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RESUMÉ

Le tourisme en nature est en croissance chaque année. Cela fait partie des besoins humains de vivre une expérience en contact direct avec la nature. C'est aussi une recherche afin de découvrir de nouveaux endroits, différents de la vie quotidienne habituelle. Si le tourisme et les loisirs dans ces paysages majestueux peuvent générer des bénéfices pour de nombreuses communautés locales, il peut aussi produire des conséquences négatives. Parmi les effets positifs, le tourisme peut contribuer à la création d'emplois, l'amélioration des revenus et ainsi développer l'économie locale. En outre, cette croissance du tourisme « vert » génère des impacts en milieu naturel. Ces pressions peuvent altérer la faune et de la flore et par conséquent constituent une menace pour la conservation des écosystèmes. Pour maintenir l'intégrité écologique et éviter la dégradation de ces trésors promus par le tourisme, des plans de gestion pour le secteur du tourisme ont été créés. Ceux-ci ont la ferme intention de minimiser les pressions et ainsi promouvoir l'éducation des visiteurs dans ces zones naturelles. Ensuite, la vérification des stratégies de gestion, la communication et l'éducation des visiteurs figurent comme des options d'actions à appliquer dans les activités du tourisme en nature. Par conséquent, l'intérêt dans l'analyse des codes de conduite et le message environnemental (décrit par des guides, des voyagistes et des institutions gouvernementales dans les circuits promus dans les zones naturelles) constitue un sujet majeur de cette recherche. Un autre point primordial de ce travail est l'analyse de la construction, de la transmission et de l'efficacité de ces messages en ce qui concerne la conservation de l'environnement face aux impacts du tourisme et des loisirs. Dans ce contexte, cette étude vise à comprendre comment cet outil de gestion peut contribuer au développement durable dans le tourisme en nature avec un accent particulier sur les zones côtières. Les raisons principales portant sur ce choix sont la gamme d'activités, le contact avec le milieu marin (faune et flore) et de la diversité du public ciblé dans les aspects sociaux et éducatifs. Une étude de cas est développée à Pernambuco au Brésil. Cet état brésilien possède une zone côtière s'étirant sur 187 km, ce qui a dirigé le choix de cette région. Trois activités distinctes sont analysées (Catamaran tour, les randonnées environnementale et Jangada tour). Des barrières dans le processus de communication ont été observées, ce qui peut nuire à la bonne compréhension des visiteurs ainsi qu'à l'assimilation des codes de conduite. Toutefois, la nécessité qu'ont les vacanciers de vivre en contact plus étroit avec la nature engendre des comportements indésirables qui peuvent conduire à des impacts environnementaux que nous ne pouvons ignorer. La diffusion d'une communication efficace dans les excursions et la sensibilisation des visiteurs concernant la préservation des zones naturelles sont un chemin à prendre en considération en vue de minimiser les impacts. Tout ceci contribuera à maintenir l'intégrité écologique des écosystèmes.

Mots clés: communication, éducation, sensibilisation, messages environnementaux, tourisme en nature, gestion du tourisme, codes de conduite, codes d'éthique.

ABSTRACT

Nature-based tourism is increasing each year. This is part of human needs to experience a direct contact with natural environments. This is also a search for discovering new places, different of their usual domestic surroundings. If tourism and recreation in natural landscapes may generate benefits for many local communities, it also produces negative consequences. Among these positive results, tourism may indeed contribute to the local economy, generating employment and income. Moreover, this growth in nature-based tourism imposes impacts in natural environment. These pressures may degrade regions to the point of becoming a threat to ecosystem conservation. To maintain ecological integrity and avoid the degradation of natural environments that tourism may generate, management plans for the tourism sector has been formulated with the intention of minimizing pressures and promote visitors education in these natural areas. Considering all management actions, visitor's communication and education figure as strategy option to be applied in nature-based activities. Therefore, the interest in analysing codes of conduct and messages described by guides, tour operators and governmental institutions in tours promoted in natural areas, circumscribe the main subject of this research. The mainstream of this research is analysing the construction, transmission and efficiency of these messages in regards to environmental conservation in the context of tourism and recreation. In this context, this study aims to understand how this management tool may contribute to the sustainable development of nature-based tourism with a special focus on coastal areas. This type of environment was chosen for this study because of the range of activities they offer including contact with marine nature (fauna and flora) and public diversity in social and educational aspects. A case study is developed in Pernambuco, Brazil. This Brazilian state has a coastal area of 187 km, characteristic that directed region choice. Three distinct activities are analysed (Catamaran tour, environmental walks and Jangada tours). It was observed that failures in communication may hinder visitors understanding as well as the development of appropriate conducts. However, the need of visitors' to experience a closer contact with environment visited create also potential undesirable behaviors and lead to environmental impacts. Effective implementation of communication in tours and visitors' awareness concerning conservation of natural areas is the path to minimize impacts, which helps to maintain ecological integrity.

Key words: communication, education, awareness, environmental messages, nature-based tourism, tourism management, codes of conduct, ethical code.

INTRODUCTION

Tourism and environment: a possible coexistence

This is vacation and expected amusement time for many people, who usually plan a trip; looking for a special place, most of them surrounded by nature. Those planning a trip in nature are eager to find calm areas without a lot of people and beautiful sceneries where they can contemplate and interact with the natural environment. In visitors' dreams, leisure moments in natural spaces are a proper moment to relax in paradisiacal places and perform activities. To visitors, these natural settings are free of urban problems (noise, traffic, pollution, stress, etc.). But the visitors' ideals may be far from reality and these desired paradises appear in tourism advertisements. Untouched environments are rare. Even areas previously considered underexplored as polar and desert regions have been attracting a lot of tourists due to their unique landscape (Weaver, 2001; Grenier, 2003; Stewart *et al.*, 2005). Beaches, mountains, parks and other natural areas are increasingly crowded by tourists, squeezing themselves in small spots, searching interaction with nature at all cost. In visitor's encounters with nature, they want to experience all the emotions they can and a bit more. Nowadays, this rare encounter with singular nature crosses also a competitive dimension, due to the amount of visitors who want to experience the same contemplative or/and interactive sensations promoted by contact with the environment. This increasing search from visitors for raw nature and excitement tends to generate impact, leaving degradation in visited environments. This story is the reality of most natural spaces; especially the ones where humans have more access.

According to Lascurain (1996: 24), "Increased interest in nature and nature travel can lead to problems of overuse and disruption". This is one of the most reported concerns (Hammit and Cole, 1998; Newsome *et al.*, 2002) related to this increasing search for natural paradises. Furthermore, within this perspective of issues associated to leisure in natural environments, the discovery of natural areas has been increasingly facilitated. These facilities are part of a natural process, intensified by the modernization of transportation, the increasing of touristic facilities construction (roads, hotels, touristic spaces etc.), the use of means of communication to show places and its attractions (television documentaries, information about these places available on internet); associated with encouragement of leisure, has given access to those regions previously unaffected and few visited. For McCool and Moisey (2008: 290), the tourism industry is fast discovering new and untouched areas of the globe and these pristine spaces are experiencing the pressures imposed by visitors. Thus, the results of these disturbances are felt through environmental impacts. These statements demonstrate concerns with the conservation of natural resources, main attractions of these touristic activities.

The intensification of human-nature interactions began in the 1970s (Diamantis, 1999: 93) as a result of acknowledgement of unsustainable ecological and global practices that draw public attention to the need of preserving nature. This leads to a human need to experience closer contact with nature. This dramatic growth of nature-based tourism (Mowford and Munt 1998, Hall and Page 1999, Fennell 2003, Franklin 2003) is generally concentrated on pristine land environments and protected areas; however it can also occur in marine environments, coastal areas, forests among others natural settings. Because of this accelerated development, various impacts have been reported by several authors and some of them point out that tourism as in part responsible for the degradation of these environments (Lequin, 2001: 2). In fact, tourism figures as an industry, where the paradises are available to be sold. Nature is a "product" in tourism market, but the consequences of the commodification of natural attractions affect directly and adversely these resources. Impacts affect all ecosystems: soils, vegetation, water and air in aquatic and terrestrial environments. The mentioned increasing and fostering of touristic activities in fragile regions are a threat to the environment. Unfortunately, many environmental issues can be triggered by visitors' abuses of these natural settings.

Visitor's abuses can take on many forms in natural areas. In trails, soils and vegetations are impaired; suffering compaction and degradation when visitors don't stay on designated paths or use inadequate equipment or even the overuse can result in environmental problems. In lakes, powerful boat engines releases oil into waters and induce waves on the shores which promote soil erosion. In parks and

mountains, campers leave their trace by scattering rubbish that pollute and harm wildlife through diseases dissemination for example. At the beaches, abuses involve littering, feeding marine animals, touching and/or stepping on coral reefs, parking on native vegetation, disrespect of zoning areas, carrying capacity exceeded among other perturbations are events likely to happen. These are only a few examples of environmental problems occurring in natural settings. Due to the growth of nature-based tourism, all these environmental pressures may prevail, however it is important to remember that many communities in many countries have nature-based activities as one of its main sources of income.

In fact, in many regions, nature-based tourism figures as an economical alternative to local families. The tourism expansion has brought to these families the opportunity to have employment, a source of income and even increase earnings. In Brazil for example, this assertion is a determinant factor for these families. Tourism development has changed fishermen villages into touristic places. Tourism also has been changing fishermen, household, informal employees and unemployed in tour guides, hostess, tourism entrepreneurs, and tour agents/reps among other touristic segment positions. These are practical examples of how tourism can improve people's life in economic terms. Tourism is established as an important economic sector, contributing to local population subsistence. Latin America's largest country, Brazil has stood out in the global economy due to its accelerating development. From the standpoint of nature-based tourism, this country has competitive advantage in its territory for presenting unique natural attractions. Among these areas we include: the Amazon forest, the Brazilian Pantanal (the largest wetland of the world), thousands of kilometres of unspoilt beaches, in addition to a rich biodiversity (Santana, 2001: 88). Although, Brazil's northern and midwestern region are best known worldwide as nature-based tourism destinations, Pernambuco is highlighted in this study, because of the important ecosystems this state has in its territory such as mangroves, Atlantic forest, coral reefs and a diverse marine fauna.

Aware to this, this research studies nature-based activities taking place at four beaches in the Pernambuco coastline, which are: Porto de Galinhas, Carneiros, Olinda and Itamaraca. This region has important ecosystems that need to be preserved and studied. This research is lead for many reasons in this region of Brazil. The diversity of ecological elements and the multitude of touristic activities performed in nature influenced this choice. In Pernambuco, the presence of 187 km of coast offers visitors a multitude of nautical and marine activities, concentrating the demand for tourist attractions on there. Pernambuco has important ecological elements as remnants of rainforest and many areas of

mangroves and coral reefs. The favourite touristic practices in the region are: "jangada" (typical boat) and catamaran trips to the coral reefs and mangroves, wildlife observation (fishes and seahorses), buggy rides, horse rides, nautical sports (windsurfing, kite surfing, surfing, body boarding, scuba diving, snorkelling etc.) and beach/nature contemplation. These beaches have warm and clear waters, appealing to visitors and investors. This high demand for coastal areas creates the need for visitor's facilities, stimulating the construction of more infrastructure, secondary houses and luxury resorts. Real estate speculation and the rapid development associated with economic opportunities can lead these regions to boosterish, generating social and environmental consequences. The impacts affect ecosystems directly and also have an indirect effect, threatening social and economic interactions in regions disrupted.

In order to preserve ecological integrity and communities activities in the mentioned natural areas, there is necessity to define solutions. These solutions can be represented for management strategies developed by researchers and managerial to mitigate these impacts and continue activities in natural settings. These actions can minimize the paradox involving human necessities and nature survival, maintaining leisure activities without compromising environmental integrity. According to Newsome *et al.* (2002:1), nature-based tourism can be beneficial promoting development and conservation if planned, developed and managed in a responsible manner.

Given the socio-economic and environmental importance of certain tourist areas, why is it so common to come across as having serious management problems? Even though the touristic attraction is relevant to the community, why are there so many difficulties in implementing measures to prevent or minimize the damages and enhance conservation? Taking into consideration the dependence and the need to maintain ecological integrity of natural environments also due to touristic activities, why do so many impacts still occur? Within this perspective and with so many unanswered questions, one still observes a perceived need for scientific research in the field of management that integrates environmental conservation and recreational activities. Although the growth of research in this area and its contribution to tourism and activities is undeniable, researchers (Armstrong and Weiler, 2002; Cole, 2007), however underline the lack of publications that focus on the effects of environmental message developed in the tours. How environmental messages disseminate in tours is the main focus of this research.

Messages, codes of ethics, codes of conduct and conservation promotion as research central point

Management strategies figure as feasible solutions, contributing to natural areas conservation. Among these management tools, visitor's communication and education are able to improve behaviors regarding visited ecosystems. In addition, these management tools can be integrated in any tour through messages, which have in its foundation, principles focusing on codes of ethics and proper conducts. Educational measures (codes of ethics, codes of conducts and messages) may raise awareness to environmental problems and stimulate appropriate behaviors in natural settings if properly addressed. Therefore, the integration of good communication and educational elements may help to manage natural spaces.

Codes of ethics and codes of conduct are messages and therefore represent communication tools. Appropriate conduct is part of messages addressed to visitors and also to nature-based professionals. Information accesses as well as understanding how to behave in the natural environment visited are the main relevant points of messages and codes (ethics and conduct) in natural areas. This figures as essential elements, when visiting natural areas, because each ecosystem has its own characteristics that may be disturbed depending on how visitors behave in environment visited. After all, most visitors don't have enough knowledge about one region and its natural features until they visit it. Furthermore, these management strategies present low cost of implementation which makes these measures feasible. In addition, messages don't need to be conveyed exclusively by a communicator. That is, it is not necessary to have a staff to deliver information. For example, other tools such as signs, folders, and audio can substitute personnel, facilitating its application in all tours.

These codes convey messages that must be applied. Codes compliance appears the major limitation pointed by some authors (Waayers and Lee, 2006; Cole, 2007; Marion and Reid, 2007) as well as the proper utilization of these codes by nature-based professionals. Whereas, various codes of ethics have been developed and published, little has been studied in relation to their message, applications and effectiveness (Mason and Mowforth; 1996; Cole, 2007; Munro *et al.*, 2008). This thesis intends to add more and new knowledge to this topic few addressed. Because of the few publications found on the subject, many questions come up. How can we know if these codes are appropriate? How to know if in fact they have been used appropriately? How these messages could, for example, help in environmental conservation? How these communication tools influence the tourist's behaviour? Or,

how these messages are being communicated? Many questions come to light and deserve to be investigated, in order to add knowledge and values in a field that has a gap of responses.

For all the reasons above, this work focuses on nature-based practices and the environmental message brought forward by tour operators, guides and governmental institutions. Although regarded as an important mechanism for conservation, Buckley (2010: 5) remarks that tour operators could lobby directly on behalf of conservation, but this seems to be a rare practice. However, only through a more accurate research, will it be possible to identify if these messages are been addressed or not and their effectiveness. Thus, this research aims to understand the construction of the environmental message that is being delivered to visitors and how this message translates or not into conservation benefits in the development and management of activities in natural settings.

After literature review covering studies in different regions around the world, it was observed that message construction in nature-based tours is mostly based on visitor low impact practices, laws and regulations regarding resource protection (Armstrong and Weiler, 2002), principles of environmental education and sustainability (Ballantyne and Packer, 2005; Powell and Ham, 2008), information about local ecosystems including biological facts and/or natural phenomena as well as visitors safety precautions (Hughes and Morrison-Saunders, 2002), information about tour operators policies, tour guides general information as educational background, general information of destination as local traditions, culture and people, attractions, accommodations, geography and history and codes of conduct including list of do's and don'ts (Pennington-Gray *et al*, 2005), information about natural attractions and how entertaining it could interact with nature (Muhlhausler and Peace, 2001). Environmental message construction is supposed to appreciate assembling information about the nature visited and its characteristics as well as appropriate behaviors to follow in each natural area. Therefore, this study seeks to understand message construction in order to help tourism professionals to comprehend their possible social and environmental implications integrated in its discourses. Furthermore, environmental message transmission figures as part of this research information collection in order to construe the practice of conducts. In addition, this study also aims to observe visitors behaviors after receiving these messages and communication influence in tourists' behavior. In order to achieve these objectives, the study will analyze the content of messages received by tourists from tour operators and the way it is delivered to them, in order to evaluate the efficiency in their behaviors. This research will be based in three objectives below:

a) study the construction of the message (environmental choices and values);
b) trace and analyse the transmission process (conduct codes and their application) from operators to tourists; and to
c) observe the efficiency of the codes (how this message is received and applied).

Aware that the basis of natural attractions involves sensitive environments, a research that focus on the integration of impact minimization and activity maintenance is fundamental. Studies that focus on tourism practices coupled with conservation management proposals can be beneficial for the region. As mentioned earlier, this research will evaluate how tour-operators, guides and governmental institutions lead with nature-based tourism and its messages. Within this perspective of a region in a developing country, the field work will be administered and the subject, the messages of the tours, will be analysed. The relevance of this research will be the message's content and its influence on the attitudes of participants (guides and visitors) in relation to environmental conservation. This work aims to evaluate the power of this message in theory and in practice, observing the attitudes and behaviour of the participants of these tours and essentially if these messages are able to help in the management and conservation of natural areas. The subject of this research focuses on the analysis of environmental messages and codes of ethics and conducts as feasible management strategies. Verify how these actions can help in the conservation of natural areas is also part of this research objective.

Document structure

This research is divided in six chapters. The first chapter is devoted to the research methodology. In this section reader can find the study purposes, design and approach, strategy, target population, data collection methods, procedures and analyses.

The second chapter examines nature-based tourism and the management tools available for this activity in order to minimize impacts and hence conservation of natural areas. This part also includes an overview of main impacts and management strategies, emphasizing the importance of education, codes of ethics and codes of conduct and its messages as a viable alternative to mitigate the environmental pressures. It also gives an overview of studies in recreation ecology as a way to recognize these impacts and apply management measures as well. This part analyse the nature of deontological and teleological messages in the tourism context, highlighting its characteristics and

application in tours as a management action. In addition, this dissertation approaches the main environmental impacts encountered in Pernambuco beaches analysed on case study and the management strategies used in its regions. A description of each activity analysed in case study is presented as well as the characteristics socio-demographics of visitors surveyed.

The third chapter presents the techniques used in the process of message construction and its functions, basing theory on communication studies. This chapter also focuses on the messages in the framework of nature-based tourism. Environmental values and choices in message construction are evidenced. The case study analysis is also presented, demonstrating how messages are formulated in the specific tours selected. The analyses of the results of nature-based professional's interviews are also exposed, covering important aspects such as environmental policies adopted in activities and their objectives, the target audience focused and the main ideas used in message construction. Furthermore, written materials and videos have also message construction analysed in order to understand the basis of its communication production.

The fourth chapter is devoted to message transmission on nature-based tours. Transmission methods used in tourism are analysed as well as the inclusion and the functions of interpretation and education to enhance its communication process. In addition, barriers hindering message transmission efficiency is one of the subjects integrated in this chapter. Guides roles regarding message transmission are presented. This section also analyses if nature-based professionals have as concern codes application when they convey a message. The case study analysis is exposed, showing how messages are delivered, the main objectives of their transmission and the barriers encountered during the communicative process.

The focus of the fifth chapter discusses what makes an effective message and how this communication can increase the conservation of natural areas in practice through human attitudes. Human behaviour are considered in this chapter and subjects as visitors' motivations to visit natural areas, concerns in relation to the environment visited and attitudes while interacting with nature are examined. This part covers the results of visitors' questionnaires and participant observation on-site in order to identify visitors' perceptions of message communicated and behaviour on-site.

The sixth part presents study conclusions as well as suggestions to nature-based managers and professionals. These recommendations are an attempt to integrate new insights or improve the already

existing message, codes of ethics and conducts. The idea is to contribute to the improvement of communication process in natural settings, enriching the stages of message construction, transmission and efficiency.

CHAPTER I

METHODS

This research involves the analysis of environmental messages (construction, transmission and efficiency) presented in tours and tourists behaviours in natural areas, including communication studies, environmental sciences and human behaviours to compose a multidisciplinary study character. In tourism, the investigation of this phenomenon is particularly challenging, because of the context where this study is developed. The population participating in research are on holidays (tourists) and working (nature-based professionals) in peak season time. That is, address target audience is a delicate task when they are in idle, leisure time (tourists) or too busy (nature-based professionals). In addition, a different scheduled was followed, more specifically the tours agenda and in accordance to nature-based professionals availability to gather necessary data. Despite these mentioned challenges, it was necessary to face them aiming to capture new insights to increase knowledge in the field of tourism. To achieve research objectives an accurate methodology was prepared. This chapter aims to describe the methodology used. For this, some points and their explanations are presented in this part including study purposes, design and approach, strategy, target population and sample, data collection methods and instruments, procedures and analysis.

1.1 Study purpose

The main purpose of this study is to understand how messages (codes of conduct) are constructed, delivered in nature-based tours and how these messages can influence visitors' behavior and contribute to the conservation of natural areas. To attain this comprehension, research focuses in relevant sub-questions prepared to achieve intended objective. Then, this research will analyse:

1. message construction and transmission;
2. messages' environmental values;
3. how codes of conduct are applied in nature-based tours;
4. how this communication process can influence visitors' attitudes towards the environment visited;
5. how this management strategy can help in the conservation of these natural areas and in consequence promote a sustainable development of this segment.

To meet the objectives listed above, descriptive, explanatory and prescriptive stages compose this research. The reasons to select these three research designs are to demonstrate problems in nature, its causes and prescribe possible suggestions to diminish the issue. In fact, this research wants to answer "what", "why" and "how" questions on the presented topic.

A descriptive research is concerned to understand a problem and goes further to examine it. This kind of research design doesn't want to explain relationships or make implications. However, this research design aims to inform about a phenomena, making complicated subjects more understandable (Punch, 2006: 33). A description requires an appropriate question: "What is going on?" (Vaus, 2001: 1). To achieve this comprehension, descriptive research answers the questions who, what, where, when and how, however it is not able to reveal why a certain situation happens. These questions describe data and characteristics about population or phenomenon studied. According to Babbie (2010: 93), description is one of social science research purposes, reporting situations and events, classifying phenomena. Along with this phenomenon, there are problems associated. These issues are composed of social, economic and environmental impacts, the last issue being the major focus of this research. The description of nature-based tourism growth and its implications figure as the social phenomena analysed. However, describe phenomena dimension doesn't explain issues associated to it as well as answer why this social phenomenon is taking place.

Thereafter, this research account with explanatory design, which intends to find out how things work and why things happen (Babbie, 2010: 94). This design is a continuation of descriptive method, however it goes beyond description in order to analyse and explain why certain phenomenon is taking place. Explanatory research answers the whys of a problem, explaining the reasons behind the facts. Then, in this research, explanatory method is able to explain the impacts associated to nature-based tourism and also management strategies to minimise these pressures. Among these management

actions, the analysis of message construction, transmission and efficiency in codes of conduct application in natural settings is done, looking for evidences. At this moment, the whys of visitors' and professionals' specific behaviours in visited environments are explained. Thus, this study intends to demonstrate an assessment of the current available messages (their construction and transmission and influence in behaviour) disseminated in tours (conduct codes and visitor's education, two of the visitors' management strategies) and practices in nature-based tourism. The understanding of the problem can lead to its solution.

Finally, prescriptive study figures as the final step of this research proposal. Description and explanation provides the necessary theorization and problem understanding that supports prescription stage. That is, at this stage, researchers already acquired enough knowledge regarding topic studied and may prescribe recommendations (Finger and Dixon, 1989: 55; Blessing *et al.*, 2009: 16). This design forecasts a solution or solutions for a determined issue, aiming to solve a problem or improve a situation through recommendations regarding this topic. Therefore, this dissertation aims to imply prescriptive ideas to tourism managers in order to encourage the conservation of natural areas through the introduction of new content (s) and perceptions in environmental messages in tours.

1.2 The connection between environmental and human sciences

This research has in its essence multidisciplinary perspectives. First of all, this study focuses on tourism in natural areas and these settings are in evidence. Thereby, there is a need to understand how stakeholders and visitors interact with these environments. The analysis of visitors' management through communication and the application of codes of conducts is focused, however to understand its particularities, it is not possible to rely solely on the study of tourism itself. Because of its complexity, tourism is a field of study in which there is an absence of disciplinary status (Tribe, 1997: 642). Tribe (1997: 643-644) assigns three reasons why tourism can't be considered a discipline such as: 1) "tourism exhibits a number of concepts, which primary pertain to other disciplines and are contextualized in a tourism dimension"; 2) "tourism studies don't provide a distinctive, structured way of analyzing the world"; and 3) "tourism studies don't provide any truth criteria which are particular to itself, utilizing criteria found in its contributory disciplines". Then, taking into consideration the mentioned points, we can comprehend that tourism is a very complex phenomenon and need the incorporation of other disciplines for an appropriate framework. Since this research proposes discussions around human behavior, communicative and environmental perspectives (human attitudes

in natural areas through touristic activities; communication of messages; messages influence in their behaviour), this is not possible to address a single field of study. Thus, environmental, social sciences centered on human behaviour and communication studies are integrated to seek answers, explanations and solutions for these particular phenomena.

1.2.1 Disciplinary approach

Communication is not only a linguistic process, and this practice can be presented in a verbal or non-verbal way. The spoken messages and speeches are clear examples of verbalization. Meanwhile, signs and some behaviour (how to dress, facial expression) are examples of non-verbal communication (Fiske, 2010a: 1). In fact, the main purposes of communication are the transmission of messages, information exchange and generation of meaning (Fiske, 2010a: 2). Although this process sounds to have a practical and simple development, misunderstandings and failures of communication can significantly change the direction of this act. This complexity is increased from the time that this communication is inserted in the context of social relations. Therefore, investigate how messages in tours are constructed (contents) and transmitted (ways to deliver), raise understanding of communication practices fostered in tours developed in natural environments. Therefore, the integration of communication knowledge is essential in order to develop this study.

As nature-based tourism occurs in natural areas, it is clear that environmental science is part of the knowledge's approached in this study. Environmental science is one dimension of science concerned with "how nature works, how the environment affects us, how we affect the environment, and how to deal with environmental problems and live more sustainably" (Miller and Spoolman, 2007: 7). Then, considering that the development of touristic activities in natural areas promote human encounter with nature, triggering problems, which claim for solutions; this approach is appropriate. Given that, the main focuses of this study is related to messages addressed in natural environments, environmental science will be approached taking into consideration the parameters of environmental education.

Environmental education is one dimension of education that consist of understand biophysical environment and associated problems; working to help solving these issues (Stapp *et al.*, 1969: 34). In addition, this discipline aims to promote awareness about the nature around us, demonstrating environment's importance to humanity. Environmental education can be part of most professional

areas, supporting professional's knowledge about the environment. In tourism, this education direction must be present in nature-based tours. Therefore, include environmental education in this study is relevant, because the presence of environmental education in the communicative process is extremely important in leisure activities carried out in natural areas. This statement is advocated, because all nature-based tours must have in their messages educational elements in order to minimize risk and maximize conservation (Orams, 1997: 295). The connection establishment between environment education and message in tours may help manage natural areas. Therefore, analysing if this environmental education is present in tours and its messages is also another proposal of the methodological framework.

Finally, the last discipline associated to this research is behavioral studies applied to visitor's behaviors (Pearce, 1982; Moscardo, 1996, 1999; Pearce, 2005; Budeanu, 2007; Pearce, 2011) in nature-based tourism perspective. This focuses on human behaviour complements the analysis of message effectiveness level when observing visitors attitudes after receiving the information. Observing the possibilities of messages compliance or no compliance through visitor's attitudes may lead to a comprehension of why certain behaviours occur.

1.3 Study design

A form of achieving research objectives is concerned in building an efficient strategy to follow. Through a planned methodology, the researcher is able to collect and analyze data and finally reach a conclusion about the issue studied. To achieve studies objectives, researchers have two research designs available: qualitative and quantitative. This study focuses on qualitative research.

Given that the objectives of this study aim to analyse messages values, its application in tours and posterior influence in visitor's behaviors and sites conservation, a qualitative design seems adequate to achieve such responses. People give their opinion through communication and then their written answers will be really useful to understand messages influence in natural settings. Qualitative approach enables researcher to get involved in participants experiences (Creswell, 2002: 207-208). In addition, qualitative method is also used to collect data about activities and behaviour (Phillmore and Goodson, 2004: 3); this fact reaffirms this choice of approach. Therefore, qualitative paradigm is dominant in this study, because of my interest in face of tour operators, guides and visitor's realities, opinions and

beliefs in natural environments as well as visitor's conduct in tours. Table 1.1 demonstrates pursued goals in the application of qualitative approach.

