0.00
10	PROTEST	0.11	0.11	0.00	0.11	0.22	0.11	0.00	0.00	0.00	1.00	0.11	0.22	0.11	0.11	0.00	0.00	0.33	0.11	0.00	0.00	0.00	0.22	0.00	0.22	0.67
11	VOLUNTEERING	0.44	0.22	0.00	0.33	0.00	0.00	0.00	0.22	0.33	0.11	1.00	0.22	0.00	0.00	0.67	0.00	0.22	0.00	0.67	0.33	0.11	0.00	0.11	0.11	0.11
12	BIRDS	0.33	0.44	0.33	0.56	0.56	0.22	0.33	0.33	0.33	0.22	0.22	1.00	0.44	0.11	0.44	0.33	0.22	0.33	0.44	0.00	0.44	0.44	0.56	0.11	0.00
13	HIKE	0.00	0.56	0.89	0.33	0.78	0.11	0.89	0.33	0.22	0.11	0.00	0.44	1.00	0.33	0.22	0.89	0.00	0.89	0.11	0.00	0.78	0.78	0.67	0.00	0.00
14	SHOPPING	0.00	0.22	0.44	0.22	0.11	0.33	0.44	0.44	0.22	0.11	0.00	0.11	0.33	1.00	0.11	0.44	0.11	0.33	0.11	0.00	0.33	0.22	0.33	0.22	0.00
15	WHALES	0.56	0.56	0.22	0.44	0.11	0.00	0.22	0.33	0.44	0.00	0.67	0.44	0.22	0.11	1.00	0.22	0.22	0.22	0.56	0.33	0.33	0.11	0.44	0.11	0.00
16	GAME	0.00	0.44	1.00	0.44	0.67	0.11	1.00	0.44	0.22	0.00	0.00	0.33	0.89	0.44	0.22	1.00	0.11	0.78	0.11	0.00	0.89	0.67	0.67	0.00	0.00
17	FARMING	0.56	0.11	0.11	0.33	0.11	0.11	0.11	0.33	0.22	0.33	0.22	0.22	0.00	0.11	0.22	0.11	1.00	0.00	0.11	0.33	0.11	0.11	0.11	0.22	0.22
18	VACATION	0.00	0.56	0.78	0.44	0.67	0.00	0.78	0.33	0.22	0.11	0.00	0.33	0.89	0.33	0.22	0.78	0.00	1.00	0.11	0.00	0.67	0.89	0.56	0.00	0.00
19	BEACH	0.33	0.22	0.11	0.44	0.11	0.00	0.11	0.33	0.56	0.00	0.67	0.44	0.11	0.11	0.56	0.11	0.11	0.11	1.00	0.11	0.22	0.11	0.44	0.00	0.00
20	CONFERENCE	0.44	0.22	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.00	0.33	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.11	1.00	0.00	0.00	0.00	0.33	0.22
21	DIVING	0.00	0.33	0.89	0.56	0.67	0.11	0.89	0.33	0.33	0.00	0.11	0.44	0.78	0.33	0.33	0.89	0.11	0.67	0.22	0.00	1.00	0.56	0.56	0.00	0.00
22	SFISHING	0.11	0.44	0.67	0.56	0.78	0.11	0.67	0.22	0.11	0.22	0.00	0.44	0.78	0.22	0.11	0.67	0.11	0.89	0.11	0.00	0.56	1.00	0.44	0.11	0.00
23	SEASHELLS	0.22	0.44	0.67	0.44	0.44	0.11	0.67	0.44	0.56	0.00	0.11	0.56	0.67	0.33	0.44	0.67	0.11	0.56	0.44	0.00	0.56	0.44	1.00	0.00	0.00
24	TAXES	0.44	0.00	0.00	0.11	0.11	0.33	0.00	0.11	0.11	0.22	0.11	0.11	0.00	0.22	0.11	0.00	0.22	0.00	0.00	0.33	0.00	0.11	0.00	1.00	0.22
25	CHURCH	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.67	0.11	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.22	0.00	0.00	0.00	0.22	1.00

Correlations between each individual and the aggregate matrix

		1 CORR
1	inf1	0.642
2	inf2	0.653
3	inf3	0.557
4	inf4	0.690
5	inf5	0.692
6	inf6	0.379
7	inf7	0.616
8	inf8	0.438
9	inf9	0.488

Figure 3: Accompanying the correlation matrix seen in Figure 2 are the correlation statistics. Figure 3 shows individual correlation statistics for the environmental group Anthropac results.

Statistics

		1
1	Observations	600
2	Missing	0
3	Minimum	0
4	Maximum	1
5	Sum	160.667
6	Average	0.268
7	SSQ	80.420
8	Standard Deviation	0.250
9	Variance	0.062
10	MCSSQ	37.397
11	Euclidean Norm	8.968

11 rows, 1 columns, 1 levels.

Figure 4: This figure shows the correlation statistics for the entire environmental group, as each respondent's responses relate to one another, according to the Anthropac matrix results.

Figure 5: This figure presents the data management product of the Anthropac analysis of raw pile sort data. This includes a correlation matrix, showing individual correlations of each term per respondent for the tour operator group.