Table 1.1 Pursued goals in qualitative research

QUALITATIVE RESEARCH	
Objectives	message values
	message application
	message influence in visitors behaviours and sites conservation

Source: the author

Table 1.1 shows the aspects this research will analyse. As mentioned earlier, the idea is to investigate each step of communication such as 1) how message construction occurs focusing in its content; 2) how this message is transmitted in tours focusing in the techniques used; 3) how this communication may induce visitors' attitudes regarding environment visited and consequently site conservation.

1.4 Study strategy: case study in Brazil

As mentioned earlier, this research has as approach dominant qualitative aspects and then the strategy highlighted is the case study. This strategy choice can be justified by some variables. This work focuses on behavioral aspects (the interaction of tour-operators, their guides and customers and in the natural areas as deliverers and receivers of environmental messages) which exceed the dimension of predictable events. Then "a case study is the best way we can refine general theory and apply effective interventions in complex situations" (Stoecker, 1991: 109). Besides mentioned advantage, in a case study, the researcher has several options of data sources as interviews, participant observation, documents (Feagin *et al.*, 1991: 4-8); factors favoring the development of this dissertation. Still in accordance with Feagin *et al.* (1991), this methodology has a holistic approach, permitting researcher to capture people's experiences. This empirical scope is essential to understand behaviors and its complexities.

The case study was conducted in Brazil. This Latin American giant is emerging worldwide for its economy, politics and natural richness. From the standpoint of political issues, the improvement of economic and social conditions of the masses was intensified through social programs. In economic terms, Brazil is included in the group of the seven largest emerging countries in the world. However, despite such wealth, production and new social benefits, Brazil has still many social inequalities,

especially issues related to income distribution. Given that this country has undeniable natural resources, different climates and beautiful regions to explore, tourism appears as a mediator in this socio-economic context. That is, nature-based tourism may enhance local communities' employment possibilities and contribute to diminish economic inequalities. Brazil tourism potential in nature-based tourism and the economic importance of this tourism segment for many local communities and the need of aggregating new researches in this field were the main motivators in choosing this country. Another motivator is the possibility to contribute positively to the local tourism through this study results in the future.

This research examines present natural ecosystems in a determined Brazilian coastal area composed especially by mangroves, coral reefs and Atlantic forest as important vegetation. Therefore, a specific and important biome present in these settings is more focused: the coral reefs. Coral reefs are biologically rich and contain a significant proportion of the world's marine biodiversity (Newsome *et al.*, 2002:57). Wilkinson and Buddemeier (1994: 25) add that many people rely on coral reefs for food, coastal protection and livelihoods. In addition, the promotion of tourism in these areas of outstanding natural beauty figures as a reality in many parts of the world. Caribbean Sea and Australian Great Barrier reefs are significant examples in this touristic segment; however this study covers coral reefs in Brazilian territory.

This research chooses some beaches in Pernambuco state to develop its case-studies. These beaches are named Carneiros, Porto de Galinhas, Olinda and Itamaraca. Unfortunately, only four beaches were selected in this research, because covering 187 km of coastline is a limiting factor in a single study. In Pernabuco state, most coral reefs are close to the shore being easily accessible by boat or by foot. These beach areas are not far from the big city of Recife, allowing a frequent visitor's demand. These combined facilities leverage impacts of human activities. According to Castro and Pires (2001: 363) "these reefs include some of the most heavily impacted areas in terms of human activity on the Brazilian coast". This fact figures as a great opportunity to observe messages influence on visitors' behavior in activities associated to this ecosystem as well as the rigor in constructing and transmitting messages concerned with conservation values.

This case study presents a major limitation. This method involves few places and individuals and then this research is not representative of the general group or population (Yin, 2009:15). In this case, the behaviours here analysed do not reflect all people' conducts. This dominant qualitative study aims to

understand phenomena and then this work doesn't look for standardized and uniform answers. Although this research results won't be widely used in other contexts, this study outcomes can bring out interesting perceptions of visitors and nature-based professionals in the region studied. On one hand, this research outcome should grasp perceptions of the use of messages for tour-operators, guides and governmental institutions and their commitment with environmental conservation. On the other hand, this research results should expose comprehension about visitor's behaviours in this natural setting after receiving a message and also add new ideas and/or improve knowledge on how professionals and managers may act in these localities.

1.5 Target population and sample

Target population consist of the selection of an interest population studied in a research (Bailey, 2008:82). That is, this is the researched population. However, it is not possible to analyse all individuals and/or populations, because this represents too much large of a work in terms of time and financial resources. Thus, this is necessary to choose a smaller group to analyse, representing a population, fact that may also save time and money. A subset of the population is selected and investigates with the intention to gain information about the entire population (Henry, 1990: 11). In this perspective, sampling techniques figure as the most appropriate method to guide researcher to its findings. As Henry (1990: 14) points out "sampling is ultimately a practical means to an end".

The population studied is composed of tour operators, governmental institutions, guides and visitors settled in the natural settings. More specifically, these actors are those present in the activities organized by tour-operators and governmental institution chosen for analysis. In the natural areas, there were independent visitors involved in the same activities, but they were not included in my target population, due to the reasons mentioned earlier. The audience of visitors studied was composed of Brazilian domestic tourist from various regions of Brazil and aged between 18 and 65 years old. Given that most professionals involved in the activities only speak Portuguese, those not familiar with this language, were not included in my sampling. As so, it was not possible to contact and observe foreign tourists present in activities, because they can't understand messages communicated in tours. This indicates a limiting factor in this study.

As mentioned in the last paragraph, this study selected tour operators, guides, government institutions and visitors as target population. However, not all visitors', government institutions, tour operators and guides in Pernambuco can participate in this research. Then, in order to make this study feasible, the data sources will be grouped into samples. There are specifically two sample selection approaches: probability and non-probability. Probability sample selects randomized mechanisms, assuring selection independent of subjective judgements while non-probability sample is determined by subjective judgement (Henry, 1990: 17). By the way of explanation, probability samples know the population that will be selected and every member can be included in the sample and in non-probability samples population is not known. Non-probability-sampling, because this gives me the possibility to access a wide range of individuals, who may provide me diverse data prospects (Bryman, 2012a: 416) as well as help me to understand the complex social phenomena studied (Small, 2009).

Non-probability samples are represented by the following designs: convenience, most similar/most dissimilar, typical case, critical case, snowball and quotas, respecting subjective judgements characteristics. Convenience sample is concerned to select participants who are available and demonstrate willingness to participate in the study. Most similar/most dissimilar, typical case and critical case are also known as purposive non-probability samples. Purposive samples are implicated to select a population based on a particular characteristic aiming to answer questions about a certain issue. Snowball sample identifies additional members to be included in sample. That is, this sample relies on previously identified group members to identify others with the same characteristics. Quotas divide the population group studied in subgroups, which can be based according to gender, race, age among others characteristics (Henry, 1990: 17-23).

This research employs two types of non-probability techniques: convenience and purposive. The idea was to have the possibility to gather variety of answers in the resulting sample. Convenience sample needs to seek tourists who feel comfortable and demonstrate willingness in participating in this research. Then, convenience and purposive designs compose the most appropriate sample strategies explored in the proposed research (Bryman, 2012a: 418). Visitors were selected according to their availability and accordance in participating in the study. Tour operator and guides were also selected taking into consideration this design. Peak season demands; lead me to concentrate efforts in this particular plan. These sample groups are included in convenience sample. Only for the group of governmental institutions purposive sample design was applied. Pernambuco state Environment and Water resources agency and Ipojuca municipality department of environment and technology in

partnership with the Public Relations School were the organizations included in purposive sample design.

This research searched information about cultural data, when intending to find out people's opinions in relation to the environment visited and received messages in tours. Another goal pursued was to understand the communication process occurring in natural environments. To these two purposes, non-probability samples are required (Bernard, 2012: 128). As previously mentioned, the idea of this research is not generalize findings to other populations. This study has in its plans to obtain insights, perceptions in relation to messages in tours in Pernambuco state. Then, non-probability sample design show suitability when these pretensions are admitted. Table 1.2 summarizes how this research intends to approach target population defining its sample type and design.

Table 1.2 Target population and sample

TARGET POPULATION AND SAMPLE		
Sample population	Sample type	Sample design
Tour operators	Non-probability	convenience
Governmental institutions		purposive
Guides		convenience
Visitors		convenience

Source: the author

Table 1.2 associates sample populations to its sample type and design. Tour operators, guides, visitors and government institutions are sampled in a non-probability type; however one part of target population (tour-operators, visitors and guides) is investigated through convenience design while the other (governmental institutions) public is researched through purposive design.

1.6 Data collection methods and instruments

Given that this research aims to analyse these issues of communicative, behavioral and environmental nature in a holistic manner, a qualitative approach is proposed, because it is the one that best meets the needs of this work. To achieve expected results, it was necessary to select data instruments, tools that

help in information collection. In order to reach the desired answers, this study focuses on three different data collection instruments: unstructured and semi-structured interviews, questionnaires with open-ended and closed questions and participant observation.

Interview is a useful data instrument in order to gather important and detailed information to add in a research. According to Weiss (1995:67) an interview is a good way to learn from strangers and researchers can obtain concrete descriptions of situations experienced by respondent, including thoughts and feelings. There are three types of interview: the structured, semi-structured and unstructured (Bryman, 2012b: 470-471). A structured interview is a straight way to inquiry and has a determined sequence in the process of answering questions to follow. Meanwhile, a semi-structured interview rely on a interview guide, however questions may not follow exactly the previous schedule, giving room to the interviewer to ask questions not included in the guide. Unstructured interview is compared to a free conversation where the interviewer responds to worthy points while is being followed up. These last two techniques of inquiry presented have the flexibility as a relevant characteristic, allowing interviewer to adjust interview issues according to its course. For this reason, there are primarily qualitative in its essence. Thus, this research particularly relies on semi-structured and unstructured interviews.

In fact, two interviews were formulated, one more focused on tour-operators and governmental institutions and other prepared for the guides. Interview to guides and tour operators or governmental institutions had a different format, taking into consideration the different functions both professionals realize. Given that this study searched for different answers in these inquiries, this procedure was applied. Considering that tour-operators and governmental institutions are inclined on message construction and also organizational and commercial part of the business, their interview questions are associated with this thematic. In addition, tour operator's questions also focused on the company's environmental policy. On the other hand, guides are the ones interacting with visitors and transmitting messages in natural settings and therefore another interview format was conducted for them. For guides, questions were more related to visitors' behavior, because they have a direct contact with them. Tour operator interview has twelve (12) questions while guides interviews have nineteen (19) questions. As a complement, unstructured interview was applied to the visitors in order to capture their perceptions in relation to this communication process played in activities. These unstructured interviews took place during activities; however inquiry was not conducted to all visitors. Preference was given to tourists who besides answering the questionnaires, needed to express opinions in

verbally. At these informal conversations with visitors, the possibility to enrich and complement written responses was present. The main objective of these administered interviews was to assemble information about environmental messages construction and transmission in natural settings.

A questionnaire presents three main characteristics: information collector to be used later in data analysis, it has a list of written questions and gather information by asking people directly about research concerns (Denscombe, 2010: 155-156). Thus, the questionnaire with open-ended and closed questions is also a data collect instrument administered in this study. Open-ended questions represent a very important tool when a researcher aims to apprehend visitors' opinions, feelings and perceptions of the context they are experiencing. The open questions are intended to capture more information and opinion of the participants. These answers are of fundamental importance for the understanding of behavioural issues. These statements justify the inclusion of this kind of question in visitors' questionnaire. As closed questions, there are multiple choice questions and Likert scale options in the presented material. A Likert-scale question provides the level of respondent agreement or disagreement regarding determined phenomena and therefore this figure as an important measurement of visitors' attitudes in this research (McDougall and Munro, 1994: 120). These questionnaires were exclusively designed to visitors in order to comprehend their motivations, knowledge and concerns about the environment visited. In addition, questions focusing on message construction, deliver and influence of message in behavioural change after tours were also included in the questionnaire. Visitor's questionnaires are composed of fourteen questions, being four closed multiple choice and one closed Likert-scale questions and nine open-ended questions. The questionnaire wasn't formulated to be exhaustive, since visitors' want to enjoy their leisure time.

Observation is a technique, which investigates behaviour, allowing me to gather data from visitor's attitudes on-site. Through this data collection method, researcher can draw conclusions not expressed in verbalized and written methods. In this research, participant observation appears as an accessible and effective way to observe people behaviour and realize knowledge coming from non verbal instruments. Participant observation is defined as "a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture" (Dewalt and Dewalt, 2010: 1). To complement the author's definition, this data collection method comprises a researcher immersion in a group for a certain time, experiencing profoundly focused on target population comportments and conversations. In this study, participant observation has a relevant function of tracing visitors' behavior

in natural settings, especially how they process messages and transform it in attitudes. In addition, this data collection also aims to remark tourism professional's behaviors and if in fact their actions match with their rhetoric. Besides the interviews and questionnaires, the participant observation figures as a point of extreme importance in the understanding of sociological issues, especially the attitudes of visitors and nature-based professionals in relation to the environment in which they are interfering. Participatory observation helped to establish direct contact with participants and this interaction has provided insights into the dynamics of the observed activities. Table 1.3 represents data collection research structure co-relating focused audience with the data collection instruments applied in research process.

Table 1.3 Data collection structure

	DATA COLLECTION INSTRUMENTS			
	Visitors	Guides	Tour operators	Governmental institutions
Interview	Unstructured	Semi-structured	Semi-structured	Semi-structured
Questionnaire	Closed and open questions	_____	_____	_____
Observation	Participant	Participant	_____	participant

Source: the author

This table summarizes data collection structure applied in field research in order to gather information to realize this study. Semi-structured interviews were conducted with tour-operators, guides and government institutions and unstructured interview was administered with some visitors. Only visitors responded questionnaires. Except for tour-operators, other participants (guides, government institutions and visitors) were observed.

1.7 Data collection procedures

Data collection procedures comprise the time to apply research plan prepared earlier. This is the moment to conduct interviews with tour-operators, guides and governmental institutions, to administer questionnaires and interviews with visitors and observe focused actors attitudes through participant observation in pre-determined tours.

The field study was conducted in December 2011 and January 2012. Since it is summer in the State of Pernambuco in this time of the year and therefore the period in which tourist activities are intensified. Two months were needed to accomplish these field research commitments. The first three weeks of this research were designated to interview the governmental institutions selected and access their schedule of activities and define in which activity date I could participate. At this same period, interview with some guides and environmental agents, who acts as guides in the natural settings selected, were administered. To realize the interviews with professionals (guides, tour operators and government institutions), the limitation found was essentially the difficulty in establishing contact, due to the high season period. The other five weeks were more dedicated to visitors' questionnaires, interviews and observations, although the administration of interview with some other tour-operators and guides was also managed. These weeks were also useful in the step of pre-testing my visitor questionnaire. This initial experience demonstrates the need to change or adjust one or two questions in order to reach objectives.

In this research, respondents of self-administered questionnaires were eighteen years old and older. Children weren't approached for primary ethical and understanding issues. In addition, this is assumed that a person over eighteen years and/or older has already experienced certain situations in which he or she could learn values and beliefs and therefore they are able to give opinions on a particular subject. Although, there are exceptions when comparing age and physiological maturity, however, in research context, this statement was the norm.

Questionnaires were administered to visitors after activities chosen to verify the apprehension of messages addressed on these tours as well as the influence of delivered messages on their behaviors. The idea of managing questionnaires after tours contemplates the need to avoid biased answers and/or behaviors, stressing that my participation in activities was to observe. These visitors were also participating in specific activities chosen for this study. After each activity, the best time to distribute questionnaires was analysed. It was necessary to be sensitive to the fact that tourists are on holidays and they don't want to be disturbed during tour.

The activities selected for this field research were catamaran tour in Carneiros beach in an area of environmental preservation, jangada (typical boat of region) tour in natural pools formed by coral reefs in Porto de Galinhas beach and "environmental walks" at Pernambuco beaches (Olinda and Itamaraca) in a government environmental project taking place in summer time and covering all beaches of the

region studied. To participate in the catamaran and jangada activities, the condition of low tide needed to be monitored, because this is the time coral reefs are exposed forming natural pools. Jangada tour and Catamaran tour take place respecting this natural condition. Taking into consideration that Pernambuco state has a coastal area with187 km of extension; this research didn't cover all territory for two reasons: time and cost. In addition, environmental walks at the beach schedule were longer than my stay in the region. Thus, according to their available dates and consent to accept my presence in the activity, two beaches were selected: Itamaraca and Olinda. In order to better demonstrate the Pernambuco coast, a map (figure 1.1) of Pernambuco's coastline is presented below and beaches studied in this research are indicated by an arrow.

Figure 1.1 : Pernambuco coast map
Source : google images

Pernambuco holds about fifty five beaches. Therefore, as mentioned earlier, to investigate all beaches would be unfeasible during this study. Itamaraca and Olinda beaches are located on the north side of coastal zone while Carneiros and Porto de Galinhas beaches are situated on the south side.

All tours chosen have or intend to have an environmental message or conduct code associated. This factor was one of the prerequisites of this research. In jangada tours, since visitors arrived at the beach after tours, this material was presented to them. In the catamaran tours, after the last stage of all day tour, questionnaires were handed out. In Environmental walks at the beaches, questionnaires were distributed after visitors received messages at the beach.

In general, encountering visitors was not so difficult. After having presented myself and having explained the research intentions, most visitors approached agreed to participate in this study. All visitors gave me their verbal consent before answering questionnaires and questions promoted by informal interviews. A minority were not interested or available to participate in the research and claimed to be on vacation at the time. On one of my forays into the field, one of the tourists refused to participate in the study because she thought I was interested in selling her something or asking for money. This was the most unusual and embarrassing situation I underwent during my research process. One limitation found after tours was the competition to approach visitors with vendors selling souvenirs and/or food and drinks. The presence of informal vendors is a common reality on beaches in Brazilian northeastern cities. Visitors answered questions about their motivations, environmental knowledge, frequency in visiting natural areas, concern with environmental issues, and conservation solutions for visited areas, attitudes in regard to the environment back home, message understanding and behavioral changes.

To complement and compare visitors' answers with their real behaviour, participant observation was established in tours. The main objective of these observations was to register behavior of implicated aforementioned research actors. My participant observation followed some criteria depending on the activity performed. This happened because each activity had a different format from the other, so I couldn't determine a general pattern. In the jangada tours, the craft admits a maximum of seven people, including the guide. Then, in the jangada tours, six visitors were watched at a time. In Catamaran tours, a craft admits between forty to fifty visitors, this did not allow me to watch this entire group efficiently. For this reason, a group of ten visitors were observed at time in each tour stop. In the environmental walks, I couldn't observe and compare visitors' behaviour before and after receive a message, as I approached groups of four to five people who were relaxing on the beach. In this activity, the knowledge gained is associated to the understanding of communication process as well as commitment of future behavioral changes.

My foray into field activities took place at various moments and I had two months to gather information to lead my study. To these participations resulted in a total of seven (7) interviews with guides (4), tour operators (1) and governmental agencies (2), ten (10) observations sessions had been realized and one hundred and fifteen (115) questionnaires administered to tourists had been filled. Of these questionnaires, ninety six (96) were classified as valid and were considered in research analysis. The nineteen (19) questionnaires not included in the analysis were declined because they didn't have enough information or presented incomplete answers. Prior to participation in activities, interviews with those responsible for the tours were undertaken, in order to integrate me the directions and goals of each tour. This was essential in analysing the way they conduct their tours as well as the perception they have of the messages broadcasted to visitors.

Thus, the development and sequence of each activity became more understandable. This fact added more knowledge and also ease process of approaching visitors. Table 1.4 summarizes the total amount of interviews, questionnaires and participants surveyed during research period.

Table 1.4 Total collected information

Total research data collection			
	Jangada-tour	**Catamaran-tour**	**Environmental walks**
Interviews	5	1	1
Questionnaires	47	21	28
Participant observation	5	3	2

Source: the author

From seven interviews collected, five correspond to the Jangada-tour, one to the catamaran-tour and one to the Environmental walks. Most questionnaires were gathered in the jangada-tour (47), because I had a chance to participate more in this activity as a participant observer (5 times). In the Catamaran tour, twenty one questionnaires (21) were administered and in Environmental Walks twenty eight (28) participants accepted to answer surveys. It was possible there to observe Catamaran tour visitors' three times (3) and environmental walks participants twice (2).

1.8 Data analysis

Qualitative data were analysed through content analysis, because this method "is used to analyse written, verbal and/or visual communication messages"(Cole, 1988). In addition, this data analysis was chosen, because "it provides new insights, increases researcher's understanding of particular phenomena, or informs practical actions" (Krippendorff, 2012: 24). Therefore, content analysis is the technique that best suits this research.

Occasionally, quantitative data from the study's survey is used to provide an indication of the important scope of the answers given to the participants. The thesis remains, however, qualitative by nature.

1.9 Conclusion

Challenges and limitations figure in this research. First of all as earlier mentioned, approaching tourists in leisure time and tourism professionals in peak season were the main challenges I had to cope with in my field work in order to collect intended data. For instance, I received some refusals from visitors and guides, who didn't want to participate in inquiries. Despite target population denials, I really don't blame these people for the following reasons. To guides and tour operators, summer is the time of the year when they can make more money and they are also very busy. On the other hand, tourists don't want to be disturbed on vacation. Then, I had to be sagacious in order to understand the best time to detain people and administer questionnaires and interviews. Enough material was collected to develop this study; however I could have assembled much more if these barriers didn't exist.

This research has some limitations concerning the analysis of communication process. The major limitation was associated to the difficulty to observe message efficiency for many reasons. For example, I participated in some tours to understand visitors' behavior as well as guides' commitment with message transmission. This fact is already a limit, because I can't say with absolute certainty that all the guides convey a message at all times as well as I can't allege in my study they don't do it in all tours. Similarly, I can't state that tourists behave appropriately or violate codes of conduct in all tours, taking into account the ten participant observations I had the opportunity to keep up with. For instance, in one of the questionnaires responses, many visitors pledged to care more about the environment visited and act differently in next tours. However, the written commitment of visitors doesn't give me any guarantees of future behavioral changes. In addition, visitors' behavioral changes may be

influenced by others factors outside communication context examined in this study. At the same time, due to time and cost I couldn't cover more tours and people and even if I could do it, I would still face this same limitation. In fact, analyses people's behavior is a complex and unpredictable task. In spite of mentioned limitations, I think this works is valuable and representative for managers and professionals seeking ideas and ways to better base and develop communicative processes in tours. The representation of a limited group of people doesn't discredit this qualitative research positive contribution to the context of the field of tourism studies.

CHAPTER II

NATURE-BASED TOURISM AND ENVIRONMENTAL MANAGEMENT STRATEGIES

Observing tourists who visit beaches in Pernambuco (Brazil) is an interesting task, because they show great excitement while in contact with the environment visited. We could compare them to kids in an amusement park, eager to experience the place and what it can offer in terms of fun and discovery. In these leisure moments, the most different visitor's behaviours were observed when distinct management actions were applied. There are those visitors who walk on determined paths and don't feed animals, according to codes of conduct established by guidelines while others don't respect zoning areas, invading theses spaces to take pictures or touch live elements of sensitive ecosystems as coral reefs and mangroves, for example. In this context, we still find visitors who are in doubt about how to behave, demonstrating a degree of shyness and apprehension while demonstrating wrongful attitudes. Other visitors may act according to their intuition. Taking into consideration situations presented, visitor's actions on-site may lead to anthropogenic pressures affecting the ecological integrity of visited ecosystems.

Within this perspective, this chapter aims to analyse the increasing of nature-based tourism and the impacts related to these activities. Management strategies are also presented as solutions to minimize environmental issues. Recreational ecology was embraced as a discipline that analyses impacts and its management in natural areas. After a brief analysis of some recreational activities and its management strategies, the study is centered on visitor education and communication as an action advocated for minimizing environmental pressures in natural areas. One of these strategies is adding ethic codes, codes of conducts and messages in tours adding the function of environmental education to this discussion. To complement this section, this study aims at giving an overview of ethic and conduct codes, its nature and characteristics; and an introduction of how messages are presented in natural leisure areas. The analysis of tourism in the beaches of Pernambuco (Brazil) is presented,

demonstrating environmental impacts and the management strategies in place. The activities chosen for analysis have their characteristics and details presented as well as the socio-demographic aspects of visitors inquired.

2.1 Nature-based tourism: its growth and impacts

Nature-based tourism has been dramatically growing (Newsome *et a.l*, 2002: 1) and the increasing interest of visitors in this touristic segment has been reported since the 1970's (see, for example, Budowski, 1976). It is regarded by some authors as the fastest growing sector within the global tourism industry (Buckley, 2000; Ryan *et al.*, 2000; Wight, 2001; Kuo, 2002). According to The International Ecotourism Society (2005: 3), nature-based tourism has grown 10 to 12% in the international market. This market is also very profitable and it is estimated that the natural area tourism is worth around US$20 billion a year worldwide (WTO, 1998). In this respect, nature-based tourism has been established as an important industry in many countries (Mowforth and Munt 1998; Sun and Walsh 1998; Hall and Page 1999; Fennell, 2003; Franklin 2003). The increasing number of nature-based tourists depends primarily on natural resources as the basis for its attractions (TIES, 2005: 5). Going to Antarctica in order to contemplate the uniqueness of the natural scenery or seeking an interactional experience with the fauna and flora of Banff Natural Park in Canada can be listed as concrete examples of nature-based attractions. However, the popularity of these natural attractions does not come alone. The increasing number of visitors generates negative impacts.

The negative pressures area related to environmental degradation motivated by visitor's numbers and use of natural areas. Recreational ecology is one of the disciplines that help the study of these environmental pressures as a basis for the connection between these impacts, management and leisure.

Recreational ecology is the scientific study of ecological changes associated with visitor activities and effective ways to manage such changes (Liddle, 1997; Hammit and Cole, 1998 in McCool and Moisey, 2008: 23). Recreational ecology literature has appeared with a scientific approach in the 1960's, although the observation of visitors' impacts started 30 years earlier (Cole, 1987; Kuss *et al*, 1990; Liddle, 1997 in McCool and Moisey, 2008: 22). Moreover, according to McCool and Moisey (2008: 30, 31), recreational ecology has contributed to the research of tourism in natural environments in three ways: 1) Visitors using planning and management; 2) Impact assessment and monitoring; and 3) Visitor education and communication. According to Liddle (1997: 4), recreation impacts may affect

plants, soils, wildlife and water. Other authors (Genot, 1997; Wong, 2002) go further and to facilitate comprehension, they classify environmental impacts in three dimensions and their subdivisions such as: 1) pressure on natural resources which comprises energy depletion, water supply, land use and soil erosion; 2) harm to wildlife/habitat and biodiversity loss, including trampling and clearance of vegetation, loss of forest cover, disturbance to wildlife and damage to coral reefs and species; 3) pollution (air, water and noise and solid waste and litter). Since nature-based tourism encompasses different ecosystems (marine, forests, rivers, lakes, coastal areas, rural areas, mountains among others), the pressures on these resources are presented through several different activities.

In terrestrial ecosystems, disturbances in vegetation and soils are commonly reported (Hammit and Cole, 1998 and Newsome *et al.*, 2002). Trampling, soil compaction and erosion are the most common disturbances (Hammit and Cole, 1998 and Newsome *et al.*, 2002). These situations can happen, because visitors leave established pathways and trails to take pictures, it also occurs at sites with considerable concentration of visitors (camping areas). It is due to certain activities as horse riding, off-road bikes and vehicles, walking and hiking, trail and motorcycling and boat launching (Newsome *et. al*, 2002: 84). Damaging vegetation and soil pose also disturbance to wildlife (Newsome *et al.*, 2002: 105). Once chance is established in vegetation composition, loss of biomass can reduce species diversity (Newsome *et al.*, 2002: 85). The access infrastructure (roads and trails) built to support tourism in natural areas also cause damages to terrestrial environments.

The negative consequences are traffic, clearing to road and trails construction, sediment and pollutant runoff, weed invasion and wildlife disturbance due to noise and traffic (Newsome *et. al*, 2002: 95, 96). Road constructions also contribute to habitat fragmentation, decreasing the effectiveness of these habitats, which may affect quantitatively the parameters of local species (Newsome *et al.*, 2002: 97). The overage construction of facilities, as hotels and resorts, in natural areas is also harmful to ecosystems. Depending on how these projects are developed, visual pollution, liquid and solid waste disposal, and degradation of sensitive ecosystems (mangroves, shorelines, parks) may occur (Newsome *et al.*, 2002: 101, 103). Waste may also affect human and animal health (Newsome *et al.*, 2002: 105) being easily diseases vector.

In mountain areas, impacts are also present, including: wildlife disturbance, camping impacts, trail degradation, erosion, damage to vegetation, water, air, noise pollution and litter (Newsome *et al.*, 2002: 119, 120).