Aggregate Proximity Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
		WORK	ZOO	FISHI	SHARK	HUNTI	STEAK	PADDL	BOOK	MUSEU	PROTE	VOLUN	BIRDS	HIKE	SHOPP	WHALE	GAME	FARMI	VACAT	BEACH	CONFE	DIVIN	SFISH	SEASH	TAXES	CHURC
1	WORK	1.00	0.22	0.11	0.44	0.00	0.11	0.11	0.22	0.22	0.44	0.33	0.33	0.33	0.11	0.56	0.11	0.22	0.11	0.33	0.44	0.22	0.00	0.11	0.44	0.33
2	ZOO	0.22	1.00	0.56	0.56	0.56	0.00	0.22	0.44	0.56	0.11	0.00	0.44	0.33	0.33	0.33	0.44	0.33	0.44	0.33	0.33	0.11	0.33	0.22	0.00	0.22
3	FISHING	0.11	0.56	1.00	0.33	0.67	0.22	0.44	0.11	0.11	0.00	0.00	0.33	0.33	0.33	0.33	0.33	0.56	0.33	0.11	0.11	0.22	0.67	0.22	0.00	0.22
4	SHARKS	0.44	0.56	0.33	1.00	0.33	0.00	0.33	0.22	0.22	0.11	0.11	0.56	0.33	0.11	0.56	0.33	0.22	0.22	0.33	0.11	0.33	0.33	0.22	0.00	0.00
5	HUNTING	0.00	0.56	0.67	0.33	1.00	0.44	0.44	0.22	0.22	0.00	0.00	0.22	0.22	0.56	0.22	0.44	0.33	0.44	0.00	0.11	0.11	0.56	0.22	0.11	0.33
6	STEAK	0.11	0.00	0.22	0.00	0.44	1.00	0.33	0.11	0.00	0.00	0.11	0.00	0.33	0.44	0.11	0.22	0.22	0.22	0.00	0.00	0.00	0.22	0.11	0.11	0.11
7	PADDLEB	0.11	0.22	0.44	0.33	0.44	0.33	1.00	0.33	0.11	0.00	0.11	0.33	0.44	0.44	0.22	0.67	0.22	0.33	0.11	0.00	0.44	0.33	0.44	0.00	0.00
8	BOOK	0.22	0.44	0.11	0.22	0.22	0.11	0.33	1.00	0.67	0.33	0.11	0.11	0.22	0.44	0.11	0.56	0.11	0.22	0.22	0.44	0.22	0.00	0.11	0.11	0.33
9	MUSEUM	0.22	0.56	0.11	0.22	0.22	0.00	0.11	0.67	1.00	0.33	0.00	0.11	0.11	0.22	0.00	0.22	0.11	0.33	0.33	0.44	0.11	0.00	0.33	0.11	0.22
10	PROTEST	0.44	0.11	0.00	0.11	0.00	0.00	0.00	0.33	0.33	1.00	0.33	0.00	0.00	0.00	0.11	0.11	0.11	0.00	0.11	0.56	0.00	0.00	0.00	0.44	0.22
11	VOLUNTEERING	0.33	0.00	0.00	0.11	0.00	0.11	0.11	0.11	0.00	0.33	1.00	0.22	0.33	0.00	0.33	0.00	0.11	0.22	0.44	0.33	0.22	0.00	0.22	0.11	0.11
12	BIRDS	0.33	0.44	0.33	0.56	0.22	0.00	0.33	0.11	0.11	0.00	0.22	1.00	0.67	0.00	0.67	0.22	0.22	0.33	0.22	0.00	0.56	0.22	0.56	0.00	0.11
13	HIKE	0.33	0.33	0.33	0.33	0.22	0.33	0.44	0.22	0.11	0.00	0.33	0.67	1.00	0.22	0.56	0.33	0.22	0.56	0.22	0.00	0.33	0.22	0.56	0.00	0.11
14	SHOPPING	0.11	0.33	0.33	0.11	0.56	0.44	0.44	0.44	0.22	0.00	0.00	0.00	0.22	1.00	0.00	0.56	0.33	0.33	0.00	0.22	0.11	0.22	0.11	0.22	0.33
15	WHALES	0.56	0.33	0.33	0.56	0.22	0.11	0.22	0.11	0.00	0.11	0.33	0.67	0.56	0.00	1.00	0.11	0.33	0.33	0.22	0.11	0.56	0.33	0.33	0.11	0.22
16	GAME	0.11	0.44	0.33	0.33	0.44	0.22	0.67	0.56	0.22	0.11	0.00	0.22	0.33	0.56	0.11	1.00	0.11	0.44	0.11	0.11	0.33	0.33	0.33	0.00	0.11
17	FARMING	0.22	0.33	0.56	0.22	0.33	0.22	0.22	0.11	0.11	0.11	0.11	0.22	0.22	0.33	0.33	0.11	1.00	0.11	0.22	0.22	0.00	0.33	0.11	0.11	0.22
18	VACATION	0.11	0.44	0.33	0.22	0.44	0.22	0.33	0.22	0.33	0.00	0.22	0.33	0.56	0.33	0.33	0.44	0.11	1.00	0.00	0.00	0.22	0.33	0.56	0.00	0.22
19	BEACH	0.33	0.33	0.11	0.33	0.00	0.00	0.11	0.22	0.33	0.11	0.44	0.22	0.22	0.00	0.22	0.11	0.22	0.00	1.00	0.33	0.22	0.00	0.22	0.00	0.00
20	CONFERENCE	0.44	0.33	0.11	0.11	0.11	0.00	0.00	0.44	0.44	0.56	0.33	0.00	0.00	0.22	0.11	0.11	0.22	0.00	0.33	1.00	0.00	0.00	0.00	0.33	0.33
21	DIVING	0.22	0.11	0.22	0.33	0.11	0.00	0.44	0.22	0.11	0.00	0.22	0.56	0.33	0.11	0.56	0.33	0.00	0.22	0.22	0.00	1.00	0.33	0.56	0.00	0.11
22	SFISHING	0.00	0.33	0.67	0.33	0.56	0.22	0.33	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.33	0.33	0.33	0.33	0.00	0.00	0.33	1.00	0.22	0.00	0.22
23	SEASHELLS	0.11	0.22	0.22	0.22	0.22	0.11	0.44	0.11	0.33	0.00	0.22	0.56	0.56	0.11	0.33	0.33	0.11	0.56	0.22	0.00	0.56	0.22	1.00	0.00	0.11
24	TAXES	0.44	0.00	0.00	0.00	0.11	0.11	0.00	0.11	0.11	0.44	0.11	0.00	0.00	0.22	0.11	0.00	0.11	0.00	0.00	0.33	0.00	0.00	0.00	1.00	0.44
25	CHURCH	0.33	0.22	0.22	0.00	0.33	0.11	0.00	0.33	0.22	0.22	0.11	0.11	0.11	0.33	0.22	0.11	0.22	0.22	0.00	0.33	0.11	0.22	0.11	0.44	1.00

Correlations between each individual and the aggregate matrix

		1 CORR
1	inf1	0.494
2	inf2	0.561
3	inf3	0.494
4	inf4	0.438
5	inf5	0.393
6	inf6	0.328
7	inf7	0.338
8	inf8	0.376
9	inf9	0.337

Figure 6: Accompanying the correlation matrix seen in Figure 5 are the correlation statistics. Figure 6 shows individual correlation statistics for the tour operator group Anthropac results.

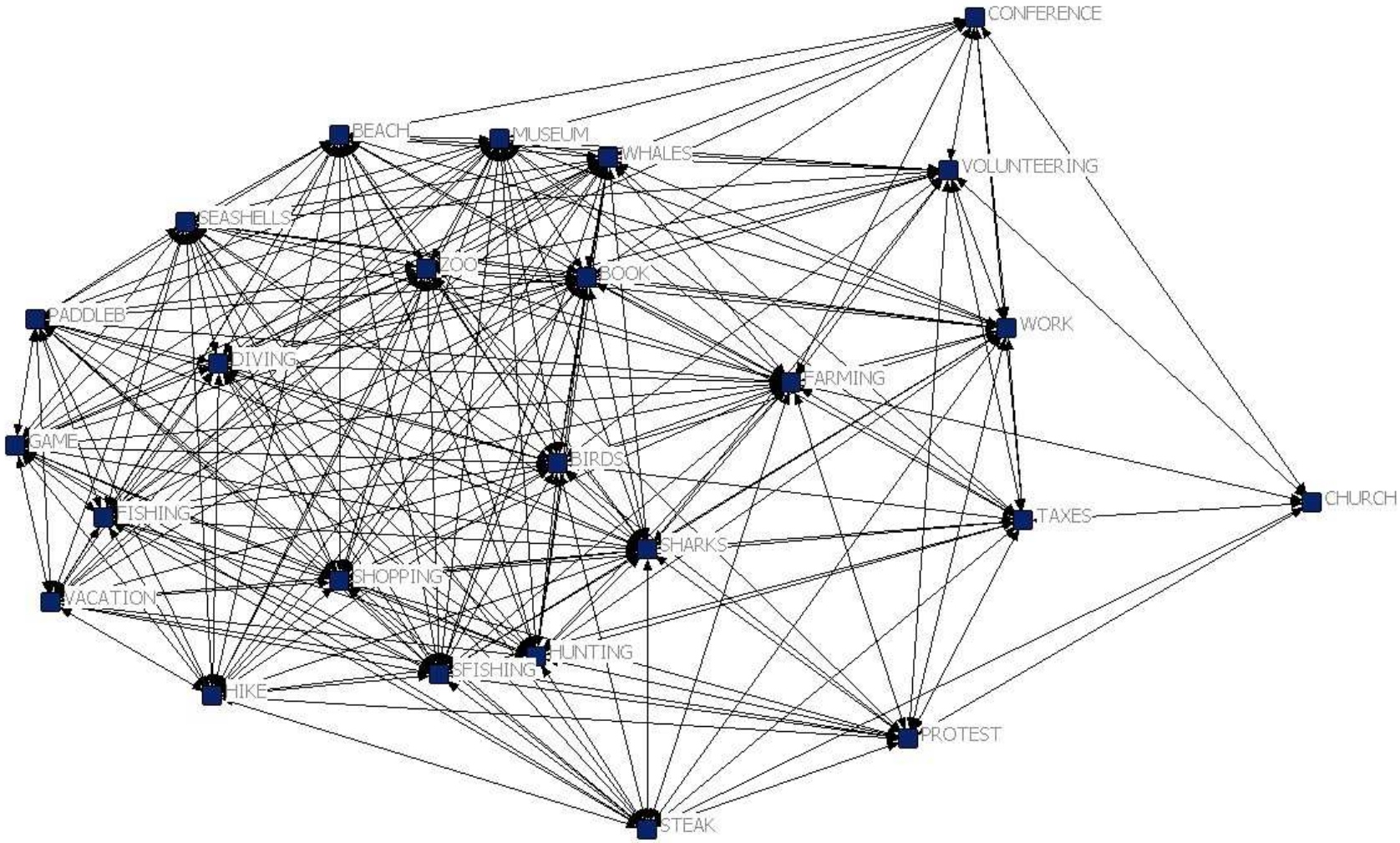
Statistics

		1
1	Observations	600
2	Missing	0
3	Minimum	0
4	Maximum	0.667
5	Sum	137.556
6	Average	0.229
7	SSQ	49.951
8	Standard Deviation	0.175
9	Variance	0.031
10	MCSSQ	18.415
11	Euclidean Norm	7.068

11 rows, 1 columns, 1 levels.

Figure 7: This figure shows the correlation statistics for the entire environmental group, as each respondent's responses relate to one another, according to the Anthropac matrix results.

Figure 8: This figure is a Multi-Dimensional Cluster Analysis output of the environmental group. The image was developed in UCINET as a representation of the (Figure 2) matrix data.