In water edges, many nature-based activities are also practiced (fishing, boating, swimming, scuba diving, bathing, kite-surfing, surfing among others). Given this range of practices in natural environment, several impacts can be mentioned as trampling and destruction of the line of riparian vegetation, loss of vegetation, bank erosion, pollution, depletion of fauna and coral reefs and disturbance of wildlife (Newsome *et. al*, 2002: 111,115 and 118). Some examples of actions that can induce these results are boating activities that increase pollution because of combustion products such as oils and fuels (Newsome *et al.*, 2002: 115); windsurfing, sailing and jet skis, disturbance of wildlife (Newsome *et al.*, 2002: 114); fauna depletion can be caused by collection of shells and organisms from rock pools as well as light disturbance from flash photography disturbing wildlife (Newsome *et al.*, 2002: 115, 117); recreational use of motorcycle and beach buggies can destabilize coastal dunes, resulting in erosion (Newsome *et al.*, 2002: 116). Figure 2.1 summarizes impacts observed in natural areas where leisure activities take place.

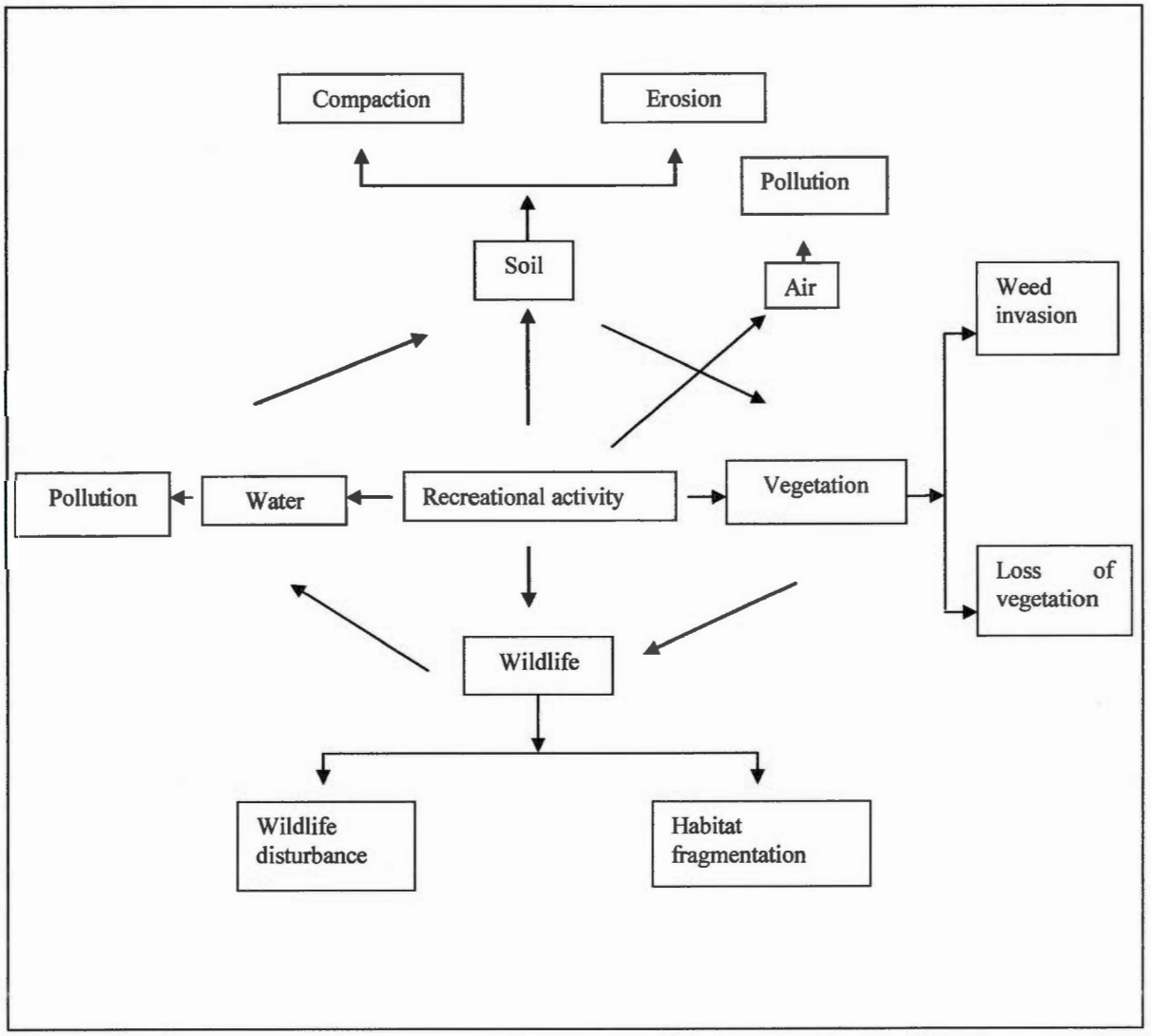

Figure 2.1 Recreation impacts (Based on Wall and Wright, 1977 in Hammit and Cole, 1998: 6)

The core idea of this figure is to demonstrate how tourists performing recreational activities can affect directly and indirectly ecosystems. In addition, these natural environments are interconnected and a single disturbance can trigger a chain reaction, affecting biotic (animals, plants and bacteria) and

abiotic (water and soil) elements. As an example, recreational activities which generate pollution in water and soil may contaminate habitats including flora, harming aquatic, terrestrial animals as well as birds in many ways such as: 1) facilitating disease contamination and death through waste; 2) changing animals eating habits; 3) disrupting the reproductive process; and 4) extinction (Hammit and Cole, 1998 and Newsome *et al.*, 2002). In fact, this represents a minor example of how harmful actions can cause an imbalance in the environment visited, reaching all natural components of the system. To increase understanding in relation to the impacts presented, table 2.1 categorizes the negative consequences cited. Then, this table presents impacts concerning different environments (terrestrial ecosystems and water edges), element (air) and animals (wildlife) as well as the agents (tourists, operators/guides and facilities in general) causing impacts in a direct and indirect way. To be as clear as possible, the letter x associates the impact to the agent and conversely the agent to the impact.

Table 2.1 Impacts classification

			Agents		
		Impacts	**Tourists**	**Operators/guides**	**Facilities (transport, accommodation, camping areas, marines, piers etc.)**
Terrestrial ecosystems	**Vegetation**	Trampling	x	x	x
		Clearing			x
		Weed invasion	x	x	x
		Loss of biomass	x	x	x
		Pollution	x	x	x
	Soil	Compaction	x	x	x
		Erosion	x	x	x
		Pollution and Pollutant runoff and sediment			x
Water edges (coastal areas, rivers, lakes)		Pollution (solid and liquid waste)	x	x	x
		Erosion	x	x	x
		Loss of vegetation	x	x	x
		Depletion of fragile ecosystems (mangroves and coral reefs)	x	x	x
Wildlife		Reduction of species diversity	x	x	x
		Habitat Fragmentation			x
		Disturbance	x	x	
		Traffic	x	x	x
		Noise	x	x	x
		Depletion of fauna	x	x	x
		Decrease of habitat effectiveness			x
		Pollution (solid and liquid waste)	x	x	x
Air		Pollution			x

Source: the author

As observed in table 2.1, the establishment of facilities is the external agent that affects all natural elements listed. Tourists and tour operators' conducts are also harmful to the environment and these agents also generate the several disturbances presented above. Environmental pressures as clearing, pollution run off and sediment and decrease of habitat effectiveness aren't directly produced by tourists and operators. Within this context of impacts influenced by nature-based tourism activities associated with findings and knowledge accumulated from recreation ecology studies (Leung and Marion, 2000 : 24), many management strategies have been formulated in order to minimize nature degradation. In fact, there are management actions that can be applied in the most diverse situations and this is approached in the next chapter section.

2.2. Management strategies in nature-based tourism

Once these pressures represent a threat to visited ecosystems, management measures have been designed to attenuate impacts, in natural and urban spaces, comprising a touristic attraction. The plethora of management strategies and actions developed include: the creation of protected areas, zoning, site restoration, site management actions (roads and trails, built accommodation and other facilities), regulating visitors (numbers, group size and length of stay), eco labels, accreditation and certification, best practices, licences, environmental management systems and finally visitor communication and education (Newsome *et al.*, 2002). Why do so many impacts still occur and prevail even with us being aware - or – if we are aware of all these management strategies and actions available? Certainly, there are many management available tools; however there are also many limitations in their application.

Within this management perspective, each strategy and action appears to be interesting, but in practice their implementation depends on scope, region, type of ecosystem, population education and culture in regards to measures acceptance and costs of implantation. For example, zoning seems to be a good solution, as this action reserves area for environmental protection and other areas for public use as part of their recreational activities (Newsome *et al.*, 2002: 196). Zoning is also known as a physical control (barriers, paths, boardwalks), trying to influence visitors' behaviours in some way (Orams, 1996:83). However, protecting a certain area does not guarantee that it will not be explored in the near future, because zoning needs to have a continuous management (Newsome *et al.*, 2002: 197) to keep its purpose of conservation. While evaluating the management actions, site restoration is a measure not applicable to all environments, which depends on ecological conditions, demanding time and money to re-establish. There are situations where it is easier and more profitable to change the paradise to be

explored instead of restoring it. While in other cases the site is so ecologically worn that a recovery is unfeasible or too expensive. Mallorca Island (Spain) figures as an example of how tourism can cause degradation in a short period. Because of the large coastal exploration, the island has a serious problem of water supply and sand erosion. In order to curb these environmental issues, Spanish government spent more than 40 million euros and the results weren't enough to contain water and soil questions (Garcia and Servera, 2003: 288).

Another issue much discussed in tourism in natural areas is to limit the number of visitors (based on the concept of carrying capacity). This strategy represents a direct control, restricting the amount of people in a given area. According to Coccossis (2004: 12), this term is a dynamic concept with spatio-temporal characteristics, which can change depending on time and place. Given this statement, the carrying capacity can't be just regarded in a quantitative view, however qualitative factors as tourist types may be analysed. Thus, the problem is how and when to apply this regulation. Furthermore, the relationship between the amounts of use is not linear, and reducing the use will not necessarily reduce the impacts (Newsome *et al*., 2002: 213). In some cases, depending on people's actions, a small group can damage the environment more than a large group could. For instance, the whale watching tours offered in small boats like the Zodiac is composed of small groups of about ten tourists. However, these tours come as close as possible to the whales, being harmful to this mammals. This apparently benign activity stresses the animals and may endanger the viability of whales' population (Lusseau and Bejder, 2007: 231).

Certifications, accreditations, eco labels and best practices are ways of encouraging tourism professionals to act in a responsible and self-motivated way (Newsome *et al*. 2002). In the case of certifications, accreditations and eco labels, these symbols represent a pattern, but they can't substitute good business practices (Center for ecotourism, 2009: 21). That is, the fact of being included in these concepts does not necessarily mean they offer an environmentally friendly service. Licences figure a certification or document giving official permission to engage an activity (Newsome *et al*, 2002: 232). This is usually a bureaucratic process, which limits this action. Environmental management system consists in a set of management actions including organizational structure, responsibilities, procedures, processes and resources for determining and implementing the environmental policy (Center for ecotourism, 2009: 24). EMS is a complete management strategy, however it can take a long time to be established and it also has a representative cost undertaken in each stage of the process. Then, most of these strategies mentioned tend to become a strategy of difficult application and/or in many cases not

feasible, especially for its restrictive character. Unlike the measures presented, there are other strategies less restrictive and widely accessible to all managers such as visitor's education and communication.

Visitor's education and communication has several advantages and can be applied in most situations. Some authors state that visitor's education is one way to minimize impacts (Western, 1993; Lascurain, 1998; Diamantis, 1999; Fennel, 2003). Communication and education can be applied from the most primitive to the most developed settings, support other more direct approaches such as restricting access, and give to the visitors opportunity to make the right choices (Newsome *et al.*, 2002: 218). In addition, education and communication present low cost in implementation and tourism professionals have the opportunity to apply these methods during interaction with visitors. Education is a powerful way to manage natural areas, because from that point on visitors can be aware of conservation issues and be environmentally conscious. Within this educational perspective, environmental education and interpretation are techniques that can be used in order to "educate" nature-based tourists (Orams, 1995; Luck, 2003).

Being able to interpret a natural area gives visitors a sense of appreciation, awareness and understanding that makes their experience more enjoyable (Weiler, 1993). Tilden (1977) defines this strategy as: "an 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". Interpretation can be disseminated through signs and plates, interactive displays, video screenings and personal information promoted by tour guides (McArthur and Hall, 1996). Therefore, constructing and transmitting a message isn't just giving over words, information. It is more than that, education through communication is an opportunity to instill values, building new ideas and ideals in listener's minds. Thus, a good interpretation can transform seemingly unattractive tourist spots in fascinating places, as well as a poor interpretation can obscure the real value and brightness of amazing landscapes. These moments of interpretation introduce the scope to disseminate code's messages, fulfilling its functions in the communicative process, to inform and educate at the same time. According to these statements, environmental education and communication are essential management functions for every recreational area in natural environments, since environmental conservation figures as an important issue.

Some ways to educate globally comes through codes of ethics, codes of conduct and messages that express an intrinsic willingness in the application of these viable ways of behaviour. It is noteworthy that codes of ethics and codes of conduct are different in relation to its approaches. The first code "portrays the ontological profile of the organization" (Fennell and Malloy, 2007: 16), expressing company organisational philosophy. The second one outlines the practices of an individual, party or organization. Then, ethic codes and codes of conduct communicate desirable professionals and visitors' behaviours with educational elements. This single management strategy integrates education and communication. Table 2.2 classifies management strategies associating them to the elements being managed, indicating them with an x.

Table 2.2 Classification of management strategies

	Management strategies and elements associated		
Management strategies	**Site**	**Visitors**	**Tourism industry**
Creation of protected areas	x		
Physical control (zoning, barriers, paths, boardwalks)	x	x	
Regulate use: number, group size, length of stay, enforcement	x	x	
Restoration	x		
Ecolabels			x
Accreditation			x
Certification			x
Best practices			x
Licences			x
Environmental management system			x
Communication, Interpretation and education		x	
Codes of ethics, codes of conduct		x	x

Source: the author

This table indicates the direct management actions used by the tourism industry, site and visitors' managers in order to contain or minimize environmental impacts. By analysing these presented strategies, one may conclude that site managers usually apply corrective (restoration) and/or restrictive (physical barriers, protect areas visitors, regulation) measures; visitors usually employ communication and educational actions while the tourism industry uses regulatory strategies in order to demonstrate business engagement with the environmental cause.

2.2.1 Ethical nature of codes

In tourism, ethic codes and codes of conduct can be presented by its deontological or teleological nature. From the standpoint of ethics, tourism codes have the propensity to be presented through two ethical schools: deontology and teleology (Fennell and Malloy, 1999: 929). The deontological foundation is based on Immanuel Kant's work *Metaphysics of Moral* (1785). It has an imperative character, advocating the function of ethical behaviour as a duty (Fennel and Malloy, 1999: 929). Deontological approach principles are in accordance with rules, policies and procedures, not providing justification or reason for action. Acting properly is mandatory (Fennel and Malloy, 1998: 455). This position also argues that the rules are homogeneous across industry or cultural boundaries. In other words, a particular practice should be the same anywhere in the world (Fennel and Malloy, 1999: 930). In addition, it is a way to assess right according to rules and duties (Cole, 2007: 444). Therefore, visitors must follow that "order" (rule) without questioning why. One way or another, deontological principles lead visitors to act without thinking about their actions. At this point, this ethical nature has consequences far more negative than positive, while visitors don't understand the main reasons to follow the rules. Then, these people are more likely to disobey the impositions and, if they agree to follow the rules, they won't understand the real purpose of that commandment. The rules are presented; however with great chances of being easily ignored.

In contrast, the teleological principles are quite distinct. The teleological approach is based on the ethical behaviour that can satisfy the greatest pleasure or good and the least pain for the individual (hedonism) or groups (utilitarism) (Fennel and Malloy, 1999: 931). This currently regards ends or consequences rather than means and it provides a consequence for non-compliance with the rule (Cole, 2007: 444). This currently offers visitors opportunities to express doubts, triggering questions, which in turn lead to understanding a topic or an issue. Hence, the teleology approach proved to be more accepted for it explains the reasons for compliance and it can also be used in an educational perspective (Fennel and Malloy, 1998: 455). Analysing the nature of ethical codes and previous studies

mentioned, the teleological approach is concerned with environmental education. Thereby, the teleological approach is strategically more suitable for natural areas of leisure as a management action. Nevertheless, despite of the flexibility suggested by teleological ethics, two studies administered by Fennel and Malloy (1998:457) and Garrod and Fennell (2004:347), confirmed that the codes have a more deontological nature, lacking teleological statements (Fennel and Malloy, 1998: 460). Figure 2.2 summarizes the ethical code's nature and meanings.

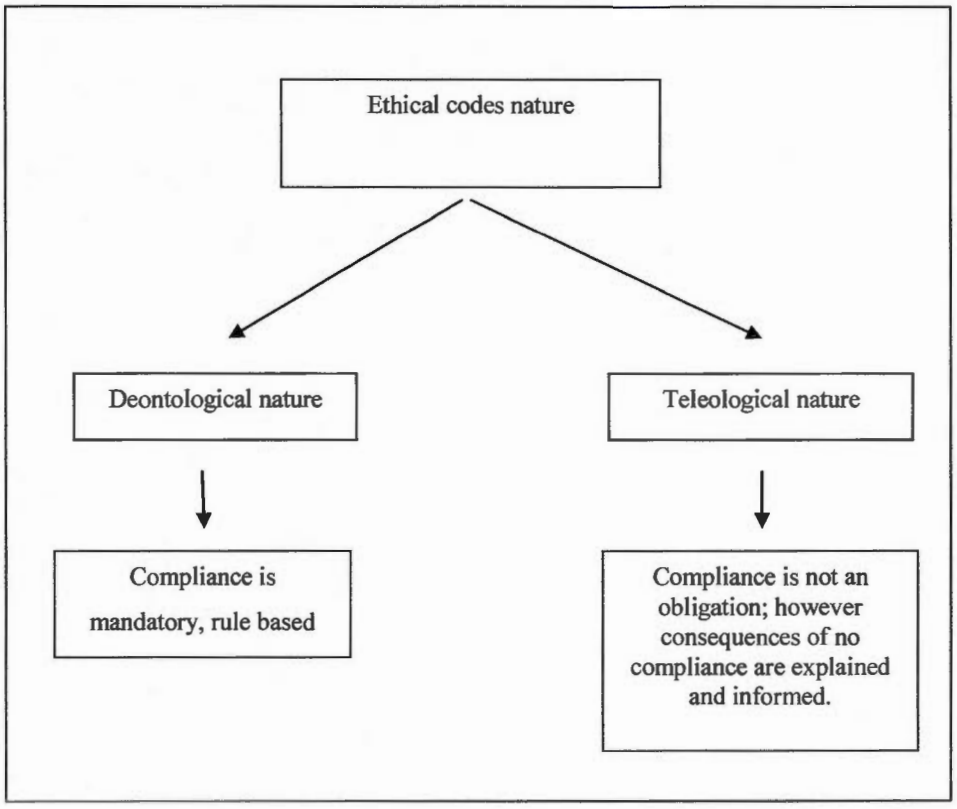

Figure 2.2 Nature of ethical codes – Deontological and teleological approaches **Source:** the author (Based on Fennell and Malloy, 1998 and 1999)

This figure shows each ethical code nature as well as its function. One (deontological) indicates what to do without revealing the reasons for compliance and the other (teleological) explains why people should follow the rule.

2.3 Codes and its message construction: an introduction

In tourism, only in the 1980's, ethic codes became popular as a management tool (Fennel, 2006: 230). In the meantime those discussions concerning ethic codes were taking place, also in that same decade, more specifically in 1987 the Brundtland Report emerged raising the establishment of the new paradigm of sustainable development. The most widely used definition for sustainable development is that of the Brundtland Commission Report, which first appeared in 1987. For Brundtland (1987: 37), this new way of management requires balance between economic growth and the necessity to conserve and protect the resources against depletion. Taking into account the increase of nature-based tourism and its global importance, its management must be a factor of improvement. Facing this context of durability, tour operators have begun to follow environmental messages associated with the leisure service they offer to promote nature-based tourism. From this popularity, many codes were created (Environmental codes of conduct for tourism – UNEP, 1995; Manila declaration on World Tourism, 1980 among several others), and most of them include environmental concerns. Among these concerns, the codes mentioned embody:

> Tourism infrastructure should be designed and tourism activities programmed in such a way as to protect the natural heritage composed of ecosystems and biodiversity and to preserve endangered species of wildlife; the stakeholders in tourism development, and especially professionals, should agree to the imposition of limitations or constraints on their activities when these are exercised in particularly sensitive areas: desert, polar or high mountain regions, coastal areas, tropical forests or wetlands, propitious to the creation of nature reserves or protected areas. (Article 3, Environmental codes of conduct for tourism –UNEP, 1995).

In the article above, the United Nations Environment Program declares the importance of tourism stakeholders accepting certain conditions in developing activities in fragile environments with the intention of contributing to conservation; while the Manila declaration stresses the values of touristic sites and also the need of developing steps to contribute to its preservation in accordance with article states below.

> Tourism resources available in various countries consist of space, facilities and values at the same time. The use of these resources cannot be left uncontrolled without running the risk of their deterioration, or even their destruction. The satisfaction of tourism requirements must not be prejudicial to the social and economic interests of the population in tourist

> areas, to the environment or, above all, to natural resources, which is the fundamental attraction of tourism, historical and cultural sites. All tourism resources are part of mankind's heritage. National communities and the entire international community must take the necessary steps to ensure their preservation. The conservation of historical, cultural and religious sites represents at all times and notably in time of conflict, one of the fundamental responsibilities of States. (Article 18, Manila declaration on World Tourism, 1980).

These two articles demonstrate how environmental preservation is highlighted. Considering the growth of the aforementioned nature-based tourism, ethic codes direct their path to an ethical conduct in this kind of tourism.

Ethic codes directed to this segment are meant to address an adequate environmental message. The transmission of an appropriate message to the tourists in the landscapes they chose as attraction can be used to establish the preservation basis of these natural settings. These codes are presented in a form of written brochures, signs, audio technologies or tour guides explanations and are seemingly easy strategies to be introduced in touristic practices, because they can be placed in the beginning, during and in the end of the tour in a voluntary and informal way. However, to obtain or have knowledge of an ethic code whether it is voluntary or regulatory, does not guarantee ethical behaviour engagement. Although this implementation is accessible, issues concerning the diffusion and application of messages and codes are imposed. This diffusion has other objectives and indirect functions, besides improving behaviours.

In fact, the ethical code appears as a response to violations arising from unethical behaviour (Payne and Dimanche, 1996: 1000-1001). In addition, Fennel and Malloy (1998: 453) add that these fundaments are «messages» that intend to shape behaviours. Among the objectives of ethic codes, Dubois (2000: 16), and Fennel and Malloy (1998: 454) mention the establishment of an ethical relationship with consumers and the environment. Indeed, visitors must start the ethical behavior in regarding the environment visited, because the nature is passive to visitor's will. These codes aim to frame the behaviour of the tourist in destinations; it can also inform and educate the resident population about adequate attitudes towards visitors; it has the potential to curb unethical conduct; it enhances the moral awareness of employees and it retains the faith of the consumer. To complement this array of objectives, creating awareness in the government and in the industry of the need for sound environmental management and making host populations aware of the need for environmental protection are essential (Mason, 1997 in Fennel 2006: 227). Environmental protection and awareness

should be present in the values and choices of codes content, leading to a sense of conservation. Cole (2007: 444) states that conservation is the starting point of these codes. To achieve this sense of conservation and awareness in people involved, the formulation of codes should take into consideration aspects such as: audience target and language and direction (voluntary or regulatory), without forgetting the conservationist content.

Codes have voluntary or regulatory basis (Fennell and Malloy, 2007: 36, 38) and a positive or negative mood in their messages (Fennel and Malloy, 1998: 457) are conveyed. The regulatory approach is based on restrictive measures and has the function to limit activities of stakeholders in various sectors (Parker, 1991 in Fennell and Malloy, 2007: 36). Non-voluntary actions intend to govern behaviours (Garrod and Fennell, 2004: 344). Thereby, regulatory codes are permeated with control mechanisms that must be met. In contrast, voluntary approaches include the initiation of social, ecological or economic spectrum to different groups and sectors; however the industries are not obliged by law to run the initiation, nor to join it (WTO, 2002 in Fennel and Malloy, 2007: 38). In other words, the code's compliance is a free choice process and has chances of not being fulfilled; however, even laws can be disobeyed. Despite this last assertion, codes are also subject to a wide acceptance and have many chances of being put into practice. An ethic code is a voluntary approach (Fennel and Malloy, 2007: 38). Voluntary codes are advocated as a good self-regulatory measure for their flexibility, efficiency of implementation and ability to harness peer pressure in order to improve compliance (Garrod and Fennell, 2004: 345, 347). Voluntary codes are being accepted as the best regulatory way forward (Garrod and Fennell, 2004: 348). Regardless of its purpose, the choice of words is crucial in the formulation of them, which can make its content readable or neglected.

For ethical codes, Fennell and Malloy (2007: 61) incentive not to use imperatives as «should», considered as an authoritarian statement very negative. Receiving express orders is not something well seen and accepted by anyone, especially by tourists in their leisure time. The clarity, the level of understanding and enforcement are also highlighted factors (Payne and Dimanche, 1996: 1004). Cole (2007: 444) argues that a direct style and action oriented code tends to be more successful. Using an accessible language can make more people understand the purpose of the message. In tourism, language is applied, according to the purpose of this communication (inform, persuade, communicate) (Vestito, 2006: 25). The tourism discourse is influenced by the nature of the sender and the receiver, by the aims of the message and by the strategies used to fulfill them (Vestito, 2006: 27).

In addition to these message contents, self-regulatory guidelines are encouraged to use a positive language and self-explanatory content is suggested (Blangy and Wood, 1993 in Garrod and Fennell, 2004: 347). A positive language is met with more success by readers. The nature and content of their messages vary according to the problems and public (Cassel *et al.*, 1997: 1078). In the case of this study that evaluates the codes in touristic activities related to nature-based tourism, there is an expectation that message content consists of adequate practices in natural settings. To reach the public generally, ethic codes and codes of conducts are written in formal and informal language (Fennell and Malloy, 1999: 940), spreading statements at local and global spheres. The local level is directed to a specific group or organization while the global level targets professionals and the society in general (Fennel and Malloy, 1998: 455). This means that such information must have a language able to reach children, teenagers, adults engaged in the sector or not and people with special needs, possessing an ordinary and/ or high level of education.

These messages are generally different to each target group, as well as demanding a writing style that retains the attention of readers. For example, industry codes usually favour an ideal rather than a norm, promoting self-regulation. The industries codes are written by government and NGO's. The message for tourists has ecology and socio-cultural factors as the main subjects and their contents emphasize what they are or aren't supposed to do. NGO's and citizens are more involved with code formulation (Fennell and Malloy, 2007: 44). Hosts codes are few and developed by citizens or NGO's. The messages of host codes are related to the maximization of benefits and minimisation of costs (Fennell and Malloy, 2007: 45). Thus, codes are mainly developed by government agencies, NGO's and industry associations (Garrod and Fennell, 2004: 348), although individuals are also involved with the creation of codes (Fennel and Malloy, 2007: 43). In addition, these codes are addressed to the industry (airlines, accommodation providers), tourists and hosts. According to Mason (1997 in Cole 2007: 444) visitors is the most targeted group. There are about 80 codes for them. As mentioned before, these codes have many positive characteristics and may attain a large group spectrum, however, although this mechanism has many advantages, many other disadvantages can be presented. That is, this management strategy also presents some limitations.

Codes have a character too platitudinous, demonstrating that the organizations are more worried with the public relations rather than behavioural change; too generic, not providing guidance in specific dilemmas; they cannot cover all circumstances, in addition to the difficulty in enforcing them (Fennell and Malloy, 1998:454). These questions tend to elicit the discredit of stakeholders, who may in some

way neglect codes. On the other hand, although codes encourage compliance, other factors such as culture, values, personality, previous experience and learning, motivation, lifestyle and more, influence the perception of acting in a positive or negative manner (Cassell *et al.*, 1997: 1086). Payne and Dimanche (1996:1004) remark the importance of enforcement, arguing that without this purpose, codes become a sham. The formulation of codes in a generic and voluntary basis , which has as main characteristic the flexibility, may depend on individual's willingness (Sharpley, 1996 in Fennell, 2007: 21), leading to misinterpretation and inappropriate application. The content of codes can be too vague and abstract, making their application more difficult. This management tool can also bring messages masqueraded as ethics, but in practice it can allow predatory behaviour.