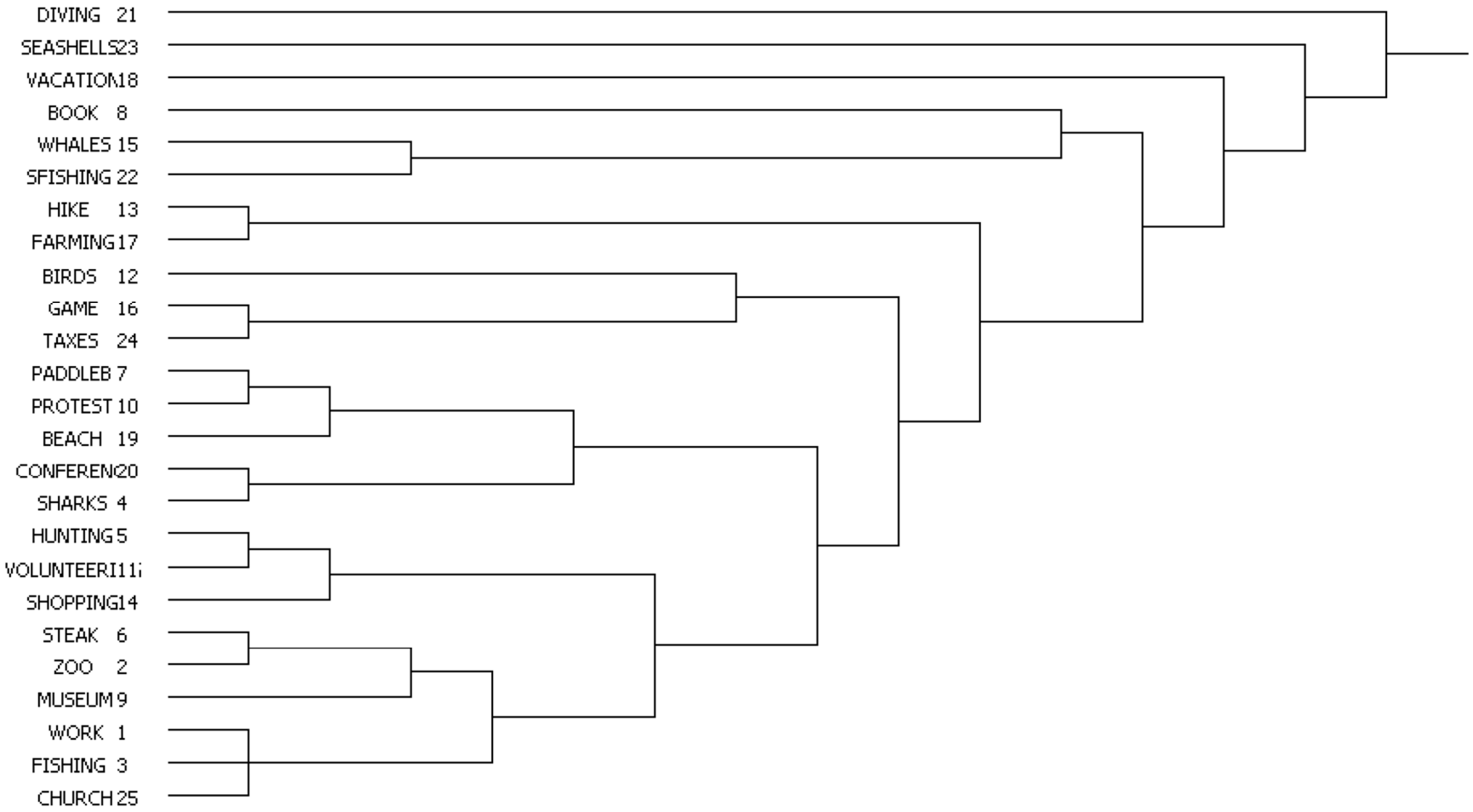
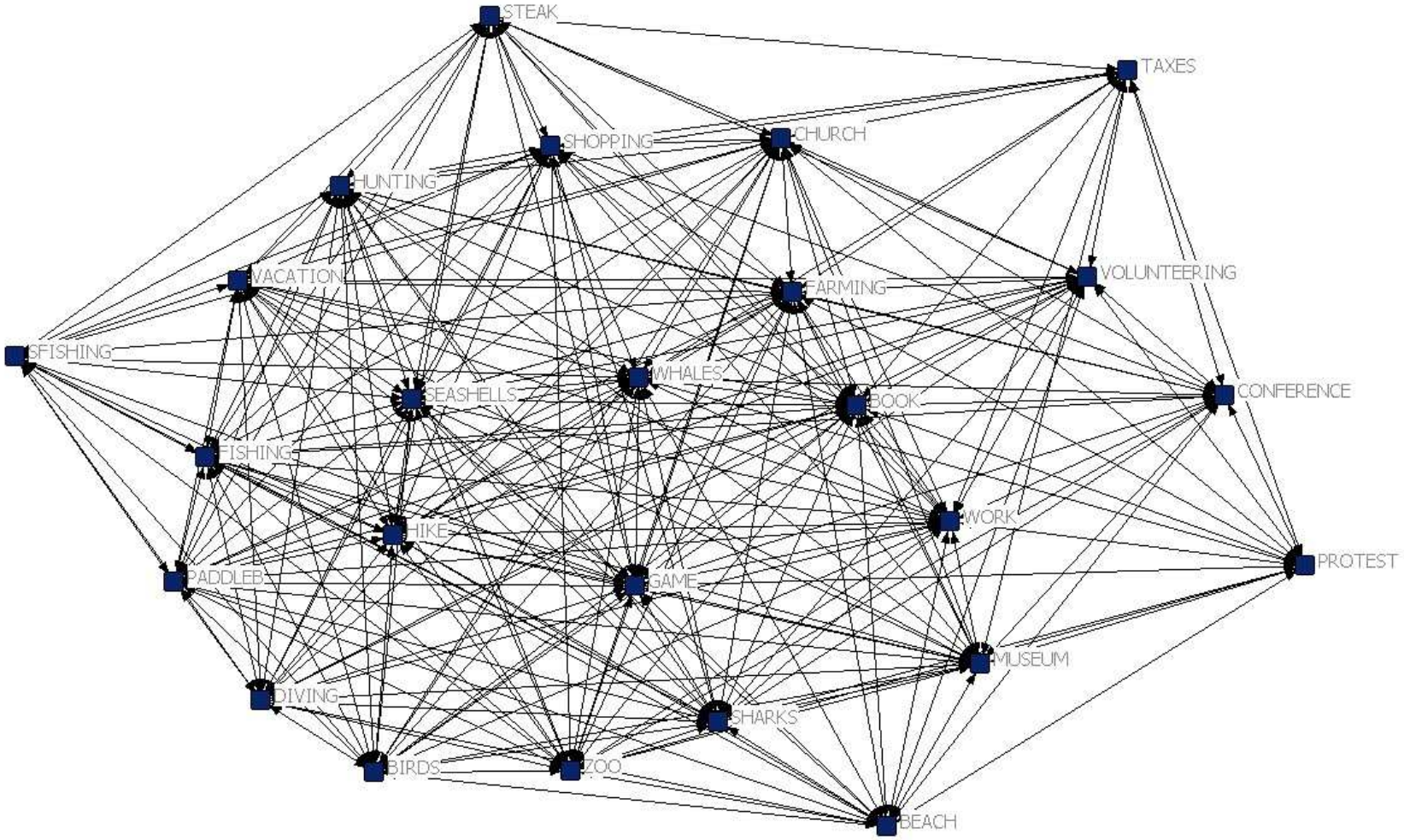


Figure 9: This figure is a Hierarchical Cluster Analysis output of the environmental group. The image was developed in UCINET as a representation of the (Figure 2) matrix data and shows term placement proximity based on responses.

Figure 10: This figure is a Multi-Dimensional Cluster Analysis output of the tour operator group. The image was developed in UCINET as a representation of the (Figure 5) matrix data.