In fact, codes have in their functions to "demonstrate that the company operates within specific parameters" (Montoya and Richard, 1994: 713). Thus, codes may spread an idea, however in practice this management instrument cannot be taken seriously. Thus, a code of dubious formulation can be a powerful ally in the diffusion of green washing. That is, codes may promote a perception that an organization is environmentally friendly, leading many companies to sell nature, in most cases without any conservation purposes or respect to the environment. Unfortunately, these unethical procedures may blurry ethical professionals, who seek to apply codes through their messages and enhance nature conservation. For example in nature-based tourism tours, there are also two major problems in implementing codes: the behaviour of non-acceptance of these standards by tourists and a high tolerance of the negative behaviour of consumers by operators/guides in order to maintain their sales status. The tourist is the customer who is on holidays and therefore does not want to be bothered with ethical issues according to a research conducted by International marketing research company (International marketing research company - Mintel, 2001). In addition, most tourists are not willing to follow rules, especially those that hinder their "freedom". Wheeller (1993) goes further to state that the tourism industry makes the tourists feel happy about their holyday's choice, but does no more to conserve the environment in which these tourists' experiences take place than a holiday not backed up by a code. On the other hand, guides and professionals seek to please their customers because they must defend their source of income. In other words, the clients (tourists) are essential to the progress of tour operators/guides business. Thus, these professionals may be afraid to communicate or call attention to the compliance with the codes. It's assumed that this is important to foment sales and customer satisfaction; however this cannot happen over environment depletion allowance.

Indeed, codes can influence tourists' attitudes and behaviour, but, as codes of conduct are voluntary and therefore not enforceable, they may need a support of education and training to optimize these messages. Awareness and education should not be underestimated. Education works as a foundation to behavioural changes and environmental education creates the atmosphere for changing behaviours in relation to the environment. To all these factors mentioned, the study continues with the argument that good education integrated to an appropriate communication represents a critical element in the formation of positive attitudes.

Therefore, messages and ethic codes are ways to communicate and circulate meanings and to compose the mainstream of this research, arising generating many questions. Are these messages in accordance to good behaviour and attitude in natural areas? If there are codes that work as «slogans», how do we raise conservation and awareness in natural areas? Are these communication elements able to enhance environmental conservation? Are they effective in practice? It's important to recognize that the production of the code message is only the first step in a continuous process. Codes of conduct will be of little use if they are not promoted and the message widely disseminated (Mason & Mowforth, 1995 in Cole, 2007). Questions in regard to the codes and messages are numerous. Fennell and Malloy (1998) point out the imminent need to intensify research on this topic. For this reason, chapter III will explore the construction of this communication (messages, codes) in the context of nature-based tourism.

However, before analysing the code's content, this research contextualizes the tourism development in the Pernambuco coast, region chosen for research, its impacts and management strategies in place. Along the next sections, it will be possible to observe that zoning, physical barriers (dikes) and communication of messages (codes) are some of the mentioned environmental management actions used to contain pressures in this region.

2.4 Nature-based tourism in the Pernambuco coast and impacts on the beaches of Pernambuco: Carneiros, Itamaraca, Olinda and Porto de Galinhas

Several environmental impacts occur on the beaches chosen for this case study. Most recurring impacts that degrade the coastal region are introduced and also the management strategies and/or the absence of consistent actions developed to minimize negative outcomes. This section presents some considerations about the development of tourism on the beaches of Pernambuco promoted by the

actions of Program of Action to the Development of Tourism in the Northeast (PRODETUR/NE). Pernambuco has a great potential for tourism and this industry represents a relevant income source to the region, reasons that lead to the development of research in the region.

In Brazil, tourism development occurred slowly. Beni (2008) points out the main actions triggered in each decade:

1) 1930-40: protection of historical and artistic heritage and supervision of air ticket sales promoted by travel agencies;
2) 1950-1960: emerged major touristic organisms as Association of Brazilian Travel Agents (ABAV), National Tourism Council and Brazilian Tourism Trade (EMBRATUR);
3) 1970-80: emerged university programs in tourism, touristic activities begin to be explored and EMBRATUR incorporates environmental laws in the formulation of public policies.

Only in the 1990 and 2000 decades did Brazil start to present an increase in the GDP mostly provided by domestic travels. Among the destinations, the Brazilian northeast stands out. In 1997 the northeast ranked the second position in the composition of domestic tourist flow with an increase of 4% to 12%, which demonstrates its strength in the tourism and leisure market (Whiting and Faria, 2001: 3). Northeast presents a great touristic potential because of its several attractions, including beautiful beaches, tasty culinary, culture expressed through folklore, arts, music, dances, festivals (ex. carnival); religiosity, heritage and dunes.

Furthermore, the northeast coast is evidenced by its natural beauty including several ecosystems as dunes, lagoons, mangroves, over 2.5 thousand kilometers of seashore, coral reefs and distinct vegetation as palm trees and Atlantic forest (Oliveira, 2003: 98). To add more value to this region, the weather is warm all year around, further increasing the potential of the Brazilian northeast. These features attract visitors and investors to the region, searching for a closer encounter with nature through nature-based activities. Facing the region's touristic potential in providing economic development to the country, the Brazilian government created the Program of Action to the Development of Tourism in the Northeast (PRODETUR/NE). This important initiative aimed to bring more investments and promote the development of tourism in the region.

The PRODETUR/NE appeared in the tourism trade in November of 1991 as an integrated initiative of the state and federal governments. The main objective of this program was the tourism development through the funding and establishment of infrastructure in localities inducing private investment. In order to better target investments, some priorities were identified:

- Creation of institutional channels, in both municipal and state scope to promote tourism development;
- Expansion of basic tourist infrastructure;
- Environment preservation of touristic areas;
- Improvement of access routes;
- Modernization and expansion of airports; and
- Restoration and preservation of touristic spaces (Saab, 1999: 303-304).

The PRODETUR/NE has external capital (Inter-American Development Bank) and internal resources (states, BNB and BNDES), with regional operation for the deployment of touristic enterprises in nine northeast states, including Pernambuco. In addition to the actions listed, PRODETUR/NE has launched a second phase with the goal of stimulating local economic trends, contributing to the creation and strengthening of private business and generating new opportunities of sustainable income and employment (Ayres *et al.*, 1999).

This entire endeavor promoted a growth in the tourism of the northeast and in consequence Pernambuco also received benefits. As a major benefit PRODETUR/NE promoted the construction of a Hotel complex in the Golden coast, which is represented by the south coast of Pernambuco, where two beaches analyzed in this research, Carneiros and Porto de Galinhas are located. Besides PRODETUR investments, local and federal governments also stimulate growth in other actions and plans as National Program of Tourism Municipalization, Mega Projects Policy, Competitive Northeast Program, National Program Tourism Funding, Northeast Investment Fund and General Tourism Fund (Saab, 1999; Cassimiro Filho, 2002).

Pernambuco has shown a particular economic growth in recent years. For example, in 2010, state's GDP presented an economic growth greater than the whole country (Agência estadual de planejamento e pesquisa de Pernambuco – CONDEP/FIDEM, 2011). This rapid growth is driven by high economic investments in the state mainly fostered by the creation of the Port of Suape combined with media

advertisements, which boosted the interest of domestic tourists in visiting this region. Pernambuco protrudes because of state increasing economic and touristic perspective. In this growth process, individuals and companies tend to invest because each one wants to take advantage of this development. In some way, most people desire to make money, which is quite reasonable. In turn, the northeast region is marked by social inequalities; factor that increases the growth of tourism is an attempt to balance these deficiencies. However, the lack of control of governmental institutions, with the creation of laws and mechanisms to limit the uncontrolled growth of tourism, can promote social, economic and environmental losses.

Among these perturbations, this research is particularly interested with those related to the environment, which are emphasized in this section. Several environmental impacts are present in the Pernambuco coastline, however only those most obvious and visible for tourism are highlighted in this research. This choice becomes justifiable when it is understood that encompassing all environmental impacts would be exhausting and unfeasible in just one study.

Literature demonstrates that the most reported environmental perturbations associated with tourism in the coastline chosen as focus for this research are: 1) real estate speculation and coastal erosion; 2) pollution; 3) degradation of sensitive environments (coral reefs, mangroves and Atlantic Forest) and disturbance of marine wildlife (Araujo and Costa, 2003; Pereira *et al*, 2003a; Pereira *et al*, 2003b; Araujo *et al*, 2007).

Real estate speculation promotes rampant construction of secondary homes at the beaches, designated to spend leisure time, homes and/or high buildings established near the beach strip to serve as permanent addresses; and also hotel infrastructure to receive visitors. In Pernambuco, the root of this issue is linked to occupation irregularities that disrespect the dynamics of sediments and with constructions built very near the coastal zone. Thus, to stem destruction caused by erosion, barriers are constructed to prevent the direct advancement of the sea on the properties. From the beaches surveyed, Itamaraca, Porto de Galinhas and Olinda are attained by this problem. Porto de Galinhas was the biggest target for real estate speculation while Olinda is the municipality that has more containment dikes, with 38 in total (Araujo *et al.*, 2007: 101-103). Initially, in Olinda beach, the expansion of Recife Port (neighboring town) and sea advancement causing erosion were the main concerns to encourage the construction of dikes, however the lack of planning in work execution and inappropriate maintenance fomented other problems such as deposition of fine sediment, hydrological changes,

accumulation of trash and proliferation of microorganisms (Pereira *et al.*, 2003a: 504). Figure 2.3 shows examples of barriers (dikes) built to contain erosion.

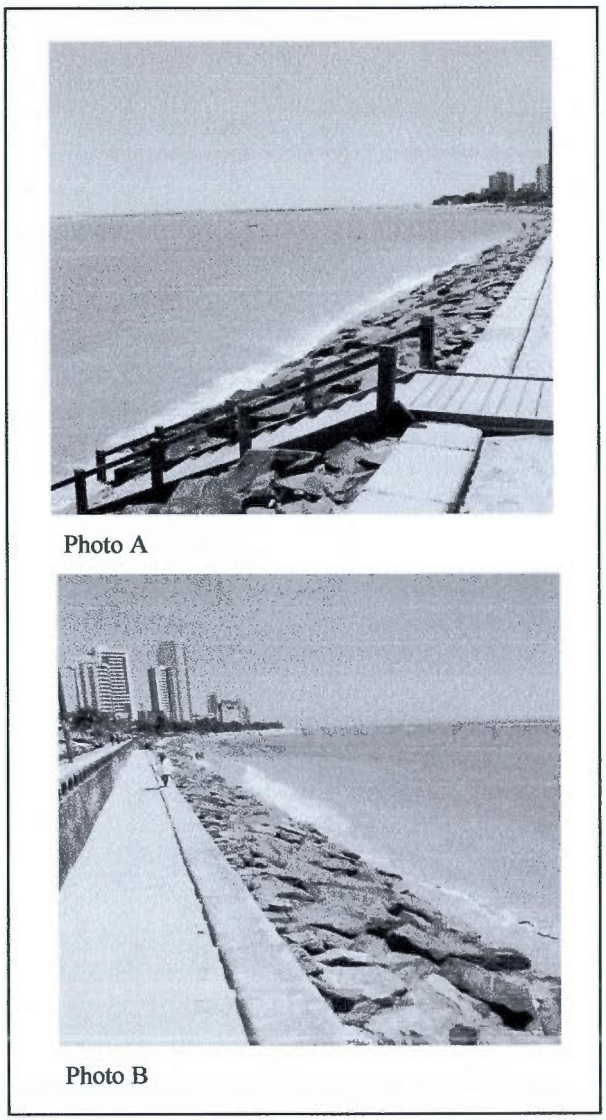

Figure 2.3 Examples of infrastructures uses to stop the coastal erosion (Olinda beach dikes). **Source:** the author

Photos A and B show dikes built to minimize coastal erosion and sea advancement in Olinda beach. Unfortunately, these palliative measures compromise the scenic beauty of affected areas; besides diminishing and obstructing access to beach zones undermining public leisure space. These mentioned restrictions may influence visitors' choice/interest in going to the beach, fact that may lead to

diminution of tourists in the area. After all, tourists want to visit beautiful and pleasant spots. In addition, these barriers change marine currents leading to various environmental impacts such as loss of water quality, eutrophication and high levels of fecal coliform bacteria (Pereira *et al.*, 2003a). The poor water quality was the major factor for closing the only luxury hotel oceanfront, due to the insufficient number of customers (Pereira *et al.*, 2003b).

Waste is an anthropogenic impact that diminishes the beauty of natural landscapes and also pollutes the beaches. Litter is an endless problem. Unfortunately it is easy to see garbage along the coast, because visitors contribute to pollution of visited areas. In fact, tourists are on vacation and they aren't worried about picking up their litter. However, if visitors are informed about the importance of keeping the beach clean and they have easy access to trash containers, they can at least collect waste produced by them; depositing it in the adequate bins. In addition, an appropriate waste management can reduce pollution at the beaches and avoid other side effects linked to solid residues. Therefore, both actions don't flow at all times and trigger unpleasant consequences for the marine environment and tourism. For marine wildlife, garbage leads to death, because inadvertently animals eat the waste or are strangled or cut up by solid materials (Araujo and Costa, 2003: 67). For the coral reefs, these residues may disrupt natural processes such as light penetration and gas exchange, which affects the organisms of that specific habitat (Araujo and Costa, 2003: 67). The exposed and/or accumulated rubbish on beaches brings losses to tourism, because dirty beaches are not attractive to anyone. Thus, visitor's frequency may decline. Figure 2.4 show how beaches are polluted by residues left behind.

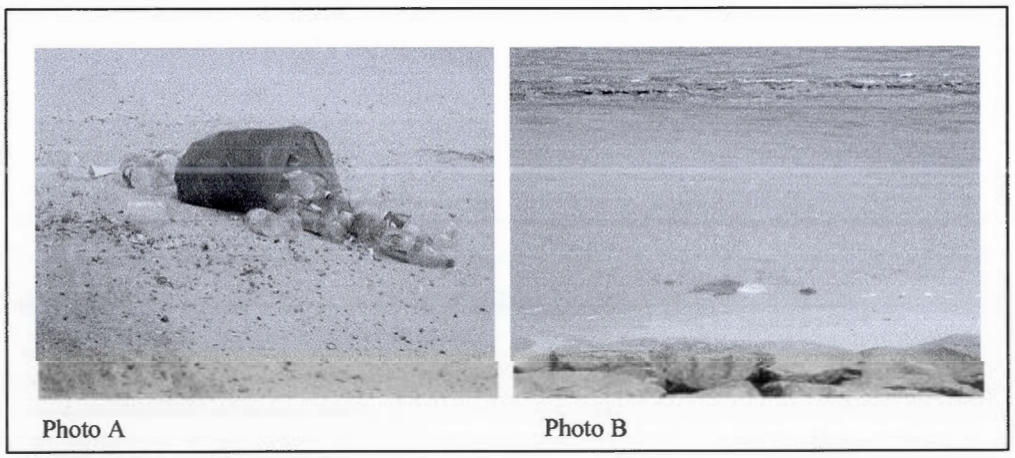

Photo A Photo B

Figure 2.4 Litter at the beach. **Source:** the author

Images show the presence of plastic materials, waste of hard degradation and easy dispersion on the ocean, for example plastic bottles and bags. Containers reserved for solids and recyclable materials as plastic bottles could reduce this pollution, however they weren't available. Waste scattered may generate visitor's rejection in remaining in a dirty environment. These pictures show the deficiency of garbage collection in Olinda beach. Pictures were taken early in the morning, and then it seems these residues were left on the beach the day before, indicating that garbage collectors don't come often enough to pick up litter. Figure 2.5 shows better examples of waste management.

Photo A

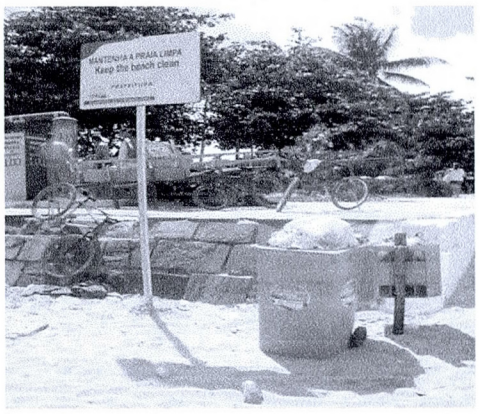

Photo B

Figure 2.5 containers of selective waste collection and appropriate containers of trash.
Source: the author

As already mentioned, it is rare to find containers of selective waste collection at the areas visited. However, this feasible solution was found in one of the places visited. The area close to the boarding ramp to the ride of the catamaran tour on Carneiro's beach was the zone where there were selective waste collection containers. Managers must copy this strategy and diminish trash spread in sensitive natural areas. In Itamaraca and Carneiros beach, there isn't a lot of waste scattered along the beach area covered, which is good. However, the absence of bins was observed. Then, if a visitor decides to throw away something, where he/she can dispose of it? Probably, visitors will dispose trash anywhere; anyway they want to get rid of rubbish. Maybe, a visitor insists in finding an adequate place, but this can be rare in practice. Indeed, tourists always have more interesting things to do than looking for garbage containers. In Porto de Galinhas beach, there were garbage containers in some strategic points of the coastal area, where garbage collectors went once a day to grab the trash. I had the opportunity of

seeing the waste collection in the end of the day and this action demonstrated to be efficient, taking into consideration the large amount of visitors the beach receives per day.

Another serious impact that occurs with frequency on the beaches studied is the degradation of fragile ecosystems such as coral reefs. In this natural space, trampling is the main villain, but also the disturbance exerted on marine wildlife may be included in this context. Some authors (Povey and Keough, 1991; Brown and Taylor, 1999) observed in earlier studies that trampling reduces alga biomass altering and reducing habitat, which can cause a fauna decline, dependent on coral reefs for shelter, protection and feeding. This ecosystem appears only in 44% of countries in the world (The United Nations Environmental Program World Conservation Monitoring Centre –UNEP/WCMC, 2006). Thus, the presence of this type of beach environment figures as a privilege to tourists visiting the region. Therefore, coral reefs must be preserved, due to the relevant functions it performs such as coastline protection and serving as shelter and food source for marine wildlife. In addition, these ecosystems stand out in economic, social, emotional and environmental terms. Coral reefs consist of a source of food, work and leisure for many and are intrinsically linked to the daily life of these people. This ecosystem predation may affect economic resources as well as the lifestyle of many people, who are used to interacting with this environment. Besides, touristic activities will be certainly affected since the coral reefs are the most coveted attraction. For all the reasons mentioned, the ecological integrity of these ecosystems is of utmost importance in order to maintain the development of its functions. These images show the trampling of coral reefs by visitors on two of the beaches investigated (Figure 2.6).

Photo A Photo B

Figure 2.6 Visitors' trampling on coral reefs. **Source:** the author

In those images, it is possible to see that coral reefs are exposed and it is due to low tide. That is, when tide is low, visitors have the opportunity to walk on top of coral reefs, causing degradation aforementioned. There are also locals, who stay on coral reefs to sell food and drinks to visitors' as shown in first figure. The management strategies used to protect coral reefs are zoning and visitor's communication. Only in the Porto de Galinhas beach actions are combined. In Itamaraca, Olinda and Carneiros beaches, visitor communication is integrated in the tours investigated. Aside from tours analyzed, it is not possible to assert that all tours offered in Pernambuco beaches include visitor communication as a management strategy. In the Porto de Galinhas beach, buoys and ropes form barriers to protect coral reefs. However, despite the physical control imposed by zoning, the reefs are still very exposed to degradation by being very close to the beach. This proximity facilitates visitor's access to coral reefs on foot, which increases pressures on this ecosystem. Figure 2.7 shows a zoning area and a coral reef next to the beach.

Photo A

Photo B

Figure 2.7 One of the zoning areas and people accessing coral reefs by foot. Photo A demonstrate the materials used to delimit and protect coral reefs, constituting a zoning area while photo B exhibits visitor's going to coral reefs by foot, because this ecosystem is very close from the beach strip. **Source:** the author

In addition to the impacts described, there are other issues that in one way or another, damage the environment of coastal zones in Pernambuco beaches such as incomplete and inadequate system of basic sanitation, lack of planning and monitoring of coastal zones and the excessive amount of visitors.

2.4.1 Details of activities chosen for analysis in Pernambuco beaches

Catamaran tour

This Catamaran tour is an activity taking place in the Carneiros beach, more specifically inside an area of environmental protection. However, this tour is offered by tour operators in the Porto de Galinhas beach, because of the concentration of tourists staying in the city and surrounding areas. This tour is long and lasts the whole day. The cost of this tour is thirty five Reais (Brazilian currency) approximately eighteen Canadian dollars. The tour starts at 08:30 am and there is a transfer that takes visitors in lodging establishments before starting the trip to the Carneiros beach. To arrive in the

Carneiros beach it takes approximately one hour. Then, visitors arrive in the pier of Guadalupe, located in the municipality of Sirinhaem. From this platform, visitors are invited to board the catamaran with capacity to 50 passengers. There are four stops on this tour:

1) The Carneiros beach: 3 hours of free time to have lunch and free recreational activities (walks, visits to the historical church, horse riding, sea bathing);
2) The Carneiros beach natural pools: 45 minutes of free time to enjoy this natural setting;
3) The Carneiros hurst: 15 minutes to contemplate this hurst formation;
4) Carneiros clay bathing: 30 minutes for a fun clay bathing.

After these stops, the catamaran returns to the pier and transfers visitors back to the hotels in the Porto de Galinhas beach. Figure 2.8 shows two stages of the Catamaran tour.

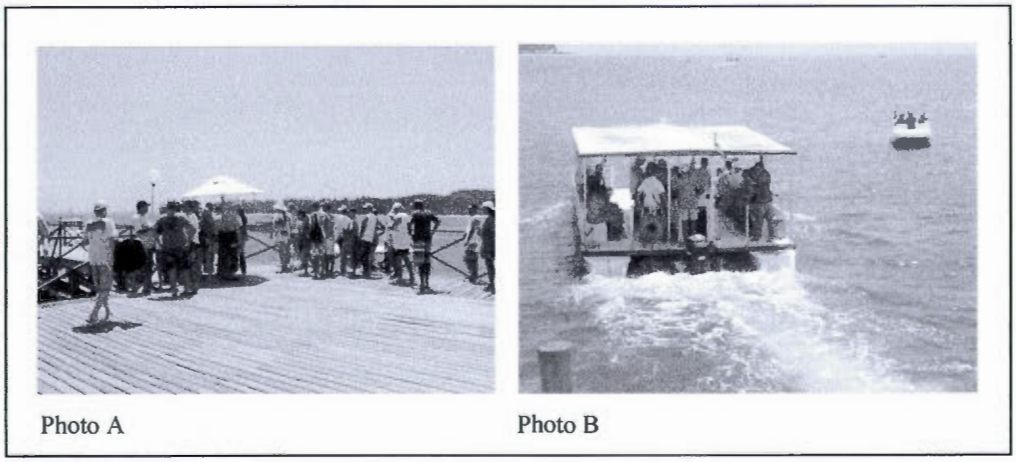

Photo A Photo B

Figure 2.8 Two stages of Catamaran tour. Photo A shows visitors waiting at the pier to board the catamaran while photo B presents a catamaran full of tourists heading to Carneiro's beach in order to start tour. **Source:** the author

Environmental walks

Environmental walks are activities taking place along the Pernambuco coast. These activities are included as part of a project of the State Government in partnership with the State Environmental Agency and local governments of Itamaraca, Tamandaré, Goiana, Recife and Olinda beaches. Nevertheless, as earlier mentioned, communication was just analyzed in Itamaraca and Olinda beaches, due to time, cost and schedule issues. In general, these activities occur on weekends in the summer time and the dates to conduct the environmental walks at the beaches are pre-determined by the project coordinators. Environmental walks can last a morning or a whole day depending on location distance and/or duration of activities promoted on site. The activity consists on walking tours in a determined beach stretch, at the most commonly frequented areas, performed mainly by government representatives, volunteers and three characters specially created to this campaign. In addition to the walks (main activity), other activities are also performed on-site such as storytelling, music, games and theater presentations. These characters are represented by actors dressed as a turtle, a crab and a tourist. Under the project, the turtle represents the ocean and the crab represents the Pernambuco coast, due to the large incidence of this crustacean in the region. The actor characterized as a tourist participates by performing inappropriate actions that are corrected by the other actors (turtle and crab). In addition, there is the presence of giant puppets (cultural symbol of Olinda's Carnival), music, a theater group, games, storytelling and informative material. The idea of this project is to use communication to educate beach visitors to act properly in regards to the environment visited. Figure 2.9 shows the main components of environmental parades: the giant puppets, the music group, volunteers holding posters and the three characters at the beach.

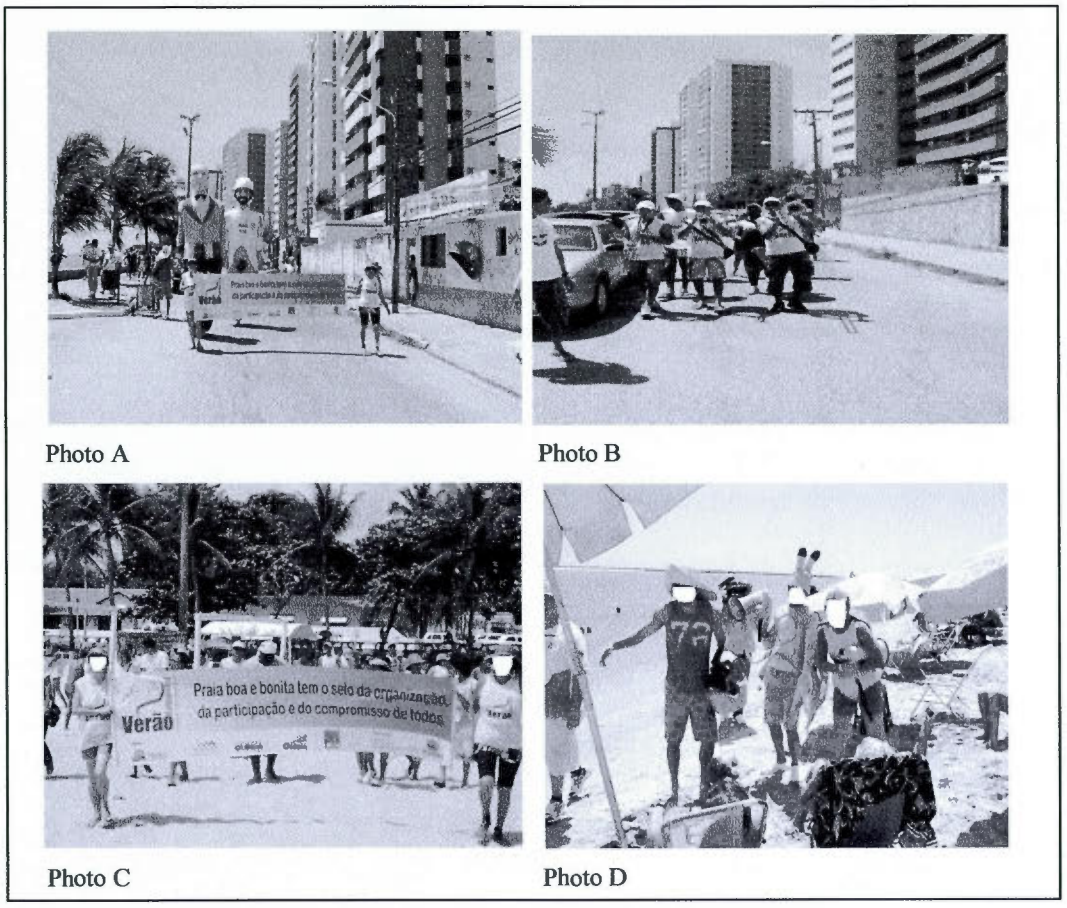

Figure 2.9 Environmental walks **Source:** the author

The first image (photo A) shows volunteers holding an informative sign about the government project and the Olinda's giant puppets while the second photo (B) exhibits a music band, encouraging visitors to participate in this environmental walk along the Olinda beach.

Photo C shows people's engagement in government projects at the beach while photo D presents the three actors characterized in action, communicating a message to visitors who relax at the beach.

The jangada tour

The jangada tour takes place in the Porto de Galinhas beach. This activity takes visitors on a jangada (typical handmade boat of the region) to the natural pools formed in coral reefs at low tide. This tour lasts approximately one hour and visitors have several recreational options at this natural setting like walking on trails organized on coral reefs, taking pictures, diving in allowed areas, contemplating the landscape and bathing in the sea. The cost of this tour is fifteen Reais (about seven Canadian dollars). This vessel can accommodate up to six visitors plus the jangadeiro (person who conducts the jangada and works also as tour guide). The main objective of this tour is to visit natural pools formed by coral reefs when the tide is low. Figure 3.0 shows two different moments of the jangada tour.

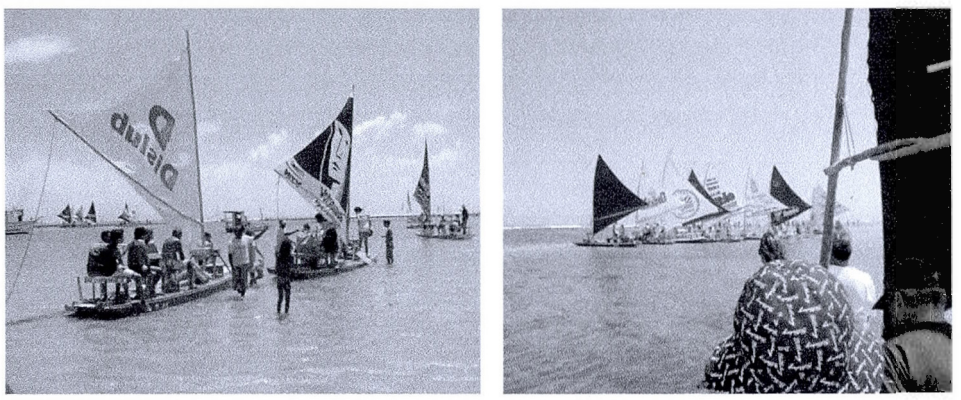

Photo A Photo B

Figure 3.0 Jangada tour stages. Photo A show two vessels leaving the coast to visit coral reefs and photo B this is possible to see at least eight jangadas stopped on coral reefs while tourists are visiting natural area. **Source:** the author

2.4.2 Characteristics of nature-based tourists surveyed

Pernambuco beaches receive visitors throughout the year. Ninety six visitors who engaged in guided activities at the beaches (Carneiros, Itamaraca, Olinda and Porto de Galinhas) participated in this study. Tourists surveyed represent data compiled in the following figures (3.1, 3.2 and 3.3).

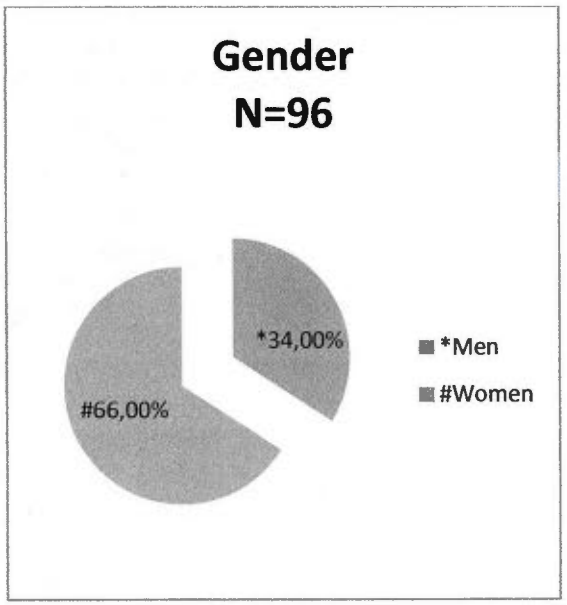

Figure 3.1 Visitors' gender

Most visitors surveyed are women corresponding to 66% of total target population against 34% of men. Considering the participation of men and women for each activity, the results are as it follows: the Catamaran tour had 13% of female and 7% of male respondents, the Environmental walks had 21% of women and 7% of men participating in this study and the jangada tour counted with the participation of 32% of female and 20% of male respondents.

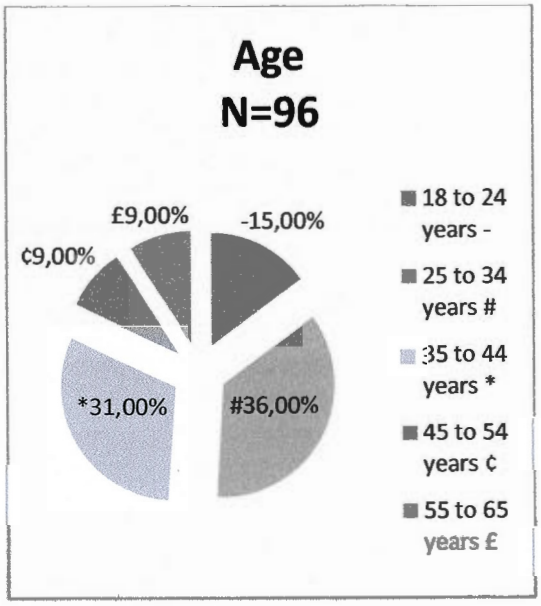

Figure 3.2 Visitor's age

The majority of visitors who participated in the survey were between 25 to 34 years old, consisting of 36% of target population while tourists who are aged between 35 to 44 years old correspond to 31% of study respondents. Other survey participants were 18 to 24 years old (15%), 45 to 54 years old (9%) and 55 to 65 years old (9%).

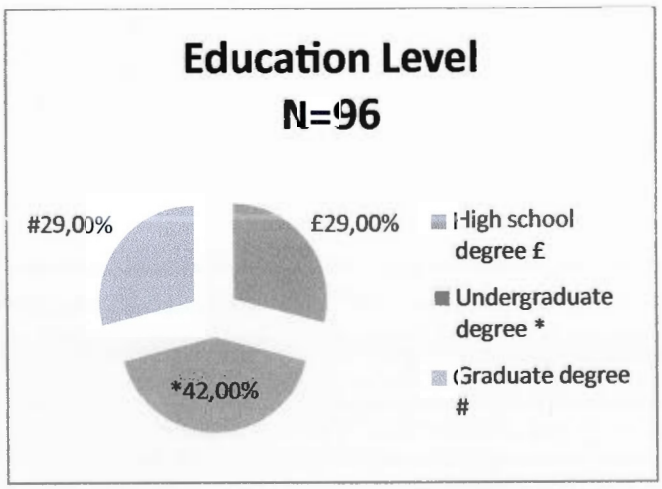

Figure 3.3 Visitors' education level

Regarding educational background, this study reveals that the majority of the target audience holds an undergraduate degree (42%), having 31% of women completed university studies against 11% of men. Concerning graduate studies, 29% of respondents had completed this degree and 15% of men versus 14% of women hold this diploma. High school education represents the educational level of 29% of the target population and 21% of women against 8% of men acquired this degree. This study result demonstrates that the women surveyed had a higher education than the men. During the research analysis (Chapter V), this data reveals that people with higher education hold a better environmental knowledge, being prone to change or acquire values and attitudes. A good level of education doesn't show an instant respect for nature, but a tendency to adhere to more sustainable behaviours as further presented in this study.

2.5 Conclusion

This chapter has demonstrated how nature-based tourism activities are growing fast and the results of this growth to the environment. Environmental impacts appear as a response of an overuse promoted by tourists and professionals as well as the implementation of facilities. In general, these perturbations are associated to touristic activities performed in an inadequate manner in natural areas. The environmental pressures most cited were the pollution of the air, water and soils, wildlife disturbance, loss of vegetation, erosion and soil compaction. In this context, the main management strategies available in order to minimize impacts were examined and their limitations were exposed. In addition, visitor communication and education through messages and codes of conduct were evidenced in this work as a feasible strategy, especially because this research showed that the increase of visitors also raise the incidence of impacts in the ecosystems visited. Then, it is primarily necessary to face and educate those who enjoy the natural areas leaving their negative "foot prints" in order to help the environmental management and conservation. Within this perspective, the need to include communication (messages) and education in tours to influence positive behaviours regarding the visited environment were stressed. The ethical nature of codes (deontological and teleological) was discussed as well as its appearance in the professional context, its functions, main objectives and its advantages as a management strategy in nature-based tourism. Previous studies showed that teleological codes are more suitable to the context of the nature-based tourism however most messages are deontological in practice, which may diminish the codes compliance because visitors may not understand the reasons to follow the rule. This observation sharpens my questioning of why this happens and I try to elucidate doubts throughout the study. In addition, the case study as well as the tourism development of the region studied, promoted by the program of PRODETUR/NE are

presented. The natural beauty attractions of the Pernambuco beaches are exposed as well as the main environmental problems associated with the exploitation of natural areas for tourism. The management strategies in place are commented as well as its efficiency and/or failures enhanced.

CHAPTER III

MESSAGE CONSTRUCTION: THE FIRST COMMUNICATION PROCESS

"This beach is a paradise of crystal clear waters and natural pools; one of the most beautiful beaches in Brazil".

Site oficial do Turismo de Porto de Galinhas, 2007.

This message figures as the main slogan of one of the beaches chosen for analysis. In one sentence, it is possible to conclude that message formulation emphasizes the natural attractions of the region and at the same time it appears as an invitation encouraging visitation of this environment. Visitors will find a "paradise" to spend their leisure time at. This message doesn't expose any problems, except for only highlighting the importance of touristic attraction (crystal, clear waters, natural pools). Unfortunately, in this message construction, there isn't any appeal regarding environment preservation/conservation. In fact, the message construction is based on values other than the environmental ones; this figures as one of the problems we may face in message construction.

This chapter is centered in the first communication process: message construction. The universe of message construction is analyzed within the context of nature-based tourism and message construction is evidenced. As we have seen on chapter 2, several impacts may affect touristic attractions in environmental and nature-based tourism. As also shown, many management strategies can be applied and communication of messages based on codes of ethics and conduct are the focus of this research. The communication of well established messages is a way to intervene in the dissemination of environmental pressures. Therefore, how these messages must be constructed to achieve the objective

of helping in the conservation of these natural settings? Hence, this chapter examines: how these messages are constructed; the difficulties of this process and which environmental values are presented in the content of these messages. In this context, the case study is discussed, analyzing the parameters used in message construction in focused activities in the aforementioned Pernambuco beaches.

3.1 Definition of communication

Communication is an attitude intrinsically linked to human relations. Since the beginning of time, human beings have created ways of expressing themselves and these have evolved over time, according to technological and scientific discoveries. From the papyrus to the internet, many forms of communication have been invented and reinvented, which demonstrate the need of human beings to express themselves. There are many ways to express ourselves and these can be commonly presented through corporal, oral and written communication. These forms are characterized by symbols and have as a main function to transmit messages, which has in their content a specific meaning, determined by the way messages are formulated. The communication of these messages also may symbolize relations of power and emotion, because these statements may form conceptions and influence the behaviour of societies. To involve human relations and emotions the definition of communication is a complex task.

Fiske (2010a: 1) underlines that communication is a human activity that few can define satisfactorily. Consequently, establishing a single definition has proved to be impossible (Littlejohn and Foss, 2008: 3). For Fiske (2010a: 2), communication means social interactions through messages. Others authors add further significance to the term. For example, Krauss and Fussel (2007: 1) consider communication a complex multidisciplinary concept, in which the primary means is affecting human relations. Litllejohn and Foss (2008: 3) exemplify three definitions: 1) communication as the act of transmitting a message intending to change behaviours; 2) communication as the verbal interchange of thoughts and ideas and 3) communication as the transmission of information. These last conceptualizations satisfy the requirements of this work; therefore this study relies on them. In fact, all these definitions converge and complement the importance of communication in our society. This relevance is directly linked to the functions performed by communication.

Communication has presented two main functions: the transmission of messages and production and exchange of meanings (Fiske, 2010a: 2). On the other hand, Tourism is a segment that depends on communication to exist. Both professionals and visitors need to communicate to achieve its various

goals. Communication can serve as a channel to local advertising, selling the touristic product, informing about local history and geography, give useful clues regarding lodging and attractions and much more. Furthermore, communication can be used in the development of touristic activities. When promoted in natural areas, communication can help the guiding activity, which is essential, because touristic activities in natural environments promote tourist interactions with the local nature, setting a proper occasion to communicate messages. Messages in natural environments can cover several topics including the natural beauties and natural attractions composed by local fauna and flora, biological aspects and importance of visited environment, orientations on how to behave to promote site conservation, indicating some reprehensible comportments forbidden by law and sustainable recommendations seeking the adhesion of a conduct code. Thus, communicating messages in this kind of tours is a very common assignment.

3.2 Steps leading to message construction

Understanding the stages of message design contributes to the integration of knowledge able to delineate the response of the first sub-question, which intends to study the construction of the message. The interest in messages is emphasized, because this is the mechanism in which communication occurs. Thus, the process of message production remains an important factor. In turn, "messages are configurations of elements and features in behaviour or human manufacturers that are designed to communicate, intending to make publicly some mental state of the message producer or, aiming to accomplish some other purpose through making mental states publicly available" (O'Keefe and Delia, 1982: 47). That is, message construction figures a mental process laden with values, beliefs, concepts, outside information influence, educational elements and much more that are grouped with already existing thoughts to form ideas that can be exposed through communication channels. This constitutes the central reason leading people to communicate. Messages also have in their content communicative intentions (O'Keefe and Delia, 1982: 48), aiming to deliver information, meanings and to change behaviours among other purposes. The pursuit of purpose fulfillments also involves human lives. Then, communication is an essential tool. Given that most nature-based tourism activities stimulate social interactions, human emotions and behaviours, message construction models which emphasize cognition are covered in this study.

Greene and Graves (2007:18) state that "cognitive approaches seek to explain behaviours by describing the system of mental structures and processes that produced those behaviours". In the case of nature-based tourism, this reflects how tour operators and tourists perceive, memorize and reason

communication processes; in turn converting them into attitudes towards natural areas. Roloff and Berger (1982: 21) argue that cognitive approaches are centered on thought processes focused on human interaction. In other words this is represented by organized thoughts people have about human interaction. More than that, the cognition captures information through the five senses and then uses the reasoning in decision making. Understanding that nature-based tourists are prone to acting moved by emotion because they're relaxed and interacting with new unrevealed environment, makes a message constructed within the precepts of cognition more effective. However, why is a message construction associated with cognition? This relationship is shown due to the fact that message production is closely linked with human behaviour in its essence. That is, message construction is not organized by chance. Messages aim to reach listeners exploring every possible way in order to change people's ideas and attitudes. Thus, communication and cognition are allied in the message construction process.

Message production focuses on three main aspects: idea generation, utterance (oral expression) and non-verbal features or both. These are the main factors that enable most communication processes. The ideas are developed by people who wish to communicate to others; the utterances convey those ideas and these also reflect the selection of specific words and syntaxes. Non-verbal features are facial expression, eye behaviour, gestures and so on. These verbal and non-verbal elements are integrated to achieve goals, thus communication is a plan to reach results (Greene and Graves, 2007: 21). The figure (3.4) demonstrates how most communication processes occur.

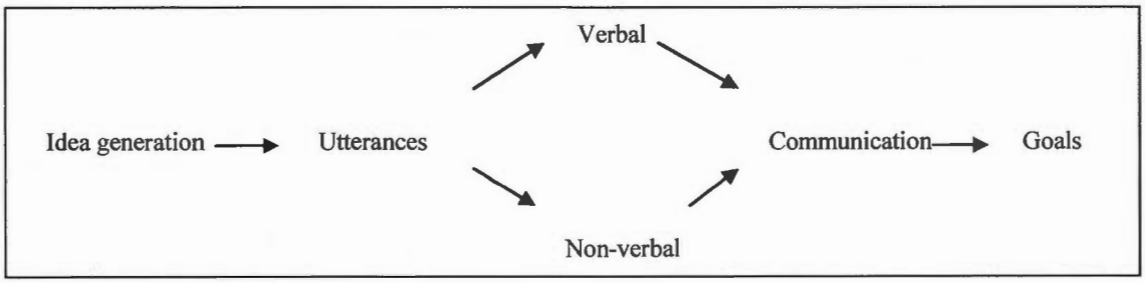

Figure 3.4 Sequence of communicative processes. **Source:** the author

This figure shows the main steps of a communication process. First, we formulate an idea to be expressed. Following this initial stage, we communicate these thoughts through verbal (words) or non-verbal (gestures) channels aiming to achieve objectives.

3.3 Message construction: its complexity and the barriers affecting effective encoding

As presented in the last section, the mainstream of message production seems practical and simplistic, when in fact this process involves complex issues and situations. These parameters of complexity are associated to the use of an appropriate language, functions, structure/characteristics, environment, focused audience, intentions and goal pursuit and these are elements all included in the message construction. In addition to these elements, there are some functions comprised in message production which include executive process, utterance specification, motor specification and overt production (Greene and Graves, 2007: 23). This information presented is approached in detail in order to raise understanding concerning message construction complexities.

Executive processes consist of "idea generation, goal formation, planning and editing or monitoring of potential or actual behaviour" (Greene and Graves, 2007: 23). These steps are important mechanisms in the construction of messages. The executive process is a sequence of message production sub processes and each item is exposed.

Idea generation is a key component in message production as this is the act of creating ideas. This action can develop new innovative concepts, but also reinvent and/or reorganize already existing

concepts, applying them to reality. Thus strategies of idea generation can renew, order and/or create new ideas. From that initial point, language, characteristics/structure, and public are best focused on the process of message construction. Technically, these procedures can be defined in three ways:

- Selection;

- Sequencing; and

- Creation. (Greene and Graves, 2007: 30)

Selection is the act of choosing the "more appropriate" proposals belonging to a repository. This means using already existing ideas to construct a message. Nevertheless, how to determine which is the best existing proposal or idea? In fact, this is not an easy task and, depending on how it's done, it can undermine the process of message construction. Sequencing is selecting existing ideas organized in a sequence. Creation is the element that takes the risk of innovating by formulating new ideas that do not exist in the repository. While the latter has a more original character, idea generation predominantly relies on selecting and sequencing. For example, the segment of nature-based tourism tends to have message ideas embedded in ethic codes and codes of conducts, ideas arising from the tenets of preservation/conservation and sustainable development, pre-existing concepts in our society. This consists of an example of an idea generation selection, since these messages are constructed based on Brundtland rapport principles. This group of ideas focuses on a particular goal.

Berger (2010: 112) states that "intention is a prerequisite for speaking and writing". In other words, message construction depends primarily on intent definition. The identification of intention is an essential process of mind explanation, and also part of cognition. On the other hand, intentions usually lead to goal pursuit. According to Dennet (1971 in Greene and Graves, 2007: 24), this intentional stance "accounts for what a person said might involve notions of what that same person wanted, knew and expected". The goal pursuit is initiated with the interlocutor's intention. In general, messages are formulated with the aim of achieving social goals, that these goals precipitate plans, which turns results into actions to accomplish one's goals (Dillard, 1990 in Greene and Graves, 2007: 31). The goal formation process is the second moment of message construction. All human communication has a goal underneath. The action of communicating may represent a manner to realize simplistic objectives as paying a bill in a bank or even complex ones such as convincing an audience about determined

subject. Then, the goal provides the basis to message construction; however the lack of a goal may lead to the formulation of incoherent messages (Aswathappa, 2005: 420) hindering efficiency. One example of goal pursuit on message construction in most nature-based tourism codes of conducts is indicated in its directives voluntary measures that search for wildlife protection and habitat preservation. Therefore, this process of message construction that has to reach goals as main purposes, converges to planning methods. Achieving goals requires planning. Thus, the goal-plan-action (GPA) framework is formed, being a process of extreme importance in message production.

To realize one's goals, planning specifies several steps. To comprehend audience goals, proposing a plan appears to be an important stage of message construction. When this aspect is not taken into account, messages may present the risk of being incomprehensible utterances and not able to reach proposed goals. These plans are transitory cognitive representations, elaborated to meet the demands of a current or anticipated situation (Greene and Graves, 2007: 33). This means analysing the possibilities of success and failure of each plan in message formulation. For example, if tour operators construct a message aiming to make visitors aware of not stepping on coral reefs in protected areas, they must think of other ways of warnings tourists if they don't understand it. In other words, planning should involve more than one strategy, because in practice a plan is not always effective. This questioning process may give them other options in order to achieve their ends. The anticipation of failure is an advantage if the message construction planners encounter problems while pursuing their goals. As a complement to this planning, Greene and Graves (2007: 33) prompt people to pre-establish routines for solving action-sequencing problems. In fact, the act of making plans sets available alternatives, contributing to a more successful achievement of objectives (Berger, 2010: 119); however situations do not always happen as planned. By the way, managers involved with message construction should be alert to these questions and if possible ask for feedback to the ones who have direct contact with communication to understand whether the process is providing results or not. Actually, in the case of nature-based tourism, message construction planning should include all people involved in the activities, from manager to guide, because each one can add different but important points in the context of the tour. The formulation of these three sub processes, editing and monitoring, congregate and complete the executive processes.

The editing and monitoring processes assume the time in which the messages features are integrated for editing and future monitoring. These communication processes are also introduced as control mechanisms (Berg, 1986). That is, editing is the act of organizing discourse characteristics, before

delivering this specific message. This time is reserved for correction, revision and adaptation if necessary. At this point people involved with message construction will make the decision to keep the message, modify it and/or suit it in order to achieve the desired goals (Berg, 1986: 35). For example, some natural parks usually present signs indicating messages to visitors. These communication structure (sign) passed all previous steps (idea generation, goal formation and planning), before being displayed (editing). A message formulated with an overload of information or insufficient knowledge figures as barriers in this process. Too much information may cause difficulties in message decoding and the lack of specific information may sound unclear and confusing to the audience.

In addition, monitoring consists of error-detection in message production. This stage functions as a feedback of message construction. According to Postma (2000: 101), there are three ways of controlling these mistakes which are: directive control, tuning and corrective function. Directive control "refers to the notion that motor commands may depend directly on the sampling of the feedback" (Postma, 2000: 101), tuning calibrates and recalibrates feedbacks, getting adapted to different environments and correction detects and repairs message construction errors (Postma, 2000: 102). In synthesis, directive control function identifies, through feedback, message construction direction, analyzing its current state and desired goal. Meanwhile, the tuning function works in message adaptation and the correction function is concerned with detection and reparation of errors in message construction. That is, these three functions satisfy a sequence of monitoring, being useful in message construction appropriateness. In nature-based tourism, this monitoring can be administered by the guides that usually transmit the message at the same time that they are in direct contact with visitors and the environment visited. These professionals can observe whether the message should be maintained or adjusted, depending on the actions and/or understanding shown by those who receive the messages. To optimize comprehension, message construction should focus on the language. It is important to evaluate which utterances best fit in a particular message construction. Another issue to be considered in message construction processes is the use of an appropriate language in each situation in order to achieve desired results.

To accomplish message construction, language speech production is an essential element. For this reason language production models exist. According to Berger (2010: 112), in general, language models first adhere to a conceptualization stage followed by a formulation stage. The conceptualization stage is a process in which "messages are composed of abstract semantic, propositions and pragmatic features or lexical concepts" (Berger, 2010: 113). This step consists on

deciding upon the message to be conveyed, considered as a pre-linguistic moment. The formulation stage integrates lexical selection and grammatical encoding as well as the abstract propositions and concepts of conceptualization, represented as lemmas or lexical entries selected to represent the abstract message (Berger, 2010: 113). According to Greene and Graves (2007: 23), this is the utterance specification, covering the process of arriving at specific words and syntax that will be expressed in the verbal component of a message. This is the moment when the appropriate words and grammatical order and rules are chosen to convey the message. Bad choice of words and inappropriate organization of these may represent a barrier to message construction effectiveness. This may make receivers less likely to understand the message. Once defined verbal elements, it is time to communicate the message. Therefore, the motor specification process follows this stage.

Motor specification encompasses the formulation of programs for actually pronouncing verbal strings, as well as for all the nonverbal features that will accompany the verbal message (Greene and Graves, 2007: 23). Motor specification comprises also the mechanisms created to pronounce these messages (Greene and Graves, 2007: 23). This considers the gestures, icons and other elements used to communicate a message. The last step of motor indicates the execution of motor movements demanded to properly produce the sound structure of the phrase and its words, which lead to articulation. This comprehends the last function, known in communication studies as overt production. This step is responsible in the execution of those motor programs (Greene and Graves, 2007: 23). After these stages, message is communicated to a certain focused audience with the purpose to direct a specific goal. This figure (3.5) represents a summary of message construction functions based on Greene and Graves (2007:22) scheme, but with some adaptations attributed to the author of this dissertation.

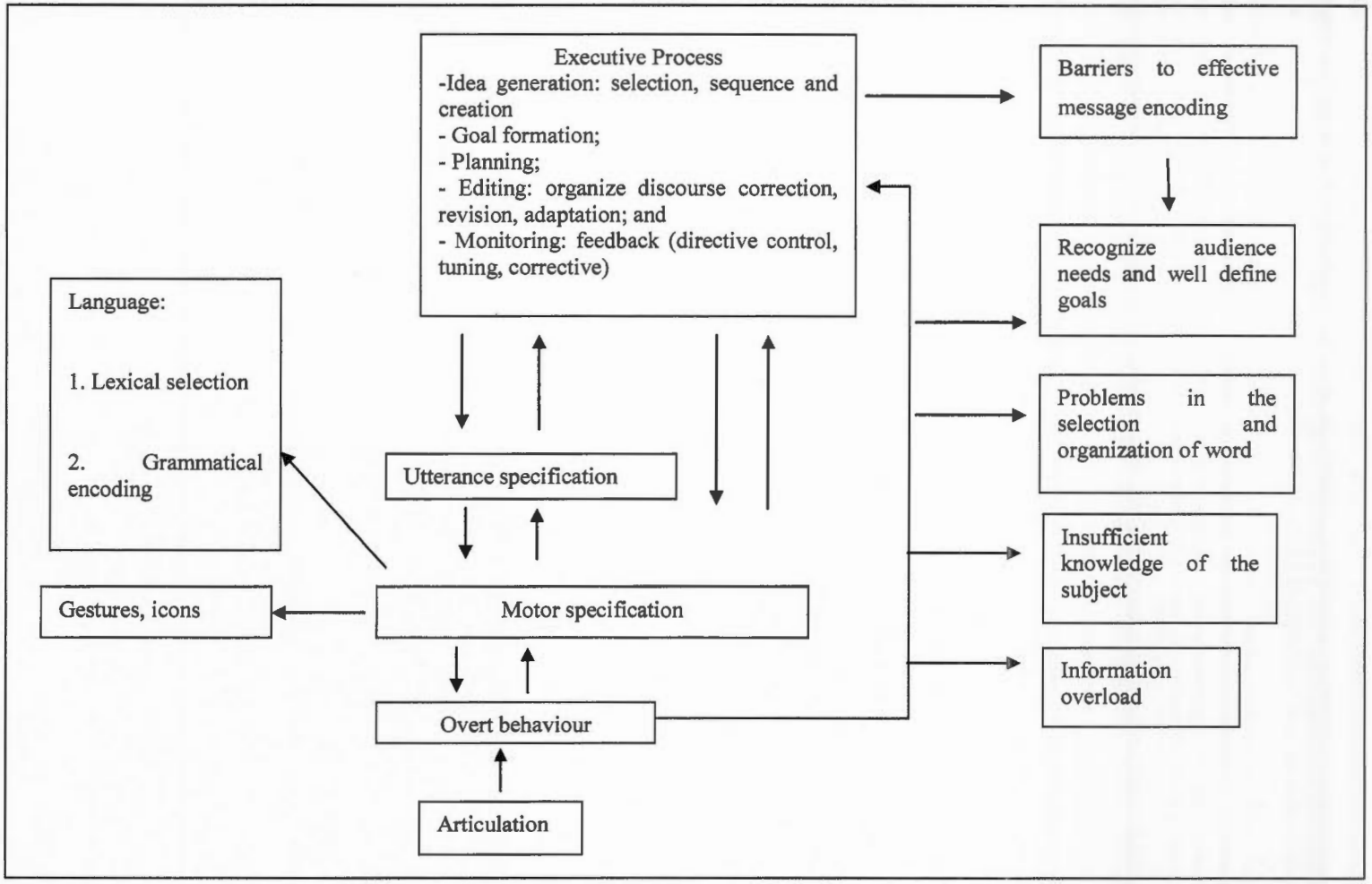

Figure 3.5 Message construction functions and barriers. **Source:** Adapted from Green and Graves (2007: 22)

This figure shows the elements composing each stage of message construction prior to the time that the message formulated will be conveyed. In addition, the barriers found in the process of communication production are also indicated.

Once the message construction process is complete, it's time to address these messages to an audience. Schober and Brennan (2003 in Berger, 2010: 114) state that independently of the communication mode (face to face or technologically mediated), message transmission occurs only in an efficient way, if individuals share a common ground. Common ground can be understood as "the totality of the presupposition individuals have concerning shared beliefs, assumptions and knowledge" (Berger, 2010:114). To Horton and Keysar (1996: 92) "common ground consists of information mutually believed by both parties". That is, message construction must take in consideration the cultural, psychological and sociological knowledge of each audience. The person responsible for message construction should consider the receiver's needs in order to achieve effectiveness in the formulation of communication. For example, children demand a different approach than that of business men as well as patients in treatment in a hospital need another type of conversation than the one addressed to tourists on vacation. These examples are really distinct, in order to demonstrate that message production is not a simple task. This table (3.1) demonstrates some elements that managers may face when dealing with message construction. It includes goal, limits and critical points in the message construction process.