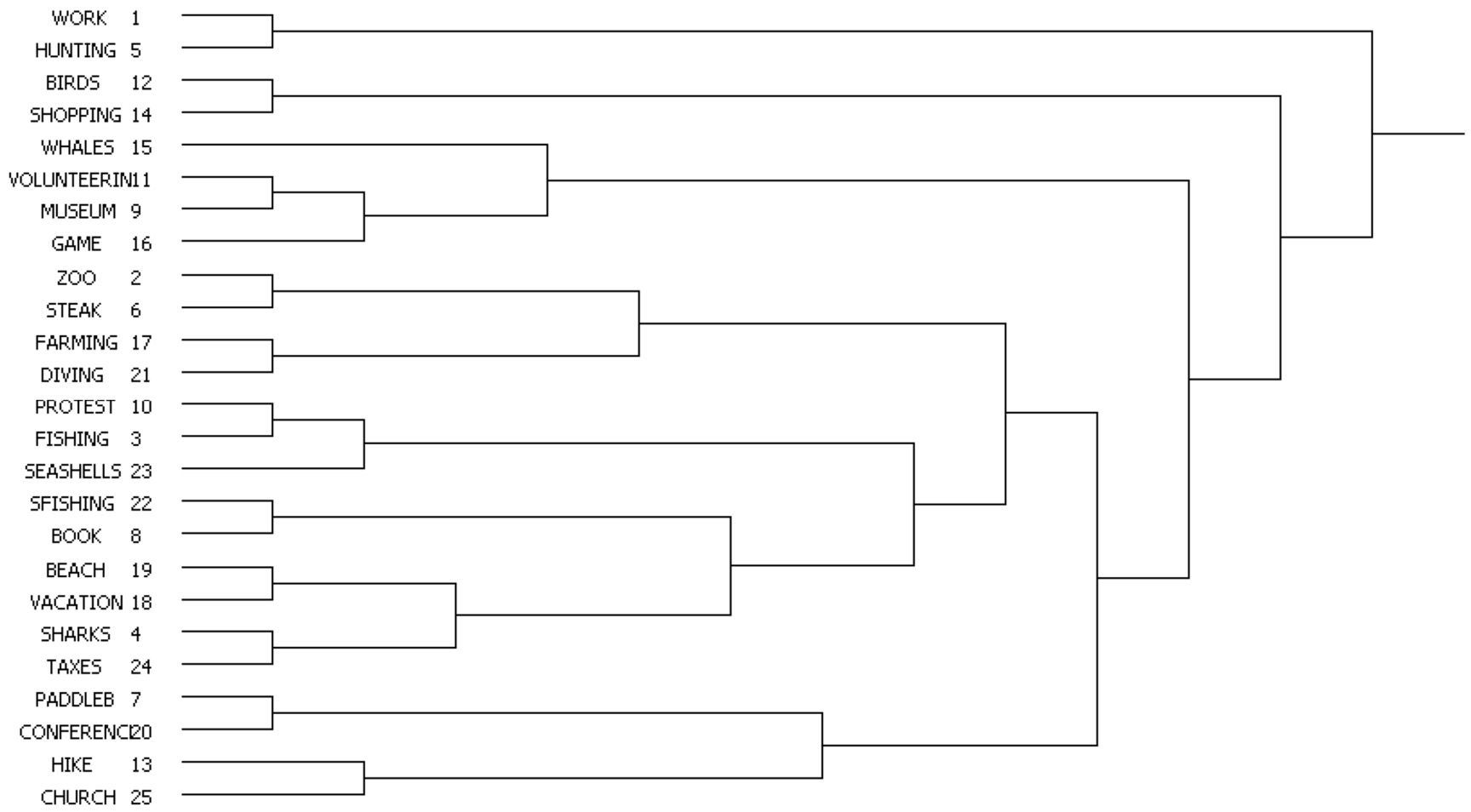


Figure 11: This figure is a Hierarchical Cluster Analysis output of the tour operator group. The image was developed in UCINET as a representation of the (Figure 5) matrix data and shows term placement proximity based on responses.

4.2 Major Groups

Multidimensional scaling, as in the figures below, shows major stimuli groups within each interviewee group's responses. This data combines terms that were most often placed together. The analysis also organizes the placement of said groups based on their similarity to other terms and groups. Groups that more frequently overlap in the placement of their terms appear closer together, while those with little to no overlap appear further apart. This can be seen in both analyses. In the environmental group responses, groups A, B, D and G are placed very close, while groups E and F are farthest from any other groups. In the tour operator example, there is less correlation of specific groups, all terms being quite evenly scattered. However, groups E and F show the most distance and separation from other terms.

These plots are significant in showing placement of certain terms, specifically the focus term, 'whale watching.' Figure 12 places 'whale watching' in group A, along with volunteering, cleaning up a beach, going to a museum, reading a book, going to the zoo, going shopping, and collecting seashells. While the term is listed with other seemingly recreational terms, it is also listed with some environmentally concerned terms (cleaning up a beach, volunteering), and education terms (going to a museum, reading a book, going to the zoo). Additionally, group A's nearest group, and the group nearest the term 'whale watching' is group G, the group listing 'work related' terms. This implies that while most respondents in the environmental group view whale watching as a recreational, educational or environmental activity, primarily, they also closely associate the term with work. Figure 13 also shows a close relationship between 'whale watching' and other recreational terms. However, differing from the environmental group, it seems that respondents in the tour operator group are less likely to relate whale watching to work related activities, as they fall much farther apart on the diagram.

While there is a wide variety of groupings and responses within the individual responses of interviewees, several major grouping trends were repeated within both groups. Going paddle boarding and going on a hike were listed together by 12 of the 18 overall respondents (8 environmental group respondents, and 4 tour operator respondents), or 66.7% of the time. Similarly, going fishing and going on a hunting trip were listed together by 12 respondents (6 environmental group respondents, and 6 tour operator respondents). In 44.4% of cases, going whale watching and going scuba diving were listed together (3 environmental group respondents, and 5 tour operator respondents), and attending a protest and going to church were listed together (6 environmental group respondents, and 2 tour operator respondents). 7 respondents (38.8%) listed reading a book, walking through a museum, and attending a conference together (3 environmental respondents, and 4 tour operator respondents. 7 respondents also listed going on a hike with going whale watching (2 environmental respondents and 5 tour operator respondents). Finally, 6 of the 18 respondents (33.3%) listed going to work, volunteering, and going whale watching together (4 environmental group respondents, and 2 tour operator respondents)

Figure 12: Multidimensional scaling of pile-sort stimuli by respondents in Environmental Group