Table 3.1 Message production goal, limits and critical points

Message production goal, limits and critical points		
The reason/aim of the message	**The limits of the message**	**Critical points**
To achieve goals.	To use a proper language to each audience;	Incomprehensibility of message;
	To avoid message construction failures;	Failure in goals accomplishment.
	To have an alternative in case of failure;	
	To achieve the desired goal;	

Source: the author

The table above presents the main objective of message formulation (reach goals), some of the mentioned limits which comprise the use of an adequate language, trying to avoid failures, having a second plan in case of shortcoming and achieving the intended objective; the critical points in this communication process include failure in the accomplishment of goals and message incomprehensibility.

In the context nature-based tourism, message constructions are based on several perspectives. Among these guidelines, messages can have an informative and educational character, be supported by law or security measures, focus on awareness, conservation, preservation and better respectful conducts associated to people, fauna and flora. There are also message constructions that don't respect environment concerns and values and then use environment features to promote tours, but without any proper care to the ecosystems visited. However, what are the values approached in leisure messages conducted in natural areas?

3.4 Messages in nature-based tourism: the dichotomy of ecocentric/biocentric values and anthropogenic values

Understanding that natural environments figure as the main attractions in nature-based tourism and analysing which values are associated with communication in tours are appreciated in this research. Message construction in these settings is supposed to emphasize nature importance through environmental values. However, what's meant by environmental values? Ecocentric and biocentric philosophies establish value and importance to all life forms, agreeing that these lives must be respected and preserved as well as humans (Edward-Jones *et al.*, 2000). Once people hold ecocentric/biocentric values, there is a latent concern with the importance of maintaining the ecological integrity of ecosystems. Reser and Bentrupperbaumer (2005:141) fully reflect on this concern:

> Environmental values are conventionally understood as more fundamental, and more salient and influential, normatively, emotionally and motivationally than preferences or attitudes, with such values serving as moral and/or responsibility reference points and touchstones for how individuals and societies should interact with and treat the 'natural' environment, in all of its diversity, at local systems and global levels.

This statement elevates the importance of environmental values over human desires and whims in interaction with nature. However, in nature-based tourism, several objectives can permeate the context of message construction and values may differ a lot.

According to Armstrong and Weiler (2002: 104), in a positive manner messages may address minimal impact behaviour, heritage values, conservation and protected area management. In a negative way, a distorted message and/or the omission of the message in this kind of tourism may promote permissive and exploratory behaviours that contribute to the degradation of pristine areas and fragile ecosystems, wildlife disturbance and much more. These messages may serve as attractive slogans intending to sell nature to consumers (tourists) interested in paying pecuniary sums to have access to a desired product. At the same time, tours can be sold with an eco message and even have a joint code of conduct, but in practice activities are developed without any or little environmental values purposes. On the other hand, messages can encourage conservation behaviours. To demonstrate these statements through

examples, two articles were consulted. One text was produced by Muhlhausler and Peace (2001) and another by Powell and Ham (2008) and these scientific papers showed two different sort of messages. These document's subjects are implicated in analysing communication intentions and results in two important coastal destinations, Galapagos and Fraser islands, the two most visited natural areas in the world. On an island communication reaps positive results while on the other the discourse does not seem quite satisfying in dissemination of a message constructed based on environmental concerns and values.

> Discover some of the most picturesque parts of Fraser Island'. . .'explore some of the hidden treasures of Fraser Island'. . .'explore some of Fraser Island's famous inland sights. Our rangers take you to explore their (dolphins') lifestyle and habitats'. . .'discover more about the dolphins, dugongs, leatherbacks and green turtles which visit our shores (Muhlhausler and Peace, 2001: 364).

In analyzing the first message, the word "explore" was repeated to create an effect, encouraging visitors to discover the island without precedents. That is, visitors seem to be free to do whatever they want. This shows a possible loose conservation policy or a lack of commitment in conserving natural and cultural island resources. Or, this region may even have a consistent environmental policy, but the message content leads to the understanding that the visitor has the permission to "explore" and "discover" the local fauna and flora without respecting the particularities of the environment. In addition, the terms "treasure", "lifestyle" and "famous" are used to stimulate visitor's curiosity in knowing this "exotic", "hidden" place. Thus, visiting Fraser Island assigns to the tourist some status, because these tourists can have access to a famed region and interact with different wildlife. The other analyzed article showed a different focus concerning message construction.

The second message highlights Galapagos uniqueness and explains the only way we can maintain natural areas like this:

> 'Galapagos is unique in the world, and we can keep it that way only if we rid the archipelago of introduced species', 'Galapagos is a test case of the viability of conservation... '... effective work to eliminate exotic species and mitigate illegal fishing continuance. (Powell and Ham, 2008: 473-474).

In addition, management strategies are mentioned in order to curb inadequate behaviours, reaffirming the viability of conservation plans for the island. These examples identify two distinct types of message construction. The Fraser Island discourse puts consumer's experience and satisfaction in the foreground while in the Galapagos Island tourist's experience and satisfaction must be suitable to the tour conditions. Therefore, one message construction is based on anthropogenic values while the other focuses on ecocentric and/or biocentric principles. Nevertheless, these messages have different objectives: one presents nature in a commercial way whilst the other seeks to guide the nature conservation.

According to some researchers (Akama, 1996; Muhlhausler and Peace, 2001; Randall and Rollin, 2009) interested in messages in nature-based tourism, some discourses have no environmental values, depending on the guide and/or tour operator responsible for the tour. Even those operators that have an environmental policy based on ethical and conduct codes in their company may assume a contrary speech. For example, Randall and Rollins (2009: 369) observed that the communicative role of guides was weak or less supportive in kayaking tours. Their study was administered in a marine area at the Pacific Rim National Park in British Columbia, Canada and had as an objective to identify message differences between guides in a same activity, reporting that one guide "encouraged them to gather and identify different empty shells. These were displayed on a rock with the guide book nearby" while a few guides presented the notions of "leave no trace" (Randall and Rollin, 2009: 365). A third situation reported referred to a desire of the visitors to apprehend more knowledge and awareness, but these questions were not approached to the guide as evidenced: "There has been no environmental education presented, although there has been an interest expressed by guests – picking up shells and wanting to identify them, pointing out eagles and asking questions about whales", report Randall and Rollins (2009: 365). Within this perspective, nature-based tourism gets established as a lucrative business. Tour operators have natural spaces as "baits" to offer immeasurable opportunities for wildlife viewing in pristine environments, and other forms of nature-based tourist activities (Akama, 1996: 570). Although, this sort of commercial approach is exclusively directed to profit gaining it is clearly not suitable to this touristic segment, certain economic conditions as poverty and tourism as the only opportunity for employment and income may lead to these attitudes. Writing about Akama (1996: 571) states that "local people are more preoccupied by meeting their subsistence needs and cannot afford to grant aesthetic value and the goals of long-term nature conservation a high priority". This appears as a

harsh reality that other third world and developing countries confront. In this case, perspectives of conservations and/or preservation figure in the background. Thus, environmental values are more likely to be replaced by commercial ones, but this is not the norm.

Meanwhile, Armstrong and Weiler (2002) administered a study in National Parks in Victoria, Australia and they could realize a strong implication in environmental messages delivered, or at least messages that avoid nature damaging. According to the research analysis, these perturbations can be prevented since there is a message well-constructed with a content based on actions that lead to the conservation purpose. Armstrong and Weiler (2002:107) report that "the identification of key audiences and key messages, including messages directed at licensed tour operators and their clients would be an outcome of a strategic interpretive planning process". Therefore, message construction content should respect ethical and conduct code principles. To accomplish this study, authors gathered material to understand the communication desired goals of the site. They also observed that most operators met the required goals that are: "encouraging appropriate behaviour, thereby minimising visitor impacts in protected areas, informing visitors of Park Victoria's roles and actions in protected area management, communicating its laws and regulations, delivering messages about the significance or heritage value of particular areas, raising visitor awareness of conservation issues, and encouraging conservation action by individuals" (Armstrong and Weiler, 2002: 110, 111).

In order to demonstrate study results, Armstrong and Weiler (2002) highlighted some messages used by guides during a night walk which featured wildlife watching as:

> 1) "We'll go down to the river very quietly … try and keep quiet…"
> 2) "Try not to point [at the Platypus or suspected Platypus] if you can avoid it …"
> 3) "What I'll get you to do is just stick to the track here, but keep sort of as far away from the river as you can…"
> 4) "… try to walk in single file, and don't go off the track, okay, and try not to pick much of the native foliage as well."
> 5) "Don't shine your lights on the entrance itself, okay guys … the glow worms are in there and they don't like the light, or they turn themselves off if they cop a bit of light."
> 6) "If you can shine your torches on the floor of the mine… don't touch the walls and don't shine your torches on the glow worms …";
> 7)"… try not to touch the cave, the wall at all …" (Armstrong and Weiler, 2002: 117).

All the messages presented reveal the care of the guide with the local fauna and flora. The guide is always alert and pays attention to every detail of the surroundings; these recommendations may avoid and/or diminish the impacts. For example, he advises to keep quiet and not point to the birds, which refrain noise and birds perception of human presence. This reduces the possibility of impacting wildlife functions and actions. He also asks for respecting the track and to be away from the river, which favors the reduction of erosion on the slopes of rivers, soil compaction and vegetation degradation. In addition, he warns not to pick up foliage in order to protect local flora and soil properties, not to shine lights and torches so not to disturb glow worms as well as not to touch the visited surroundings. The guide uses a friendly and accessible language; however this communication is based on deontological ethical nature, which doesn't explain interventions.

Other environmental values are also advocated for other authors. For example, Fairweather *et al.* (2005: 83) indicate that experiences in natural areas should foster environmental and cultural understanding, appreciation and conservation. In addition, Dewhurst and Thomas (2003: 384), responsible for a research in small firms in United Kingdom National Park, supported the idea of resource preservation, "on which the tourism industry depends rather than on the sustainable use of the resources". Luck (2003: 944) associate environmental awareness as a value, especially when education and interpretation are part of the tour. Figure 3.6 identifies some biocentric and anthropocentric values found in nature-based tourism messages examined.

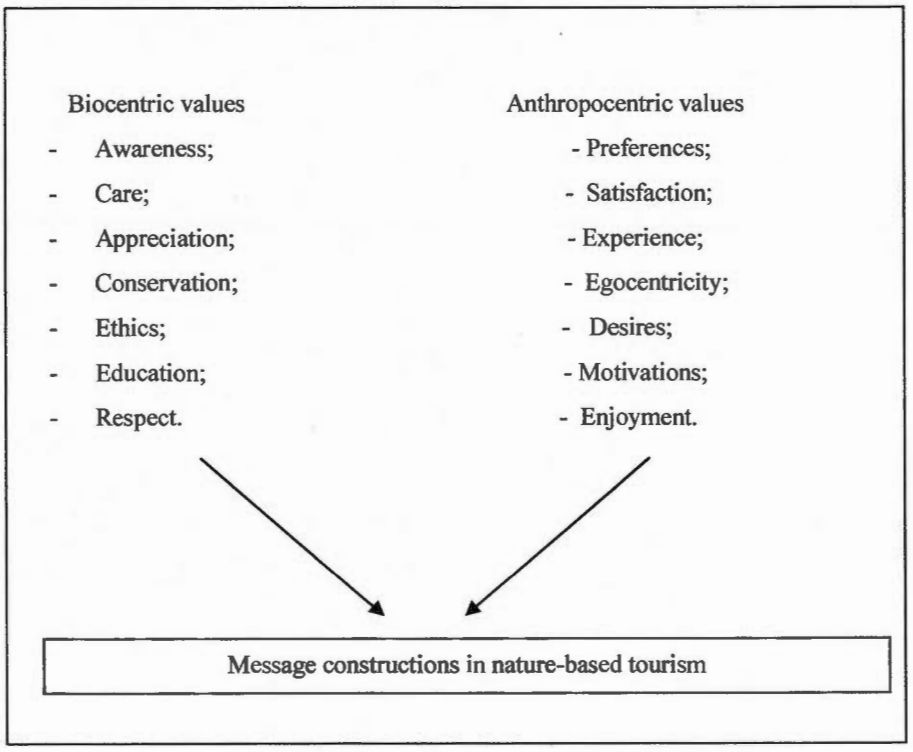

Figure 3.6 Representation of messages biocentric and anthropocentric values
Source: the author

This figure intends to demonstrate the differences found in message construction. The paradox is established by ecocentric values on one side and egocentric on the other. One message construction is centered only on visitors' desires while the other encourage nature conservation importance while leading tourists to have pleasant encounters with the environment. The ideal message should meet the two sides, promoting the conservation of the environment visited and at the same time ensuring the reasonable satisfaction of visitor's needs.

3.5 Message construction in Pernambuco beaches – case study analysis

This section focuses on message construction in activities surveyed. Therefore, at this moment, semi-structured interviews (see Appendix A) administered with governmental institutions, with operator and with the jangadeiros' leader are transcribed in order to demonstrate on what basis messages are constructed. In addition, printed, displayed and presented materials (cards, booklets, folders, signs,

theater, story books) have also message construction analyzed. These interviews weren't recorded, because respondents didn't allow this procedure. Responses were transcribed to computer and on the same day all collected information was organized. This action avoids loss of information. The semi-structured interviews flowed without any problem and the interviewees answered all the questions as previously planned.

3.5.1 Message construction basis: environmental education and the conservationism movement

To analyse the basis of message construction in the catamaran tour, the environmental walks and the jangada tour, it was primarily necessary to investigate the environmental policy embraced, policy objectives, the public focuses to this policy, the main policy ideas and word or expression emphasizing environmental message. Interviews were conducted with one of the coordinators of the environmental walks who is a government representative, employee of the environmental education department of the State Environmental Agency, a leader of jangadeiros', representative of the Jangadeiro's Association who is one of the professionals involved in the jangada tour, a coordinator of environmental project concerning the jangada tours, and a tour operator of Catamaran tour. The results of interviews are presented along with content analysis in table 3.2.

Table 3.2 Representative's views on message construction questions

Questions:	Catamaran tour activity	Environmental walks	Jangada tour
	Tour operator (N=1)	Government representative (N=1)	Jangadeiro leader and representative of local government (N=2)
What's the Environmental Policy?	Conservationism	Environmental education	Environmental education
What are the Objectives of environmental policy?	To deliver useful information to promote environmental conservation	To influence visitors conduct through communication	Coral reefs conservation and control tourism on coral reefs
What is the Target population?	Tour participants	Visitors	Visitors and jangadeiros
What are the main Ideas/expressions used?	Natural beauty and marine wildlife	Foundations of environmental education and conservationism idea	Environmental conservation of natural area

Source: the author

The catamaran tour representative stated that the company's environmental policy was the preservation of ecosystems. This operator was quite emphatic, without giving many details. In the course of the interview, the respondent said the company fathered a conservationist environmental policy, dealing with resource conservation. Environmental walks representative said that to institute a policy, the institution decided to recognize the environmental issues present in Pernambuco beaches. With an understanding of these environmental questions, a material was created, in which problems and opinions were contextualized. After this preliminary study, the governmental organism instituted as appropriate to use the pillars of environmental education as project fundaments. The jangada tour representatives also pointed environmental education as the policy fostered. Since representatives state that conservationism and the foundations of environmental education incorporate the fundamentals of environmental policies embraced by each organization, they are supposed to base message construction on the following tenets.

The conservationism movement integrates nature into a utilitarian and managerial perspective, arguing that natural resources must be included in a sphere of responsible planning and management. Hays

(1999: 123) reinforces this idea by stating that "the use of foresight and restraint in the exploitation of the physical sources of wealth as necessary for the perpetuity of civilization, and the welfare of present and future generations". That is, the main goal of this speech is the rational use of natural resources in order to meet human long term needs.

The first conference concerned with environmental education occurred in Belgrade in 1975. In this event, six overall objectives of EE were defined and environmental education primarily intends to stimulate the following acquisitions in individuals and social groups:

1) Awareness: to be sensitive to total environmental and its allied problems;
2) Knowledge: to understand total environment, its associated problems and humanity's critically responsible presence and role in it;
3) Attitude: to obtain social values, strong feelings of concern for the environment and the motivation for actively participating in its protection and improvement;
4) Skills: to gather skills for solving environmental problems;
5) Evaluation ability: to evaluate environmental measures and education programs in terms of ecological, political, economic, social, esthetic and educational factors;
6) Participation: to develop a sense of responsibility and urgency regarding environmental problems to ensure appropriate action to solve those problems (The United Nations Education, Scientific and Cultural Organization and The United Nations Environmental Program – UNESCO/UNEP, Environmental Education Newsletter, 1976: 2).

Therefore, these foundations are observed in the message construction of these activities.

Once understood the environmental policy embraced, respondents talked about objectives in this policy creation and target audience. A catamaran tour operator reports that the main purpose for the creation of this policy is to deliver useful information to visitors aiming to promote environment conservation. This operator talked about his concern regarding coral reefs degradation, emphasizing the need to take care of nature, due to human dependence on natural resources. To him... "we need to

take care of nature, because in one way or another we depend on it". Visitors participating in catamaran tours are the target audience.

An environmental walks respondent said that this project intends to influence visitors' conducts, triggered by positive behaviors contributing to the preservation of coastal ecosystems as well as people's respect. This project aims to trigger appropriate actions. This representative also complements his answer saying that... "the purposes of these acitivities are oriented in a perspective of continuity; thus becoming an instrument of support to environmental education actions throughout the year". Therefore, the project seeks to minimize issues through information access. The target population consists of beaches visitors. The jangada tour representatives stated that... "the main objective of policy creation is to control tourism on coral reefs and coral reefs preservation". The target population of this activity is visitors and jangadeiros (guides), who have the natural area as workplace.

The last questions were designed to uncover the basis for communicative construction process dealing with the ideas and expressions used in messages formulation. Catamaran tour operator stated focus on the natural beauty of visited beaches, giving information about marine wildlife in order to avoid degradation. This activity representative didn't recognize any specific expression; however he said that company was concerned to construct a message based on... "environment caring without ceasing. He said that other recommendations are communicated as... don't catch anything, don't feed animals and only take pictures (from afar)". He justifies his statement discoursing about the importance of... "maintaining nature ecological integrity for the enjoyment of future generations". Environmental walks interviewee said that... "the pillars of environmental education and the idea of conservationism are highlighted in its message construction proposal". The jangada tour respondents stated that the main ideas and expressions used in message construction are the ones related to... "environmental conservation of this natural area".

Analysing the answers, it is possible to conclude that the environmental walks and the jangada tour adopted similar policies while Catamaran tour differs in its choice. The policy target population is the same for the three activities: the visitors. However, the jangada tour also includes the jangadeiros (guides) as elements focused by environmental policy. Regarding the words and expressions launched in message construction the catamaran tour presents a deontological ethical nature and leave no trace ideas while Environmental walks maintain the mainstream of environmental education, adding also

conservationism ideas. Ultimately, environmental conservation determines the jangada tour central idea in message construction.

3.5.2 Analysis of message construction of written materials and videos

To reinforce the investigation in message construction this analysis is extended to written materials (conduct term, documents, booklets, book, brochures and posters) and videos.

Environmental walks materials

Environmental walks representative provided me with a booklet with an environmental story and a folder with games and information directed to children, a booklet informing about the activity and a video. Details of each material are presented below.

Book story: this material emphasizes environmental thematic as water pollution and deforestation and the idea is to present environmental knowledge in a ludic way. There are a lot of colorful characters and uses an accessible and positive language in order to achieve children's cognition.

Folder: this material approach mangroves fauna, flora, importance and location of this ecosystem in Brazil and in Pernambuco in a ludic way. This folder has games, information, drawings and photos. In addition, this folder presents the theme in a positive and easy language facing infant universe. This material has a teleological ethical nature in its content.

The government project (Environmental Walks) booklet: this material presents how and where (beaches) environmental walks take place. More specifically this booklet appoints the ten main impacts occurring on Pernambuco beaches, which are:

1) waste;

2) trawling;

3) presence of animals (dogs and horses) on the beaches, contaminating sand and water with feces and urine, transmitting diseases to visitors ;

4) driving of motor vessels (Jet Ski, boats) near to the coast, endangers visitors safety;

5) operate motor vehicles and bicycles, endangers visitor safety;

6) loud sound around the beach, bothers visitors and residents;

7) sports practice on the beach, endangers visitors safety;

8) sandbank degradation;

9) mangrove degradation;

10) coral reefs degradation.

To each item this material explains how the visitor should proceed and why these attitudes should be taken, taking into consideration environmental, safety and health aspects. The language is easy to access and using images of adequate attitudes, project characters and also some pictures of actions developed in environmental walks. Most points raised rely on existing laws that must be respected by visitors. However, penalties application, if law is violated, is not described. Mostly messages of this material are formulated focusing on a teleological ethical nature.

Video: this material explains the project in an interactive way and is more complete than the booklet. As the booklet, this video describes all impacts as well as the appropriate actions to be performed by visitors in order to avoid pressures. In addition, characters (turtle, crab and visitor) and university professors explain in detail why certain attitudes affect ecosystems and the possible consequence of these acts. There are also historical data related to the high population concentration in coastal areas and the impacts generated by this urbanization. The State Environmental Agency and its representatives share the actions held on the beaches through environmental walks, storytelling, music, theater, games as well as the involvement of society, educators, artists and local government representatives. The ethical nature of this video is completely teleological.

Analysing the materials of environmental walks, one may accomplish the following directions: 1) they are used to publicize the importance of this activity to the region; 2) they give information about local fauna and flora; 3) they identify the main environmental impacts occurring in Pernambuco beaches; 4) they determine the appropriate behaviors when visiting and interacting with coastal areas and their ecosystems; 5) they make visitors aware of existing environmental laws; 6) they present communication and environmental education as feasible actions to minimize environmental issues; 7) they integrate environmental education with different and ludic activities aiming to attract the general public (adults and children). Environmental walks present all these facets aiming to include proper behaviour to be performed in natural areas with the pedagogical approach of environmental education. This table (3.3) summarizes message construction idea generation, goals, audience and language of each material presented.

Table 3.3 Environmental walks message construction details

Material	Idea Generation	Goal	Language/images	Focused audience	Ethical nature
Book story	Environmental education – selection and sequencing	Raise awareness to environmental issues and educate	Positive, Colorful (ludic) and Accessible	Visitors Children	Teleological
Folder	Environmental education- selection and sequencing	Sensitization through environmental education (fragility of ecosystems)	Easy, positive, ludic (photos and images)	Visitors Children	Teleological
Booklet	Present environmental impacts and solutions through environmental education – selection and sequencing	To influence visitors conducts on beaches	Intermediate level, because use more complex and convoluted scientific terms, positive, explanatory, colorful	Visitors Adults	Mostly Teleological
Video	Present environmental impacts solutions through environmental education – selection and sequencing	To influence visitors conducts on beaches	Intermediate because use more complex and convoluted scientific terms and historical data, positive, interactive, explanatory, colorful	Visitors Adults	Teleological

Source: the author

The intention of this table is to integrate communication theory reviewed in previous chapter sections to case study analysis, demonstrating the most important steps developed in order to formulate message. In Environmental walks written materials shows that communication construction is based on

teleological messages aiming to reach adults and children. Idea generation is mainly centered on environmental education and managers intend to influence visitors' behaviour as well as raise awareness and sensitization regarding environmental issues and the environment visited. The language used in video and booklet may figure as a barrier to some receivers' because it is a little bit complex, emphasizing scientific terms.

The jangada tour

The jangada tour representatives provided me with a video, a poster with "conscious behaviour", a booklet of environmental sensitization and a term of conduct commitment directed to the jangadeiros (guides).

Video: This material attempts to have visitor's collaboration in order to maintain beaches natural beauties and cleanness. Video also highlights the importance of respecting nature; to follow instruction to contribute to ecosystems preservation. Ecological importance of Ipojuca municipality ecosystems is also approached. Furthermore, the video dictates the actions that must not be developed by visitors. These messages are mostly deontological in nature and explanations are little explored in message construction. The language is intermediate for using scientific terms and for being prohibitive in its content essence. Material aims to educate and aware visitors.

Poster: this material comprises information about visitors conducts while visiting coastal areas. This poster presents sixteen drawings with information about behavioral procedures in coastal areas. See below the sixteen poster recommendations:

1) To search information about coral reefs with professionals;

2) Avoid contact of the oar with the surface of the coral reefs while on a moving vessel;

3) To anchor the jangada in the sand instead of on coral reefs in order to preserve this ecosystem;

4) Don't touch or step on coral reefs, because ecosystem fragility;

5) Don't feed the fish, because this is harmful to the health of marine animals;

6) To use only waterproof sunscreen lotion when diving;

7) Don't collect remains of seashells, coral reefs and starfish, because these materials serve as shelter;

8) To prevent coral reefs destruction, diving equipment must be kept close to the body;

9) In shallow waters avoid the use of fins, because the movements may break coral reefs;

10) In the sea, move slowly not disturb animals;

11) Never throw garbage on the beach or in the sea, because it harms marine wildlife;

12) Avoid the use of harpoon or spits, because these instruments frighten animals and pose risks of accident;

13) The trade of handcraft made with coral reefs is a crime;

14) Fishing with explosives and chemical substances is an environmental crime. There is necessary license to fish as well as observe local restrictions and fitting equipment;

15) Find out tidal hours and cycles in order to prevent dangerous and unforeseen situations;

16) Don't gather anything; take from coral reefs environment only memories and pictures.

The topics approached in message construction are concerned with environmental conservation and preservation and visitor's safety (rules number 1 to 3, 4, 5, 7 to 11, 13, 15 and 16). Statement number 6 is subject to dubiety, because visitor may be in doubt whether to use waterproof sunscreen to protect personal health or for environmental reasons. The language used is accessible to the general public and prohibitive. This poster has in its ethical nature half deontological and half teleological messages. Two of the rules of conduct presented are also directed at jangadeiros (rules number 2 and 3) and other two were especially formulated to local people (rules number 12 and 14).

Booklet of sensitization: This booklet is concerned with environmental sensitization regarding the Ipojuca city ecosystems. Material was created by Environmental Department of Ipojuca and partnerships. This booklet has as objective of changing harmful practices to the local environment through knowledge, seeking to arouse reader's environmental awareness. The subjects relay information about the local fauna and flora, water resources and waste issues. More specifically, coral reefs, mangroves, Atlantic forest and other important vegetation as Baobab, a tree originally from Africa, water importance and waste recycling are discussed and described. Aspects as impacts reasons, legislation for the protection of the ecosystems, definitions, characteristics, explanations, present management strategies (ex. zoning in coral reefs) and tips on how to act in these natural environments are listed as concerns. There are a lot of pictures making the reading more interesting and consequently less tiring. This book has a more elaborate language, containing scientific names of animals and vegetation and also statistical data presented to increase reader knowledge. This material foundation emphasizes a teleological ethical nature.

Term of conduct of Jangadeiro's Association of Porto de Galinhas: This conduct code dictates norms which must be observed and fulfilled during the jangada tours on the coral reefs. The thirteen established obligations are:

1) Only allow visits to the coral reefs, in the jangada tours, through single line or bystanders controlled within the tracks, zoning by ropes and buoys, with an average of 4 hours a day of visitation, with 45 minutes each the jangada tour, 20 minutes in trails and 25 minutes for swimming in admissible natural pools;

2) This tour must be accompanied by a properly identified and qualified jangadeiro of municipality;

3) A maximum total of six people per tour, including adults and children;

4) Each jangadeiro must perform in a daily basis the following number of tours: January, February, November and December: 04; March, July, September and October: 03; April, May, June and August: 02. This tour must respect single line and low tide schedules;

5) Only allow the movement of vessels that meet the standards of Navigation Brazilian Navy, observing zoning areas stipulated by Ipojuca municipality;

6) The boarding and landing area must be done within the properly labeled areas (in front of the square of natural pools or on the coral reefs) by Ipojuca municipality;

7) Only allow navigation in the channels in the tides of new and full moon and when the tide is rising jangadeiros must continue to respect the areas bounded by Ipojuca municipality;

8) Only allow navigation on the reefs on waning and crescent tides or when the tide is high; observing navigation corridor indicated by Ipojuca municipality;

9) The sales of the jangada tours will only be accomplished through jangada sales booth, administered by Jangadeiros Association of Porto de Galinhas;

10) Establish the following punishments to be applied gradually as a reiteration of the failure to meet target established for members who do not fulfill the above obligations: 02 days suspension of the touristic activities; 05 days suspension of the touristic activities; fine and 20 days of suspension of the touristic activities; exclusion of the association, all punishments;

11) Just accept jangadeiros to conduct tourism activities on coral reefs, who possess operating license of Environment and Technology department of Ipojuca municipality;

12) Even with rising tide don't navigate in areas bounded by ropes and buoys;

13) Decrease the distribution of fish ration, even among jangadeiros.