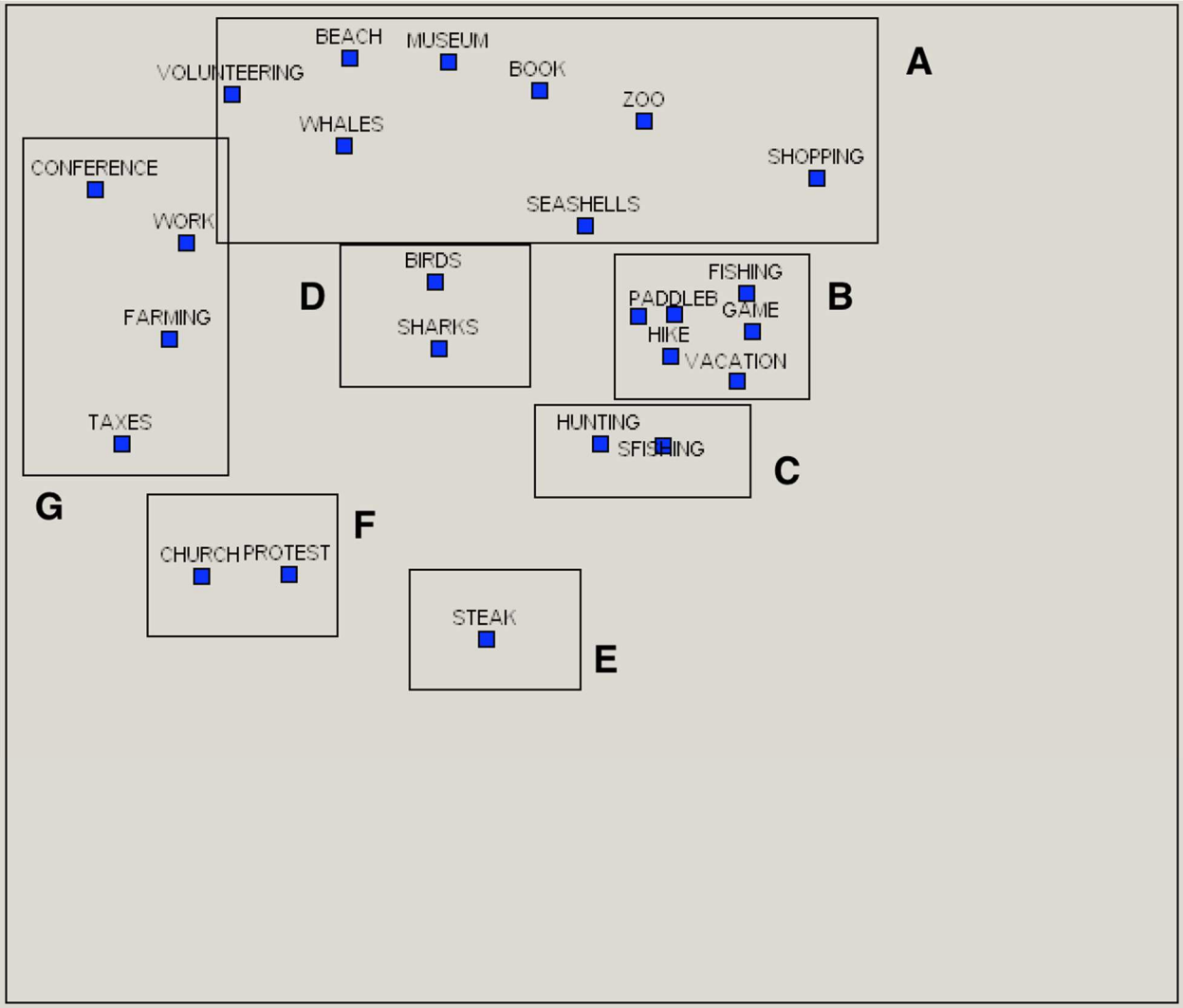
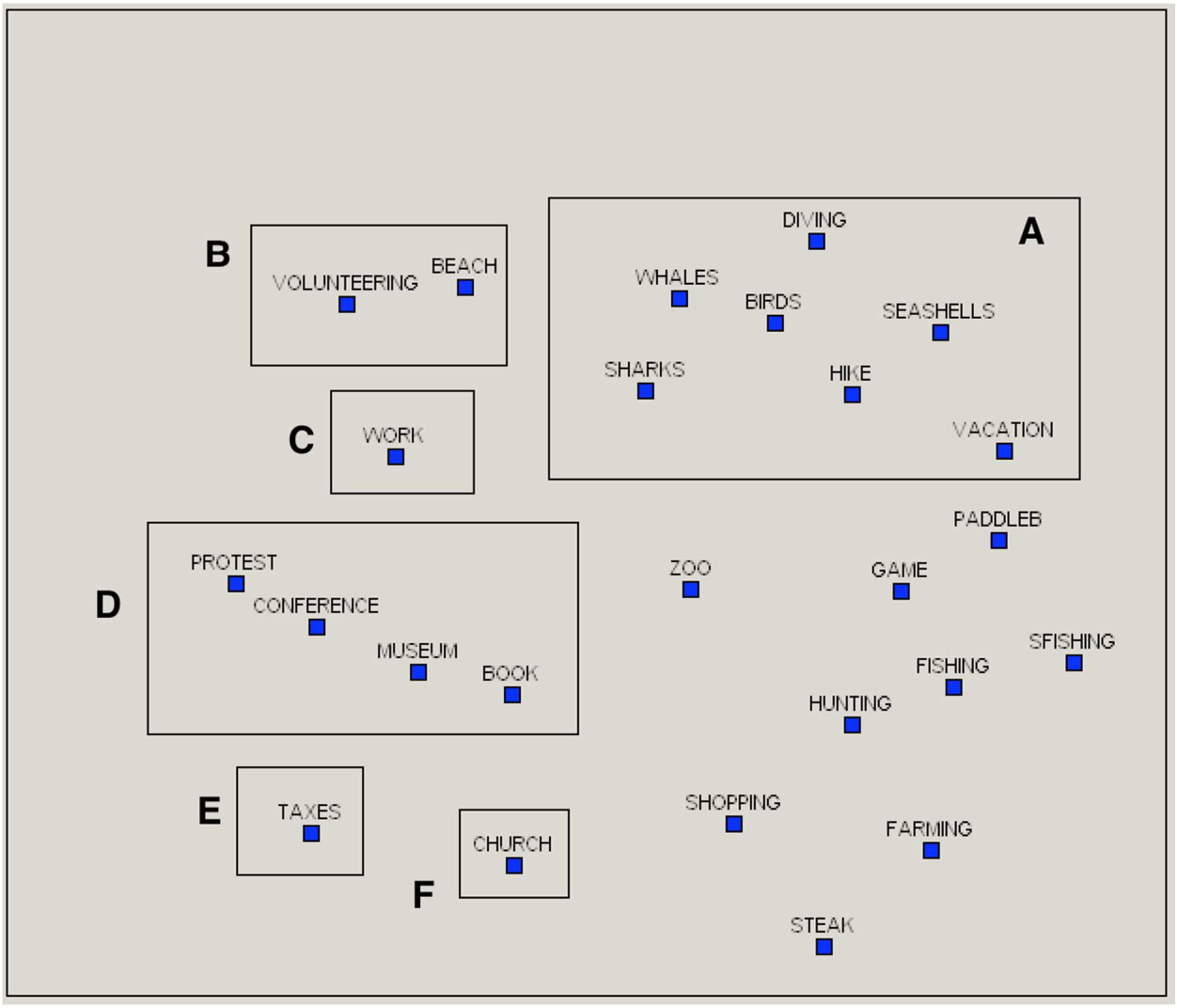


Figure 13: Multidimensional scaling of pile-sort stimuli by respondents in Tour Operator group



4.3 Discussion

Data was analyzed in two ways. First, the raw data was run through Anthropac and proximity matrices were developed (Figures 2 and 5). Second, UCINET was used to represent this proximity data in a comprehensible way. The UCINET analysis produced three different results, as seen above. Findings are replicated in each diagram, as they present the same data. This discussion will break down the analysis in a similar method, following the route of the data, as seen below.

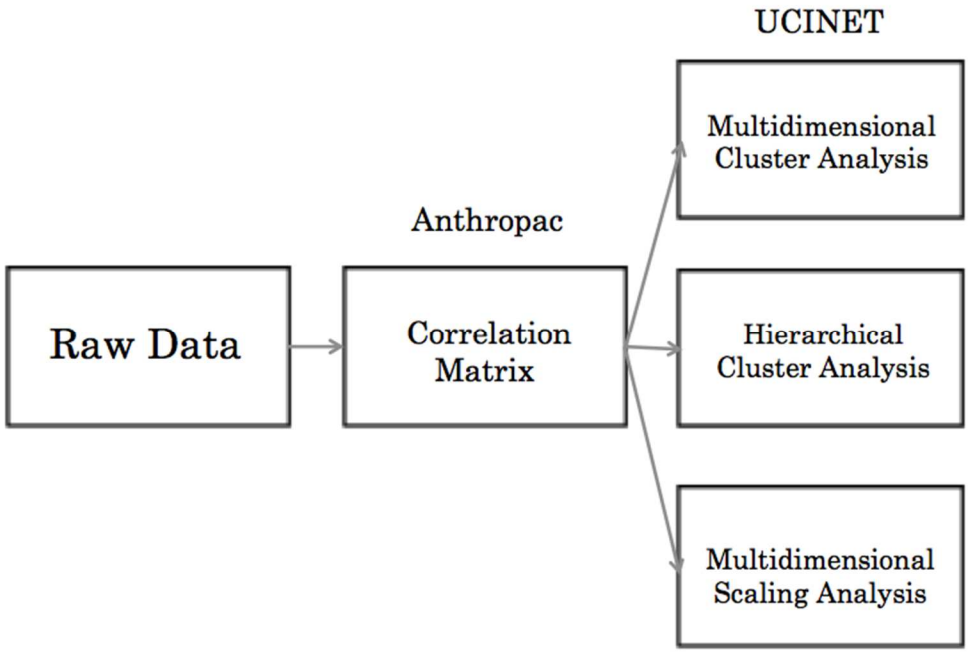


Figure 14: Shows the route of the data, and outputs at each step of the analysis

The selection process took varying shapes for each respondent. However, there were some similarities among those of the same group (environmental and tour operators). First, looking at the environmental group respondents, a brief appraisal of the data shows that interviewees in this group categorized the terms into fewer overall groups than those in the tour operator group. Several environmental respondents also noted the desire to include terms into

multiple groups,[3] which may provide an explanation as to why they opted to include fewer groups overall. The duplicity and versatility of many of the terms in the eyes of environmental respondents meant that many terms could go together. When the terms appear to be less related or connected in the eyes of the interviewee, they will, necessarily, create a greater number of groups. This can be seen among the tour operator respondents. Several respondents in this group, during the post-pile sort interview, made note that the terms were difficult to group, many of the terms not seemingly fitting into any category of other terms. Among the most common terms to be left out, or placed in a group on its own for both tour operator and environmental group respondents, were 'Paying taxes,' 'Attending a protest,' and 'Going to church.' Coincidentally, these terms often were grouped together, if not individually. Figures 8 and 10 display this visually by representing these terms further away from the main group in the diagrams.

This phenomenon is also characterized through the correlation statistics. When looking at the environmental group's statistics, Figure 2 shows the overall group matrix correlations. Figure 3 compares each individual's responses to the overall correlations to develop individual correlations. Figures 5 and 6 function the same for the tour operator group. However, when comparing the two individual matrices (Figure 3 for environmental groups, Figure 6 for tour operator groups), a clear difference presents itself. Figure 3 shows much higher correlations to the overall responses for the environmental group than Figure 6 does for the tour operator group. A higher correlation trend shows that more often, respondents in the environmental group categorized terms similarly to each other, while there was a greater range of response pattern

[3] For the purposes of this study, respondents were asked to only include each term in one group. If the respondent felt that the term could lie in multiple groups, they were asked to place the term into the first, best fitting group. While some pile sort studies have allowed subjects to list the same term multiple times into multiple groups, controlling against this allowed for simpler results, still representative of the respondents views.

within the tour operator group. This links back to the perception discussed above, of whether terms are related or versatile for categorizing. When most members of the environmental group noted that many terms seem related, or could fit well together, they tended to create fewer groups will similar classification patterns. The tour operators view fewer relationships among terms, and therefore were left creating many groups, each respondent with their own pattern. Additionally, the environmental group statistics indicate a higher standard deviation of 0.250 (Figure 4), verses 0.175 (Figure 7) for the tour operator group. A higher standard deviation indicates a greater distance from the mean, indicating more distinct, identifiable groups developed by respondents as a whole, consistent with the above findings.

Figures 9 and 11 each show a hierarchical cluster diagram of responses per respondent group. However, each shows a very low level of similarity between the term 'whale watching' and all other terms. This is particularly true for the tour operator cluster analysis (Figure 11), where the term 'whale watching' is, essentially, listed in it's own group, not related to any term until several tiers up. Figure 9 shows a low similarity between whale watching and deep sea fishing – an interested correlation exemplifying the allowance for individual response in this chosen method, and also indicative of the recreational activity theme identified among members of the environmental group.