These conducts are directed to jangadeiros and have the objective to curb professionals' unethical behaviors. This approaches three main issues: 1) tour details and exigencies (rules number 1,2, 3 and 4); 2) safety, operational and environmental exigencies (rules number 5,6,7,8, 9, 11,12 and 13); and 3) punishment details to the professionals, who don't follow the norms (rule number 10).

The analysis of the materials provided lead to the conclusion that message construction is only directed to an adult public. In the jangada tour, any material was developed to children differently of Environmental walks, the previous activity. This activity has in its content deontological aspects as the dominant element. The use of do nots appear with a certain frequency in materials. The idea of messages is aware, educate and change audience comportments through a perspective of

conservationist and environmental education. An important aspect of the material presented is targeting message construction to visitors, local residents and nature-based professionals. That is, all social components interacting in one way or another with ecosystems are invited and empowered to act appropriately. Table (3.4) shows message construction idea generation, goals, audience and language of each material presented.

Table 3.4 Jangada tour message construction details

Material	Idea generation	Goal	Language	Audience	Ethical nature
Video	Conservationism	Visitors education and awareness	Intermediate, prohibitive	Visitors Adults	Mostly deontological
Poster	Conservationism and visitors safety and health	Visitors education and awareness	accessible, prohibitive, colorful pictures	Visitors Adults	Half deontological and half teleological
Booklet	Environmental sensitization through environmental education	To change harmful practices through knowledge – visitors education and awareness	Elaborate, scientific fauna and flora names and statistical data	Visitors Adults	Teleological
Term of conduct	Conservationism of coral reefs	Establish jangadeiros proper behavior on conducting activities on coral reefs	Based on laws, specific and intermediate	Jangadeiros (guides)	Deontological

Source: the author

As on the previous table, this one shows the details of message construction covered in the jangada tour. In this activity, each written material is presented in a different way regarding to its language and ethical nature. Goals and idea generation are practically aligned in the same direction. The central idea of message is the conservationism of coral reefs and one of written materials (booklet) also include sensitization through environmental education. Among the objectives of these materials we can mention educate and aware visitors as well as establish proper conducts to the jangadeiros' (guides). Unlike previous activity (environmental walks), message is formulated for two distinct audience: jangadeiros (guides) and tourists. The language is often presented in an elaborate manner, which may hinder visitors' understanding of the message. In addition, these materials are mostly formulated with a deontological approach, which also may embarrass message comprehension, because tourists may not understand the reasons behind the dos' and don'ts.

Catamaran tour

Catamaran tour operators do not provide any informative material in which message construction could be examined.

3.6 Conclusion

This chapter covered communication definition, functions and technical approaches in order to precede a message construction. In addition, it focused on biocentric and anthropocentric values of messages, presenting some examples of messages in activities throughout the world. As observed in previous paragraphs, nature-based tourism commonly presents messages in tours, however values associated to these discourses can vary greatly from one tour to another or even from one professional to another. By analysing the two situations, tours that have environmental values in their message and tours that do not have these principles in its messages. A gap is observed between theory and practice, leading operators to formulate either message of a anthropocentric character (intrinsically related to human needs) or in a biocentric perspective (intrinsically related to nature needs) within the same touristic segment. Furthermore, according to the examples presented, there are messages constructed under the aegis of environmental values. This values dichotomy demonstrated in message construction is detrimental to standardize operator's behaviour regarding nature-based activities developed in these settings. Message construction was verified in case study analysis, through description, transcription and examination of data gathered such as interviews with representatives and provided materials.

Aspects as idea generation, goal formation, language, audience and ethical nature of messages were identified in order to raise comprehension of communication formulation. Values as awareness and sensitization were found in message construction of activities surveyed. The jangada tour privileges more deontological messages while the environmental walks focuses on teleological ones. Activities objectives are aligned to education and conservation of natural areas, which configures really good goals to be achieved. This first process appears in an essential position in this communication process and the success and/or failure of communication depends largely on the message construction. Continuing the study of communication processes, another key moment of that communication process is connected to message transmission, subjected analysed in the fourth chapter of this research.

CHAPTER IV

MESSAGE TRANSMISSION: SECOND STEP IN THE COMMUNICATION PROCESS

In a nature-based tour, where visitors have as objective to encounter wildlife, convey a message that emphasizes only biological aspects of animals (species, scientific names, animal's diseases and so on) may represent a monotonous or too specifically subject to expose to tourists on vacation. This is bound to happen, simply because they are tourists, they are not biologists. One far-fetched language can generate the incomprehensibility of the message transmitted, appearing as a barrier in the communication process. In fact, visitors aren't looking for research or to understand details of animal's functions, they want to see and experience a contact with nature (McKercher, 1993). Considering that the interaction with nature figure as the biggest desire of visitors, they really need to be educated through messages that highlight proper conduct in the visited environment. In some way, visitors have the desire to interact with nature and then this is the time where communicators can use message transmission as a tool to encourage positive attitudes and discourage predatory behaviour on-site. In addition, visitors need to be supervised in natural areas in order to avoid environmental impacts. The way communicators convey a message in natural attractions and conduct tours may be the key in controlling and minimizing environmental pressures; however the opposite may also occur if message transmission isn't conducted properly

Therefore, this fourth chapter focuses on the analyses of the message transmission approaches and its techniques developed in nature-based tourism, more specifically on activities taking place in natural areas. Considering that message transmission is part of a communication process, questions associated with message transmission techniques and their barriers in achieving efficiency are addressed. In addition, ways to overcome barriers hindering message transmission efficiency are also presented throughout this text. This research chapter examines all forms of broadcast messages in natural areas in

order to demonstrate all message transmission models used in natural setting; however the major focus of this work is associated with message communication for communicators (guides).

To achieve this understanding, it was observed what kind of elements and techniques nature-based professionals include in message transmission while communicating in natural areas. The roles exerted by nature-based tourism professionals are essential to understand message transmission and if message delivered really adheres to the tenets of codes of ethics and conducts directed to natural settings. For the reasons mentioned above, this section also examines if message transmission privileges conduct codes application as well as the role of guides in developing communication in activities. The analysis of message transmission in Pernambuco beaches composes the presentation of case study results. Between this and that, message transmission in natural settings is investigated in order to understand how this communication process occurs in nature-based tourism.

4.1 Message transmission techniques: their advantages and disadvantages in message efficiency

In a wide view, communication process is summarized in the transmission of information from sender to receiver. Message transmission figures as the moment when the message constructed is delivered to an audience. This is the time to transmit ideas, concepts, expressions and much more to the target public to which message was formulated. Message transmission is "concerned how senders and receivers encode and decode, with how transmitters use the channels and media communication" (Fiske, 2010a: 2). It requires to convert the information that is intended to be shared in a form that can be transmitted (ex: messages) (Schramm, 1997: 52). For example, conservation thoughts in the head of nature-based tourism managers, tour operators, guides, if not directly encoded in elements of communication (messages, signs, brochures, pamphlets and so on), will be just thoughts in the head of those who aspire to share, unless they are put into practice through communication strategies. In turn, decoding is the way the receiver interpret the message (Schramm, 1997: 52). In tourism, the receiver is the visitor, tourist that absorbs this message. The channels are the physical means by which the signal is transmitted and medium is the physical and technical means of converting the message into a signal capable of being transmitted along the channel (Fiske, 2010b : 18). This means that this channel corresponds to sound waves, radio waves, nervous system, etc. while medium uses channel to distribute messages. For example, our voices are a medium as well as radio and television (Fiske, 2010b: 18). Communication can use three different types of medium:

a) Representational;
b) Presentational;
c) Mechanical (Fiske, 2010b: 18).

Representational media corresponds to books, paintings, writing, and architecture and so on, existing independently of the communicator to take place (Fiske, 2010b: 18). Representational, the first medium category is expressed by cultural and aesthetic conventions, using creativity in communication delivery. In fact, this medium category aims to represent a version of reality. These media instruments are a result of mediation which involves selection, organization and focusing. Then, a determined medium is selected over others and undergoes a process of organization, focusing on one or some aspects while ignoring others. For example, among much news daily, a newspaper selects, organise and focuses on some of these. However, this reality represents whose views? Thus, we should to be careful with these "realities" representations and train our critical sense before absorbing media available. In fact representational media can serve as an opinion trainer regarding the most diverse topics as fashions concepts, political and social issues, food choices and so on. Representational medium influences and incites people to assimilate the presented ideas. This medium category presents some advantage and disadvantages regarding message efficiency (Schramm, 1973: 118-119). First of all, this medium only reaches message receivers` eyes, restricting stimulation of the other audience senses. That is, in case of information exchange, the audience faces a difficulty in message feedback in that category. On the other hand, representation medium gives audience the opportunity to have control in order to pace, think and reread material if they judge necessary. This advantage promotes a more effective learning of message. In addition, representation medium can be easily multiplied overcoming distance, and time. Furthermore, representation medium can preserve important ideas, facts, and pictures and so on. Although not very obvious, representational medium can stimulate ordinary people`s interest in visiting certain places. For example, natural surroundings and wildlife of Kenya is well immortalized in books and memories by Ernest Hemingway and Theodore Roosevelt (Pennington-Gray *et al.*, 2005: 271), being a source able to incite curiosity and will in visiting this African region.

The second medium category the presentational medium configures the use of natural language found in spoken words, expressions, gestures and so on, requiring human aspects as voice, body and face. This model demands a communicator, because that person is responsible to send the information, producing an act of communication (Fiske, 2010b:18). Face-to-face communication has important advantages leading to message efficiency such as: 1) can stimulate all humans' senses; 2) feedback

opportunity is maximal since one person is available to exchange information; 3) receiver has some control over message pace, having the opportunity to ask question and steering conversation. However, this medium category is hard to be multiplied as the information preserved because of the evanescence of this communication (Schramm, 1973: 118-119). This model is well represented by tours which demands tour guides. For example, in general all the types of wildlife safaris have an available tour-guide, interacting with visitors.

Finally, the third one, the mechanical medium consists of engineering creations alternatives of communication as telephones, televisions, radios and telexes (Fiske, 2010b: 18). Mechanical medium provides information about places in television documentaries or through other technologies. Regarding message efficiency some points are exposed in relation to mechanical medium (Schramm, 1973: 118-119). This medium category may reach two senses of receivers (ear and eyes), being limited in relation of feedback as well as receiver control. For instance, a radio listener or a documentary viewer has no control of the message delivered unless audience can record it. In addition, without recording TV and radio programs, multiplication and preservation of these media don't happen. Then, this makes it difficult for the audience to relive the media experience. In nature-based tours, the most common way of the mechanical medium transmission of the messages is through videos.

As mentioned in the previous paragraphs, the three medium categories presented figure as different ways of transmitting messages to an audience. Although, these media are important ways to communicate, they have some limitations regarding communication efficiency as demonstrated. In addition to these limitations, other barriers also affect the success of communication in representational, presentational and mechanical techniques. This happens when "noise" is added to this process. Noise consists of several barriers encountered when communicating.

4.2 Message transmission barriers and ways to overcome them

In nature-based tourism, the transmission of messages has an important role in enhancing visitors understanding of the environment visited. In addition, the communication of messages may promote appropriate behaviors on and post-site if all communication elements operate well and align with each other. The relevance of message transmission in natural areas goes beyond technical standardization, just because these interactions focus on human communication. This significance is associated to the fact that conveying a message can be more than providing information to visitors, depending on how

this process is conducted; this action can change visitors' behaviour. Therefore, message transmission must figure as part of tours. Within this perspective, Muhlhusler and Peace (1999: 142) agreed that cooperation between all partners must be active in a communicative process, aiming to enhance meaning. That is, sender's and receiver's need to make efforts in order to overcome barriers and achieve message efficiency; otherwise this process is subject to failure if they don't contribute to the accomplishment of this process.

To collaborate in the accomplishment of message efficiency in transmission process, the communicator and receiver or receivers need to assume some roles. Mambert (1971) and Schramm (1997) list communicators' tasks while conveying a message. Communicator must be: 1) objective, applying necessary insights and devices when and where needed; 2) aware and sensitive to all elements influencing communication including people, things, ideas, sights, sounds and so on; 3) goal-direction to formulate specific objectives for specific attempts; 4) strategic and tactic; 5) to "compartmentalize" ideas, affairs or activities; 6) empathic, motivated, positive, free for inhibition, practical, courageous, curious, sense of humor and 7) to know as many as possible audience (Mambert, 1971: 8-17). Schramm (1997: 59) go further adding that is important to know the right timing for a message, the language used to be understood, the attitudes and values one must appeal to be effective as well as the group standards in which the desired action will have to take place.

For instance, they need to communicate clearly and accurately in order to achieve understanding. Muhlhusler and Peace (1999) allege that if this is not the case, there are significant chances of discrepancy between input and intake. That is, the communication process won't achieve the intended goals, due to interruptions encountered along the way. More specifically there are chances in the emergence of communication interferences, barriers, filters or noises.

These interruptions are represented by noise, redundancy and entropy (Fiske, 2010). "Noise is anything added to the signal between its transmission and reception that is not intended by the source" (Fiske, 2010b: 8). That is, sender and receiver communicate and while they share a conversation elements outside sender's control disturb communication process. These interferences present the following difficulties:

1) Psychological noise;

2) Physical/mechanical noise; and

3) Semantic noise (Burton and Dimbleby, 1985: 78-82)

Psychological noise consists of existing attitudes, values and beliefs. That is, preconceived notions as assumptions and reputations may mislead the focus of communication. For example, a visitor who travels to a natural area to interact with wildlife can't accept certain guide's instructions as "don't feed the animals" since tourists can simply claim that professionals want to limit their freedom. These previous assumptions can easily take messages' receivers away from the real meaning and intentions intended by the original message. Physical noises are the environment stimulus distracting receiver and preventing message deliverance as intended by communicator. For instance, if there is a construction site near a park, communication between guide and visitors can be disrupted. In addition, physical disabilities as deafness and blindness are considered a physical barrier as well as a breakdown in equipment being used to communicate. Semantic noise is related to the different understandings and interpretation of the words used as well as mistakes in grammar disrupting communication. For example, the use of homonyms words (same spelling and pronunciation, but different meanings) may confuse audience. A sign displayed in English in a natural area where most visitors only understand Portuguese consists also as a semantic barrier. These mentioned barriers can "limit the amount of desired information that can be sent in a given situation in a given time" (Fiske, 2010b: 8).

Redundancies consist of message repetition using other words in order to hence important messages or explain complicated ones. In addition, redundancy may help overcome a noisy channel and also reach a heterogeneous and larger audience (Fiske, 2010b: 9-10). However, the unnecessary use of these repetitions may impair the communicative process (Aswathappa, 2005: 424). Entropy is symbolized by an unpredictable and disorderly message; constituting a communication problem (Fiske, 2010b: 11).

In addition to the communication noises presented, other sender, receiver and situational barriers are added. These barriers are prone to get established once we have the two actors involved (sender and receiver) as well as the situations shared by both in communication occurrence. Figure 4.1 presents

sender and situation barriers and how to avoid and to overcome these interferences is further analysed. Receiver's barriers are later analysed in chapter five, where message understanding and efficiency are discussed.

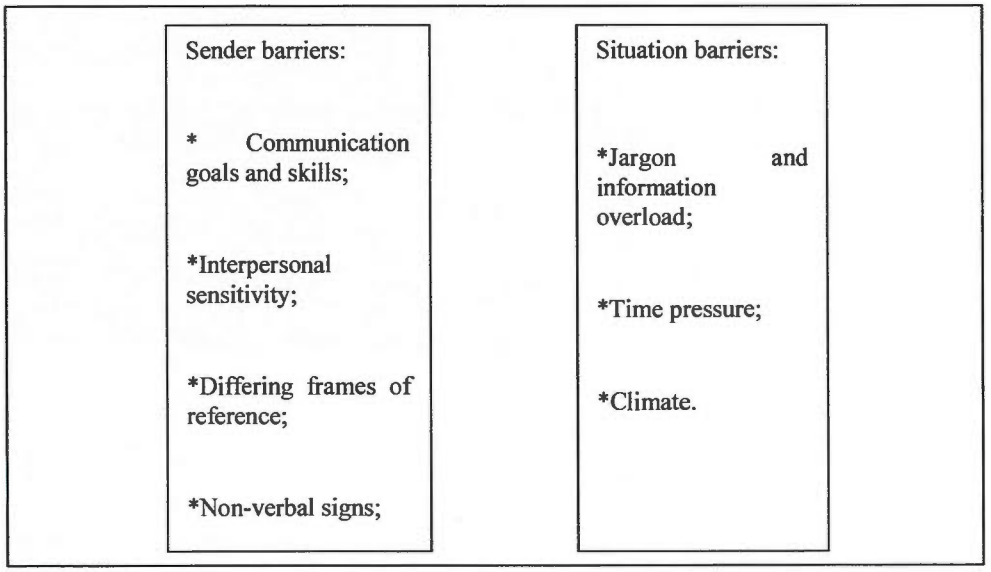

Figure 4.1 Communication barriers. **Source:** Adapted from Aswathappa (2005: 420)

The sender is responsible to begin a conversation and to be effective in the process of message transmission. This actor has to have some abilities as well as deal with personal feelings in order to communicate satisfactorily. In order to avoid or to minimize barriers, senders have some responsibilities to share so that communication may flow and work out. Sender's need to accept and understand the following responsibilities while transmitting a message:

1) Set communication goals: objectives must be clear by exposed. This prior action may avoid receivers misunderstood regarding sender's goals;

2) Use appropriate language: use simple words to increase understanding and avoid jargons. "The language is meant to convey a message and not to exhibit one's rich vocabulary". For example, if a sender employs scientific vocabulary with children, this message is likely to be misunderstood.

3) Practice emphatic communication: understand receivers' assumptions, attitudes and beliefs on order to comprehend message reception and interpretation. That is, sender needs to understand the frame of reference of receivers, because this understanding may avoid miscommunication and foster communication efficiency. To capture receivers frame of reference, senders can ask some questions and minimize convey a message too far from their values;

4) Improve communicator's credibility: to master subject communicated is the key point. To have the domain of the subject helps the sender to drive fear away as well as unsafeness while conveying a message.

5) Encourage feedback: obtain feedback from the receiver aiming to analyse if message was understood or not. To have feedback may help to restructure message formulation in order to improve communication. In addition, feedback can be useful to obtain receivers suggestions regarding message conveyed. This exchange of information may contribute to reduce message inefficiency;

6) Use face-to-face communication;

7) Use correct amount of redundancy and avoid information overload: these actions may prevent message transmission confusion and misunderstood;

8) Develop trust climate: create a trusting environment before delivering the message. To deliver messages in a playful way may nurture a trustworthy environment;

9) Use pictures: "one picture is worth a thousand words". Images may support message transmission and demonstrate situations that can't be scaled only in words. For instance, the deforestation in Amazonia is an environmental problem known worldwide, however to have access to images showing cleared areas, awakens to the dimension of the problem.

10) Time pressure: Convey a message in a hurry, due to shortage of time, figures as a barrier in the communication process. This barrier can make the sender develop shallow and poor communication, which may affect message transmission efficiency. In addition, time pressure may stress message

sender, which also affects the fluidity and efficiency of message transmission. (Aswathappa, 2005: 423-424).

11) Non-verbal signs: Non-verbal communication consists of message transmission through different elements (body language, eye contact, gestures, touch, appearance and so on) other than words (Knapp and Hall, 2010: 5). Argyle (1988) determines five functions to this kind of communication: a) express emotions; b) express interpersonal attitudes; c) self-presentation of one's personality; d) to accompany speech and give the cues of interaction between message sender and receiver; e) rituals. In fact, the understanding of non-verbal communication may enable senders to see if receivers had understood message communicated through their emotions expressions for example. For instance, a frown may indicate doubt as to avoid eye-contact can demonstrate shyness.

All mentioned strategies work as pieces of advice targeted to the sender's one of the actors involved in the communication process. If those are properly implemented by senders, message transmission may have a chance to reach efficiency or at least increase it. Analysing the senders responsibilities while performing communication process one may conclude that these parameters are prone to be used in any environment, where conversation takes place. Message transmission in natural settings can be developed in many ways. At large, messages transmission assumes many forms in natural areas including spoken, written, non-verbal and other media forms such as videos.

4.3 Message transmission in natural areas and the inclusion of education and interpretation in communication process

In natural settings, messages transmission may use different tools and equipments to take place such as publications and websites, visitor centres and guided-touring. On these transmission perspectives, messages are manifested through several techniques and tools such as oral, audio, video, written and signs. In addition, message disclosure are available through videos, pamphlets, brochures, information boards or sheets signs that outline actions permitted and inappropriate behaviour, directions, maps, general information among others. These messages must assume a formal and informal character. However, in order to reach as large an audience as possible, according to Aswathappa (2005) message transmissions that prioritize the use of simple language, that is in an informal way appear to be more adequate. In addition, this information transmission must be designed for each age group (children, teenagers, seniors and adults), taking into account their educational backgrounds and interest as well as

their capacity to absorb and understand it (Pennington-Gray *et al.*, 2005: 281). Each communication technique, tool and equipments have different scopes, depending on type and location of activity, given that each nature-based activity may demand a proper communicative approach. For example, in a whale watching tour, the presence of a guide and written material may figure as adequate communication tools while on a trail in a forest reserve, guides and sign boards may be used as communication solutions. Figure 4.2 summarizes message transmission techniques and tools used in the dissemination of messages in natural settings.

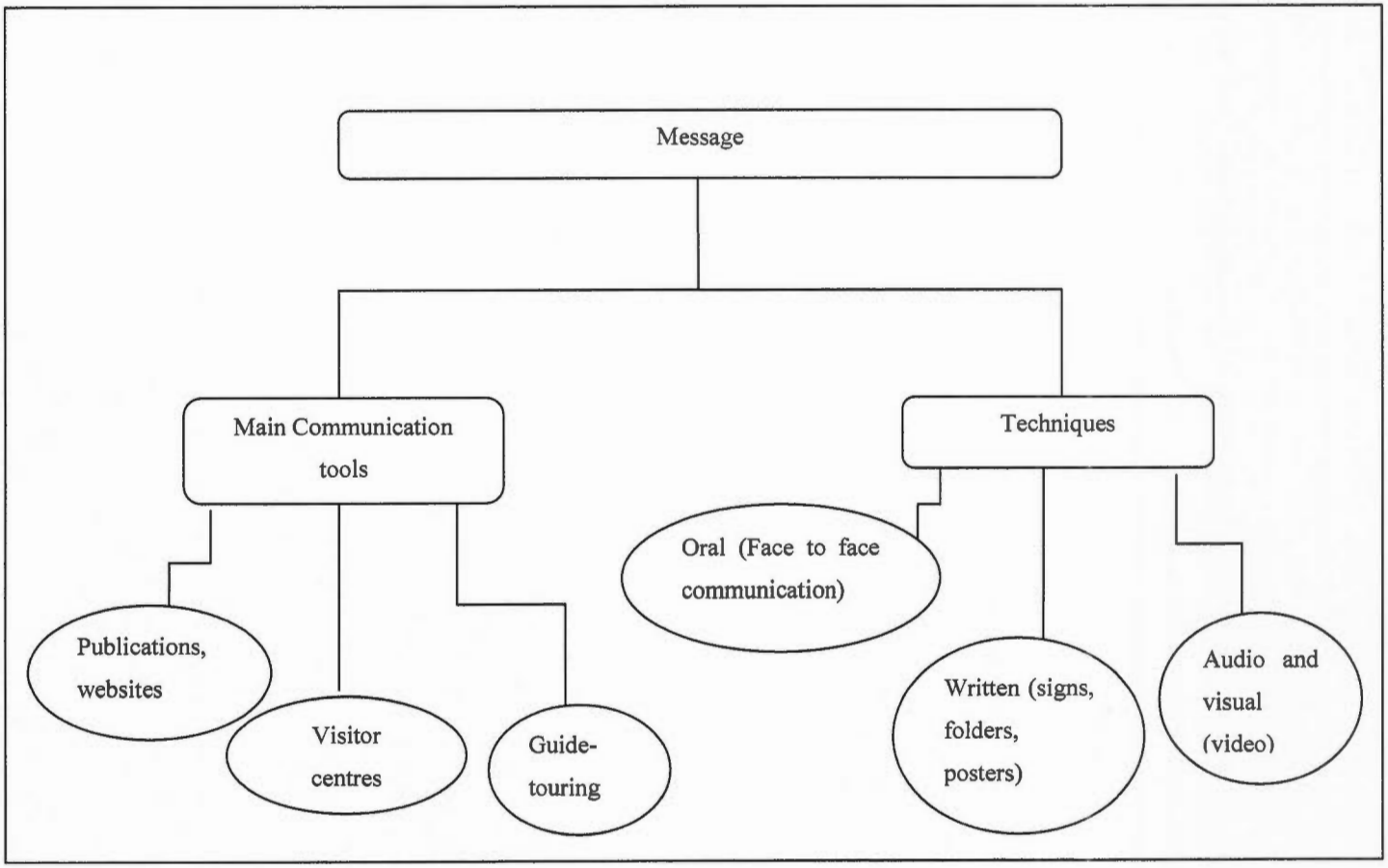

Figure 4.2 Representation of message transmission in nature-based tourism. **Source:** the author

This figure demonstrates how communication can be developed in natural areas; separating from to one side the tools while in to the other the techniques. The main communication tools are the visitor's centres, the publications, websites and guide-touring and the techniques used are oral, written, signs, audio and video. The tools represent the units preceding the communication process and the techniques represent the ways these units have to perform the action of communicating a message.

These wide varieties of message transmission methods stimulate researcher's discussions, regarding its efficacy in nature-based tours. Most message transmission methods reveal different communication parameters. Cicca *et al.* (2003) believe supported by "communication theories that face-to-face communication is more influential due to non-verbal cues, including kinesics (messages sent by the body, including gestures, facial expression, and body movement), vocalic (paralinguistic cues such as volume, rate, and pitch), and the physical appearance of the communicator", being also considered the most effective method to reach visitors (Fazio, 1979; Oliver *et al.*, 1985). On the other hand, some authors (Roggenbuck and Berrier, 1981) assign the same parameters of efficacy to personal communication and brochures. Hughes and Morrison-Saunders (2002: 122) state that "interpretative signs provide an important tool for enhancing visitor knowledge and understanding during natural areas experiences". Authors also highlighted message transmission effectiveness of these signs (Johnson and Swearington, 1992; Martin, 1992; Thorn, 1995; Duncan and Martin, 2002; Jacobi, 2003); Huffman and Williams (1987) advocate for messages transmission through computer, internet. Finally, some authors (Douchette and Cole, 1993; Manning, 2003) concluded that personal contacts are more effective, followed by audiovisual programmes, brochures and signs.

Since nature-based tourism has been daily touted as a more popular touristic product, the dissemination of messages based on environmental education consists of a recommendation. The inclusion of education in message transmission appears as feasible management strategy to be developed in tourism developed in natural areas (Beaumont, 2001; Newsome *et al.*, 2002; Mason and Christie, 2003; Pennington-Gray *et al.*, 2005; Marion and Reid, 2007). This action can also help in the application of codes of ethics and codes of conduct.

In nature-based tourism, environmental education should promote awareness regarding the ecosystems visited. Beaumont (2001: 317) complements that environmental education is a fundamental component of these activities fostering awareness and understanding of natural environments and consequently promotes pro-environment attitudes and responsible environmental behaviour. In environmental

education desired learning outcomes may include "encouraging curiosity and exploration, changing attitudes, evoking feelings, developing a sense of personal, cultural and community identity, and making decisions about moral and ethical issues" (Schauble *et al.*, 1997; Hein and Alexander, 1998; Falk and Dierking, 2000). Therefore, educational elements must compose message transmission. Furthermore, educational messages, emphasizing consequences, may help visitors to choose attitudes. Understand the consequences of inadequate practices may lead visitors to behave appropriately in order to prevent and minimize impacts. These details provided to visitors' through environmental information enable them to act in a more environmentally responsible manner (Pennington-Gray *et al.*, 2005: 272). Alsop and Watts (1997: 648) stress the importance of demonstrating to learners the "applicability of the knowledge they develop". Thereby, a visitor who has access to information through education should be more cautions, acting with more prudence in visited environment. That is, this knowledge apprehension should be consistent in its concepts, feasible and useful in decision-making, so those receiving the message can apply it in their activities. These statements emphasize the importance of teleological messages rather than deontological ones in messages transmission and further assimilation by visitors. However, most messages delivered in natural areas are constructed, usually through "dos and don'ts" lists not really explaining whys of some restrictions, consisting of a deontological approach.