Each respondent group showed several themes when categorizing the term 'whale watching.' Respondents in each group included the term with other work related activities or terms. This implies that some stakeholders in both sectors view whale watching as primarily a job. However, within the environmental group, most respondents classified whale watching with either other environmental related terms, or educational terms (Figure 12). This indication of how these respondents view the industry aligns with the overall goals of their organizations – to

educate on environmental concerns and practices. Respondents in the tour operator group more often associated whale watching with work terms, which can be expected as for them, whale watching is more literally their work. However, the theme of environmentally related terms was also present in this group (Figure 13). Results showed that many tour operators interviewed associated whale watching with environmental concerns, an indication that the relationship between conservation and whale watching is continuing to grow. The increasing presence of naturalists on board whale watching tours may have influenced this perception. Additionally, several tour operators associated the term 'whale watching' with other spiritual or emotional terms, such as 'Going to church.'

Within Figures 12 and 13, there are several terms that seem to be between groupings. This is particularly true when looking at the tour operator responses, Figure 13. This is characterized by a term being placed in both, or all, surrounding groups, leaving the analysis to place it between the groups. In Figure 13, let us consider the term 'zoo' (representative of 'going to the zoo'). It seemingly falls between groupings A (going whale watching, going scuba diving, going bird watching, swimming with sharks, going on a hike, collecting seashells, going on a vacation) and D (attending a protest, attending a conference, walking through a museum, reading a book). Group A may be characterized as recreational activities, while group D is characterized by academic or 'work' type activities. When asking interviewees why the term 'going to the zoo' was placed in one group or another, various responses were received. Some felt that it was a recreational activity, or a favorite pastime and grouped it accordingly. Others have work experience at zoos or felt it related to their current or past work. For this reason, there was not a clear consensus on where the term should lie, resulting in it being pulled between two groups. A similar process of sorting can be applied the other terms that exist between groups, such as

'going bird watching' or 'swimming with sharks' in Figure 12, and 'going to work' in Figure 13. The two quotes below characterize the discussed response and conflict of categorizing the term 'going to the zoo'.

- *"I have things that I would – for me personally – list things I've done for employment together – so like, I put whale watching, zoo, work, because all of those things I have done in a work capacity – like I got paid for them" –* Respondent A

- *"I will say, I don't go to zoos that often, but it's really a recreational thing. Sure, there's some learning that can happen there, but you mostly go to zoos for entertainment and fun."* – Respondent B

A key goal of the interview process was to discuss with respondents their background in the industry, how they reached their current job title and their individual outlook on whale watching as a whole. This information better informed the above analysis. Many of those from the environmental field expressed a natural progression of their career path. Most had moved from one environmentally related field to another, although some came from other non-profit backgrounds. Some of the tour operators inherited their position from a family member, in which case they had always anticipated being where they are today. However, those that did not inherit often noted that they found themselves in their current position by accident. Many of the respondents were working in a different field that overlapped, and moved into whale watching for its more lucrative success. The tour operator respondent group showed a greater variety in background experiences than those in the environmental non-profit respondent group.

When speaking on their views of the whale watching industry, all respondents agreed that it could have a positive impact. The tour operators more aggressively declared this to be the case, even noting that it will continue to be a positive, successful industry in light of any policy changes. Those in the environmental group acknowledged the many benefits of the industry, but

more commonly noted that these benefits exist with the assumption of a certain level of care, discretion and abidance of laws.

CONCLUSION

This research has addressed stakeholder perceptions of whale watching in Puget Sound, Washington through the use of an interview and cognitive based analysis. Through this, two questions were answered. First, 'what are stakeholders overall perceptions of the whale watching industry?' Using open ended interviews and the pile sort method of data collection, results show that stakeholders from both groups, environmental and tour operators, associate whale watching primarily with recreational activities. The results also show that those in the environmental group were more likely to associate whale watching with work, environmental and educational concerns than respondents in the tour operator group. Second, 'is the use of interviews and cognitive testing an effective means for studying perceptions?' This study shows that the use of the pile sort and open-ended interviews as a method for analyzing perceptions of stakeholders was effective and could be applied in further studies.

Despite this, there were both benefits and challenges in using this method. The pile sort was successful in providing the desired results. Respondent's views on whale watching and their perceptions of the industry as an activity were obtained. Additionally, the method allows for the collected qualitative data to be analyzed in an analytical way. However, currently, there are limited software programs that are capable of analyzing pile sort data - Anthropac being the only one. As such, knowledge of DOS processing is required for running the analysis. Empirically, the biggest challenge was communicating the method to the respondents. Many respondents felt that the pile sort was too abstract and struggled to sort the piles without input, suggestions or guidance (although none was given). A better-known method, such as a survey or interview, may be more easily and effectively communicated to respondents.

Returning to the Broker-Local-Tourist (BLT) model, it is clear now that this research would prove to be of interest to brokers (both private sector, and civil society – in particular, government brokers) in moving forward with management of the Puget Sound whale watching industry. The research shows that many firms are already thinking of environmental impacts or concerns, and consider it a component of their private whale watching industry. Additionally, the knowledge of coordinated perceptions, to some degree, of whale watching as an activity can help prevent further friction between the groups and better facilitate coordination. When considering locals in the system, this research does not primarily affect them. However, there may be an indirect payoff. If the industry is managed more effectively as a result of a better understanding of and between the two primary stakeholder groups. Locals will have the benefit of witnessing the preservation of the region, and an increase in their own quality of life as a result.

Of course, no one study can provide a complete set of findings on the topic. While this study only looked at perceptions of two stakeholder groups, a study of the cognitions of other stakeholder groups, including locals and tourists, would be beneficial as future research. The interview-based analysis would have applications in studying parks, pollution, climate change and other coastal and marine issues. Parallel studies involving business, cultural anthropology and other disciplines when studying marine affairs could also utilize this method of research.

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APPENDIX I

Pile Sort Disclaimer and Subject Instruction Guide

Pile Sort Data Collection Method

The interview process will be private, and no personal information, information about the company, names, or sensitive material, if gathered, will be released or included in the final report. The interviews will include a "pile sort," in which the interviewee is given a list of terms (every day terms ranging from swimming to eating a burrito to whale watching), followed by a brief open-ended interview. Any sensitive information provided will only be provided at the interviewees consent.

1. Interviewee will be given a list of familiar terms covering a broad range of topics

2. The interviewee will be asked to sort the terms into piles of their own choosing
    a. Piles may have as many or as few terms in them as the interviewee likes
    b. Piles may be categorized in any way that makes sense to the interviewee

3. Upon completion, the interviewer will record the piles developed by the interviewee

4. After the pile sort activity is complete, the interviewer will discuss with the interviewee about their method, thoughts, and categories chosen during the pile sort. Additionally, the interviewer may ask questions to gain further understanding of the interviewee's experience and knowledge.