Deontological codes are based on rules, presenting directives of what to do or not to do, without explaining why of these mandatory statements. Fennel and Malloy's (1998: 453) research indicates that most codes are deontological in nature, even if studies demonstrate that messages focusing teleological fundaments, explaining consequences of actions, tend to be more effective in reach visitors compliance (Garrod and Fennel, 2004; Cole, 2007). Within this perspective, some educational programmes directed to natural environments have removed these dos and don'ts lists. One example consist of Leave No Trace (LNT) programme which prefer to favour messages that encourage visitors to consider environmental and use-related factors when selecting an LNT practice, agreeing that this action is most likely to minimise impacts (Marion and Reid, 2007: 7).

In fact, in natural areas, message transmission that has educational elements in its essence is usually linked with codes of ethics and conduct. In these natural settings, educating tourists is a responsibility of several stakeholders (governments, tour companies, guides, destination markets organizations and local communities) (Pennington-Gray *et al.*, 2005: 268). Table 4.1 summarizes education main characteristics and advantages in communicating messages introduced above in the text.

Table 4.1 Education main characteristics and advantages

Characteristics	Advantages
Contribute to raise awareness and understanding	May promote pro-environmental attitudes and responsible behaviour
Encourage curiosity and evoke feelings	May change attitudes
Define applicability of knowledge	May help to make decisions before act

Source: the author

This table stresses that education can foster positive outcomes in visitors values and attitudes while benefiting the natural area visited.

In addition to the presented advantages and characteristics of education, this element may be introduced in different moments in the communication process (before, during and after tour). These are message transmission educational stages composed of pre-contact, contact and post-contact. These three educational stages (pre, on and post-site) can integrate codes of ethics and codes of conduct knowledge in many and different sources, preparing visitors to experience nature (Pennington-Gray *et al.*, 2005: 273) in a desired responsible manner. Each stage figures as an important moment to reinforce education regarding the environment focused as touristic attraction. Pre-site moment is usually processed by tour operators who embrace print materials (brochures) and audiovisual materials (videos) to sell nature, informing about recreation opportunities in the presented destination (Pennington-Gray *et al*, 2005: 273). These advertisements should emphasize preservation/conservation tenets, enhancing appropriate behaviour and explaining damages affecting natural areas in case of no compliance. On site, visitors usually receive messages from tour guides, who have the aforementioned commitment of educate "nature lovers" (Pennington-Gray *et al.*, 2005: 273). To have a successful communication tour operators and tour guides must consult one another in order to provide standard information (Pennington-Gray *et al.*, 2005: 273). Finally, the post-site strategy consists of continued contact with visitors, giving them updates about tour operators policies and further benefits to the environment visited (Pennington-Gray *et al*, 2005: 274).

These three educative stages can contribute to the application of codes of ethics and conduct in natural settings. Information presented reinforces the importance of message transmission in all tour moments. McAvoy and Hamborg (1984) consider that redundancy and repetition of educational messages help improve visitors knowledge, being a defended way to maximise effectiveness. Furthermore, the cooperation of these professionals is extremely relevant in order to reach common objectives.

Therefore, although tour guides usually have a more direct contact with visitors, the responsibility of educating tourists is not only their task and it must be divided with tour operators and other institutions as for example government agencies. However, even if messages emphasizing environmental conservation issues are important in this kind of tourism, a research administered by Weiler and Crabtree (1998), who discussed about what skills and qualities guides must have, demonstrate a gap between what tour guides should do and what they actually do. To complement this statement, McArthur (1998: 70) notes that "learning component is being relegated". This figure (4.3) represents the three stages in communicating messages on tours. This figure takes into account transmission strategies employed in each step.

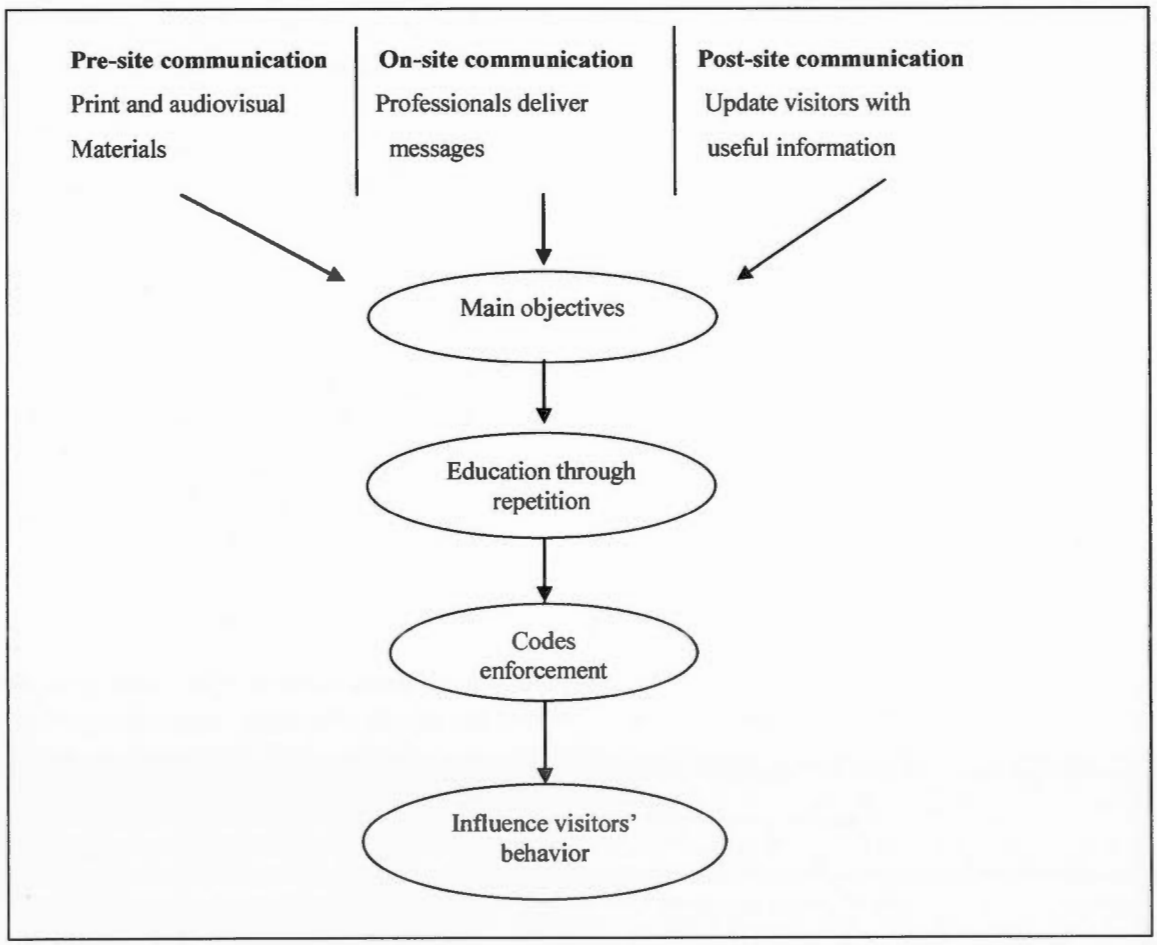

Figure 4.3 Three educational stages on tour communication. **Source:** the author

This figure represents each stage as well as materials used in message transmission steps (pre, on and post-site). All stages presented are important in the increasing of visitor's awareness. The arrows indicates the objectives of message transmission stages which is educate visitors through repetition (before, during and after tour) in order to enhance codes compliance. In a natural area, the end communication purpose is influence visitors behaviours leading them to understand their limits regarding the environment visited; directing them to respect these limits through proper conducts.

Beyond education, interpretation can also play a vital role in nature-based tourism. Interpretation is a way to communicate a message; however this is not an ordinary manner. Given that interpretation may have different definitions, some are highlighted as follow:

1) For McArthur (1998: 63), "interpretation is a creative and inspiring form of learning";

2) Prentice (1995:55) asserts that interpretation is "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, used to enhance the enjoyment of place, to convey symbolic meaning and to facilitate attitudinal or behavioural change";

3) Stewart *et al.* (1998: 257) emphasize that interpretation "can be seen as part of the process of making places accessible to a public audience and providing visitors with insights into places";

4) Armstrong and Weiler (2002: 105) hence that interpretation is an educational activity, which develops intellectual and emotional connections between the visitor and the natural and cultural environment.

Besides all positive characteristics presented in interpretation concepts, this is also widely accepted as the most effective means to communicate in leisure settings (Ham, 1992; Orams, 1994; Uzzell, 1998; Green and Hayward, 1998; Weiler and Ham, 2001; Archer and Wearing, 2003). In the context of tourism, ultimately, the more specific aims of an interpretation programme are "to stimulate, facilitate and extend people understands of place so that empathy towards conservation, heritage, culture and landscape is developed" (Stewart *et al.*, 1998: 257). Nevertheless, interpretation depends on strong educational elements, given that education is part of message content such as interpretation focuses the

manner of delivering this message. Interpretation and education complement each other. Appropriate message delivered in nature-based tourism is clearly associated to interpretation and also environmental educational measures. Table 4.2 indicates interpretation main characteristics and advantages highlighted above throughout this text section.

Table 4.2 Interpretation main characteristics and advantages

Characteristics	Advantages
Communication management strategy	May influence visitors behaviour
Educational activity	May stimulate, facilitate and extend understanding of visited places
Enrich tourist experiences	May develop intellectual and emotional connections between visitors and natural environment
Enhance place enjoyment, making place accessible	May develop positive attitudes (conservation)
Communicate: ideas, conservation and environmental messages	May convey symbolic meanings
Creative and inspiring form of learning	May increase visitors' awareness

Source: the author

This table focuses in demonstrating how the use of interpretation in communication process can help nature-based professionals in message transmission, influencing tourists through educational form.

Different forms of interpretation are presented as organized talking discussions, guided tours and walks and theatrical performance (McArthur, 1998: 69). Guided tours and theatrical performances are the interpretation techniques evidenced. A guided tour is usually organized and based in walks and vehicles (McArthur, 1998: 70), however this can be also administered in vessels, boats, depending on region and attractions. In general, guided tours demands about one hour to a week to happen and interpretation in this kind of activity needs to be more adaptable and comprehensive (McArthur, 1998: 70). This interpretational strategy can be highlighted in all tour stages (pre, on and post-site), depending on how these tour guides are prepared to do it.

Theatrical performance is the second interpretation model approached in this text, because one of the activities analyzed in the case study employ this useful technique when transmitting messages.

Furthermore, theatrical performance is a different and unexpected way to communicate. According to McArthur (1998: 71), this kind of representation is the more creative and artistic form of learning and its message can be delivered in most places. This theatrical performance introduces message transmission to visitors through ludicity (playful) elements. Ludicity is associated to ideas of play, game-playing, recreation, leisure and construction of ludic or creative artifacts, covering several fields as anthropology, sociology, education, technology, psychology and communication (Lopes, 2005: 1). Podilchak (1991ab) complements that play techniques have four dimensions:

1. Doing things on the surface, being silly, laughing;
2. It grows out of an activity, being purposeless;
3. It is exciting, exhilarating — unique, not every day; and finally
4. It is shared experience with others who are also relaxed, open and carefree.

In a broad sense, authors' statements have important values that can be underlined in message transmission in natural areas. Given that nature-based tourism consists of recreation and leisure activities not experienced in most people`s daily lives, when visitors go to these nature incursions they have as the main objective to have fun and appreciate a "new world". Then they assume an open, relaxed comportment. Therefore, in nature-based tourism activities, the use of ludic resources in message transmission may be a facilitator factor, influencing tourists' behaviour for presenting important questions in laughing, funny methods. These components may be presented to nature-based tourists in situations as: music, plays, theater, characterized actors and so on, expressing meanings through messages. An asset of this informal communication technique is that it can be shared by all age groups, being not exclusively related to childhood (Lopes, 2005: 3). Therefore, this "fun" way to transmit messages can be influential in the relational and/or interactive processes demanded by nature-based activities. These interpretation processes need to be communicated in leisure in natural areas and tour guides symbolize the main communicators in these settings.

4.4 The role of nature-based professionals in message transmission

Within most the activities associate with nature-based tourism, the interpreters, communicators of these messages are tour guides. Black and Ham (2005: 178), define a tour guide as "a person who guides groups or individual visitors around the buildings, sites and landscapes of a city or region; and who interprets in the language of the visitor's choice, the cultural and natural heritage and environment". Randall and Rollins (2009: 357) go beyond stating that "the use of tour guides is one

opportunity to reduce impacts, because they have the potential to contribute to the protection of natural areas, by educating their customer with interpretative messages. These professionals represent the connection between visitors and the nature visited, playing the educational agent involved in this interpretation process in the field (Mason and Christie, 2003: 3). In addition these professionals can play a vital role in these environmental and nature-based experiences in protecting the natural and cultural environment by performing a number of roles such as interpreter of the environment, motivator of environmentally responsible behaviour and conservation values, and specialist information giver (Weiler and Davis, 1993; Weiler and Crabtree, 1998; Weiler and Ham, 2001).

According to Howard (1997) the guide's role in interaction with visitors is composed in some main steps which are:

1. To provide information;
2. To communicate clearly;
3. To be part of the activity and;
4. To give some responsibility to future behaviour.

Then, guides have the responsibility and/or the commitment to educate visitors while conducting a tour (Pennington-Gray *et al.*, 2005: 268). This educational process is advocated by promoting consumer accessibility to more information about responsible behaviours; stimulate responsible actions (Pennington-Gray *et al.*, 2005). Meanwhile, for other researchers (Mason and Christie, 2003: 9) education represents an important element in tours, however "it is up to the clients to act on their new insight and so transform themselves". However, independently to visitors' compliance with codes, deliver messages that promote positive attitudes in natural settings must be in tour operators and guides agenda. This statement embraces that nature-based professionals communicate more than information, they should embrace "an educational process that not only provides knowledge and informs tourists but also develops their empathy for a site/host population and promotes a conservation ethic" (Mason and Christie, 2003: 10).This informal way to educate can promote and result in environmentally sustainable attitudes and behaviour (Ballantyne and Packer, 2005: 1). Messages conveyed by these professionals symbolize the rhetoric that may lead to positive or negative attitudes in relation to the environment visited. Table 4.3 classifies nature-based professionals according to the function these professionals may exert on site.

Table 4.3 Potential roles of nature-based professionals

As communicators:	As pro-conservation agents:	As location leaders:
Interpreters of attractions;	Motivators of responsible behaviours/conservation values	Guides of groups or individuals;
Information providers through clear communication.	Educators aiming to reduce impacts.	Connectors between visitors and visited place.

Source: the author

This table indicates three types of nature-based professionals' postures regarding the way they communicate in touristic settings: communicators, pro-conservation agents and location leaders. Communicators are engaged in interpreting attractions as well as giving information about the region visited while location leaders tend to introduce to visitors place and guide them to the attractions. Local leaders are not really engaged with sites interpretation. Pro-conservation agents are the ones who educate and motivate visitors to interact positively with the environment visited. In fact, a complete professional is able to integrate and develop the three mentioned functions.

Another fundamental role that must be performed by nature-based professionals is the application of codes of ethics and conducts. The presence of codes of ethics and codes of conduct in nature-based tours emerges as a tendency to minimize environmental impacts and to promote sustainable practices. Codes of ethics and conducts support tour guides in their work, being part of their responsibility to stimulate codes application. This management tool is usually created by tour operators who add their environmental policies, which underline the company principles and also their way to operate. These environmental policies demonstrate companies concerns, involvement and engagement with nature, their "workplace". Another action promoted by tour operators is spreading business tenets to their professionals who have direct contact with the target audience (visitors, tourists). Tour operators should enable tour guides to communicate codes of ethics and codes of conduct to consumers. These codes symbolize a tool able to ameliorate socio-cultural impacts of tourism on host cultures (Pennington-Gray *et al.*, 2005: 266) and also environmental ones. In addition these guidelines represent a positive attempt to determine responsible behaviours that aim to the homogenization and standardization of tourism management in natural areas as well as its preservation (Pennington-Gray *et al.*, 2005: 267). Pennington-Gray *et al.* (2005: 268) highlight that the implementation of specific codes of conduct by tour operators has grown in popularity. Since the seventies these educational efforts are being used and expanded by public and private land managers and tourism providers (UNEP, 1995;

Mason and Mowforth, 1996). These authors also commend the effort in codes application through communication approaches aiming to educate visitors on environmentally and culturally appropriate behaviour.

Message transmission and the implementation of codes of ethics and conducts are reinforced (Weiler and Ham, 2001) in order to help guides performance as well as curb professional's inappropriate behaviour. The concept of ethics can be considered as a "philosophical enquiry into values and a practical application of moral behaviour" (Tribe, 2002: 309). Therefore, ethical tourism is not simply about understanding what is "good" for tourism, but also about good conduct in tourism (Tribe, 2002).

Armstrong and Weiler (2002: 111,112), who administered a research in Victoria's Parks, Australia, observed that most messages delivered in natural environments were related to minimising visitors impact, complemented for list of do's and don'ts. According to their study, several guides addressed examples of management actions that enhance the resource base and visitor experience, explaining the reasons behind the action. In addition, these professionals also pointed out the relevance of heritage value and protected areas. Some few messages addressed general conservation themes, including discussions about ecology and ecosystems. As the graph presented in this research in figure 1 (p. 111), messages encouraging conservation actions by individuals appear as the received and delivered frequency. Meanwhile, Peake *et al.* (2009: 118) who conducted a survey in Heaver Bay, Queensland, Australia showed in figure 2 (p. 116) the types of message conveyed in tour. Conservation messages are represented by slightly more than thirty percent while the absence of messages exceeds forty percent of responses. Information about whales was also transmitted (22% of answers).

In this sense, one may conclude that these studies distinguish different ways of direct messages in nature-based tours. The first example is more centered in "environmental information", which don't mean codes application. Deliver environmental information may represent the presentation of several issues, including impacts, biological aspects of local fauna and flora and much more. However this communication may not be really directed to conservational attitudes. Authors also aroused questions as heritage and protected areas values as well as management strategies (Armstrong and Weiler, 2002). Maybe, the more appropriate moment to direct conservation messages was replaced to deontological do and don'ts lists and anthropocentric values (visitor experience). Messages highlighting actions to stimulate visitors' conservation behaviours were not clearly demonstrated. In fact, only the second

study addresses conservation messages in a superficial manner, without reinforcement, as the authors comment. It is noteworthy that the absence of message was higher than their presence.

4.5 Message transmission in Pernambuco beaches - case study analysis

It is time to identify how communication occurs in natural settings and guides performance in message transmission is analyzed. A description of how this communicative process occurs in each activity is presented. Guides training are focused, inquiring them about education level and work conditions before going straight to the point of the message transmission issues. Answers help me to understand if environmental policy is really extended to guides and what kind of preparation they must employ to guides functions. My idea is to comprehend how these professionals interact with tourists, what kind of message they deliver in tours and what they expect when conveying a message. Furthermore, it is examined if guides are interested in applying conduct codes as well as they use the opportunity in doing so during activity. Then, this section analysis guides training, types of medium categories used in message transmission, the functions exerted by nature-based professionals in Pernambuco beaches and if they apply codes of conduct during tour as well as the barriers encountered during the communication process. Results of interviews with guides and their content analysis are presented.

4.5.1 Medium categories used in activities developed in Pernambuco beaches

Catamaran tour

This tour uses as message transmission model of the presentational type. At all time, messages are conveyed by a member of tour Operator Company (transfer drive and guides). At this tour message transmission occurs in two moments: during the transfer and during the tour. Unfortunately, it wasn't possible to interview catamaran guides. For this reason, in this activity, inferences are based on observations and visitors' contributions through questionnaires answers.

Environmental walks

In this activity, message transmission is supported by representational, presentational and mechanical models of communication. Representational type is expressed by booklet, folder and storybook. Presentational type is performed by costumed characters such as turtle, crab and visitor. There is also a theatrical play and storytelling performed by several characters, including the ones already mentioned.

Mechanical type is executed by a video and TV reports in local station. Nevertheless, this activity focuses more in presentational type. Representational and mechanical types are also used; however materials are more often available to representativeness of local governments, who participates in environmental education formations. Actors (turtle, crab and visitor) also receive training in environmental education in order to get engaged in environmental walks. To the general public, including visitors, presentational type is applied. Figure 4.4 shows communication models applied in environmental walks. Each figure is commented below.

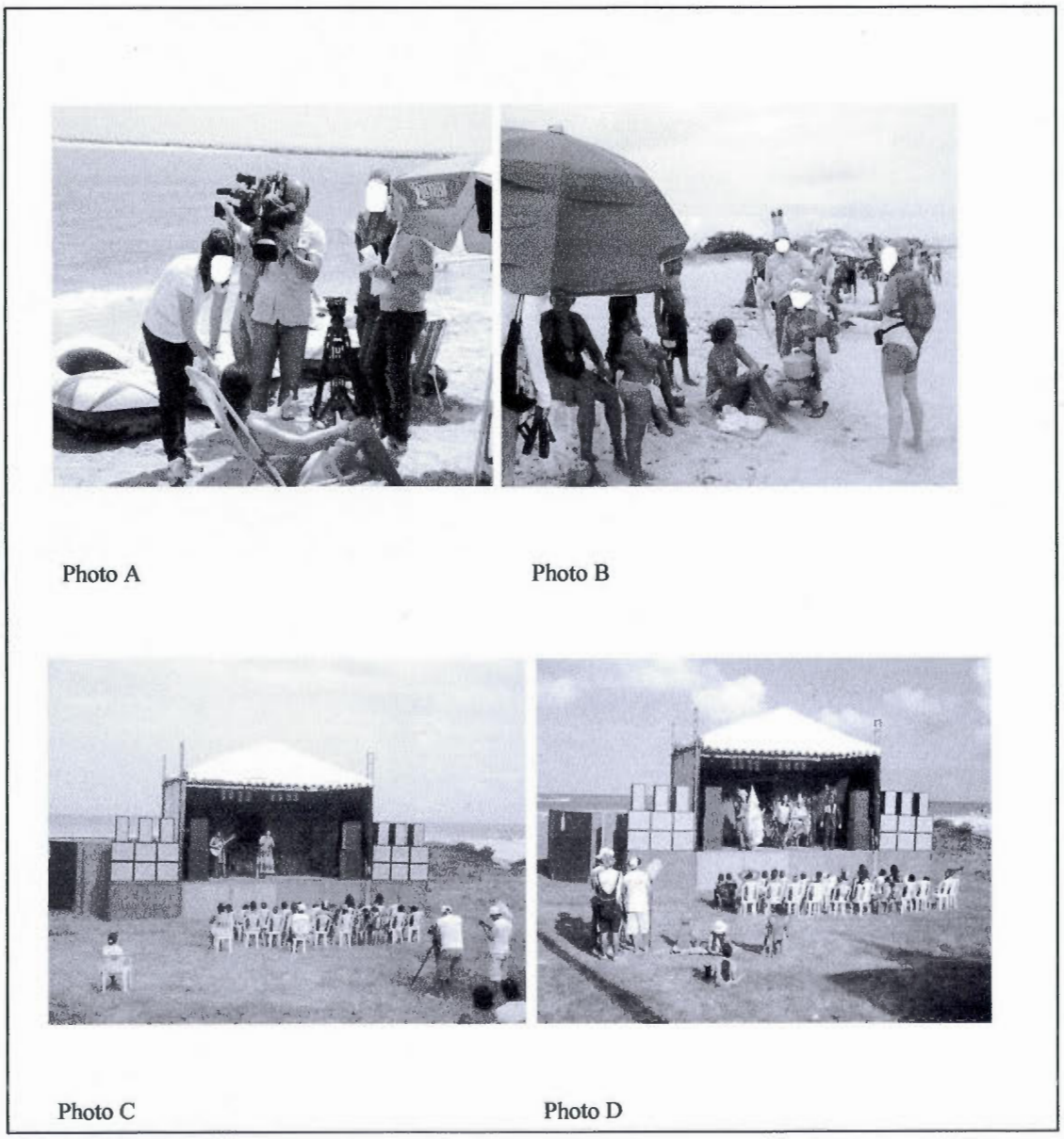

Photo A

Photo B

Photo C

Photo D

Figure 4.4 Communication models in environmental walks. **Source:** the author

In photo A, a local TV station interviews a visitor to capture her opinion about the government project. The reporter idea is to present visitor's acceptation and opinion to the general public through TV news program.

In photo B, costumed actors transmit messages at the beach. The use of characters attracts visitor's attention, increasing interest to listen to the message as well as helping actors to approach tourists in leisure time. The personification of those who convey the message whets the curiosity of visitors, who want to have access to activity and in consequence they receive the message proposed.

In photos C and D, it is possible to see a stage assembled close to the beach area, where music, theater and storytelling take place, addressing environmental messages in a playful way. These activities attract all audiences (children and adults) independent of educational background by transmitting the message in a simple and accessible manner.

Jangada tour

Message transmission in jangada tour is supported by representational, presentational and mechanical models. Booklet and posters are the representational material while a video figures as mechanical message transmission strategy. Presentational type is represented by jangadeiros (guides who conducted the jangada and deliver a message on-site) and environmental agents (these agents exert guide functions pre and on-site). Guides (1, 2 and 3) gave me information about their career and training.

Except for guide 1, professionals 2 and 3 began to work in nature-based activities because of tourism development in Porto de Galinhas beach. According to them, most coworkers have the same professional trajectory. They said that the small fishing village became a famous touristic region. Thus, tourism was getting established in the region and along with it, locals were pushed to work in this leisure industry. Guide 1 studied in a private school in Recife while guides 2 and 3 received training funded by the local government. Guide 1 isn't a local, constituting a necessary workforce demanded in peak season, when the number of visitors increases considerably. To guide 1, this work represents the only income source. Guides 2 and 3 are locals who depend primarily on guiding nature-based activities as their income source. Figure 4.5 summarizes how message transmission is organized in the jangada tour. Each image is commented below.

Photo A

Photo B

Photo C

Photo D

Figure 4.5 Jangada tour and procedures of message transmission. **Source**: the author

To realize the jangada tour, visitors must watch a three minutes video in environmental stands strategically located in front of the point of departure of this tour, the jangada boarding area (Photo A). This material explains how visitors should proceed in natural setting. After watching this video, visitors receive a yellow bracelet indicating that they have fulfilled a commitment to listen instructions and information of delivered message (Photo B). Bracelet indicates to jangadeiros and environmental

agents placed on natural pools that visitors are "aware" of the appropriate comportments to be performed in natural pools, because through the video they learn how they should behave when visiting this natural setting. The idea is to educate before the jangada tour to stimulate visitors to act properly on coral reefs. The second step is to go to the line to board the jangada and enjoy the tour. Photo C shows the amount of tourists waiting to start the jangada tour in peak season period while in photo D the jangadas are full of visitors, who will visit natural pools formed by coral reefs in low tides. It is possible to observe an intense movement and concentration of boats going in the direction of coral reefs. During the tour, tourists have jangadeiros, who also convey messages

4.5.2 The role of nature-based professionals in Pernambuco beaches and codes application

Message transmission in Catamaran tour

In this tour, staff members convey messages pre and on-site. Message transmission starts during transfer Porto de Galinhas beach to Carneiros beach. Along the way, transfer driver cover several topics and at the beach crew continue to communicate to visitors. Guides are classified by number in each activity in order to keep their identity confidential and quote them throughout case study analysis. In Catamaran tours, guide 1 and guide 2 had their message transmission analysed.

Analysing message delivered in Catamaran tour, one may conclude that this activity doesn't communicate a message favoring conservation. The word preservation appears in two moments in messages communicated; however this idea isn't associated to conservational attitudes regarding environment visited. Guide 1 states that "visitors can interact with nature in a preserved area", but he didn't communicate to visitors how they must behave in this natural setting. In addition, at any moment this nature-based professional assigns the ecological importance of the place as well as the need to conserve the area. For instance, they would convey messages such as 1) this beach has clear waters and we may avoid pollution if we don't throw waste or visitor can interact with nature in a preserved area; however we don't need to feed marine wildlife because we can alter fishes nutrition and change their habits. In this way, guides expose attractions and at the same time show tourists the need to conserve natural setting.

At another moment, the guide 1 talks about the local laws which designate preservation of at least 20% of Atlantic forest and state that "There is a demand to diminish Atlantic Forest preservation area from

20% to 10%". He talks about the importance of Atlantic forest preservation, however without explaining the ways to do it. The guide 1 also comments the importance of other local vegetation saying that "mangroves are the nursery of marine wildlife". Therefore, once again this assertion doesn't come along with more information that may promote and encourage the conservation of this site such as indications of how visitors should behave if they came in touch with that ecosystem. For example, they would say that mangroves are the nursery of marine wildlife, because this ecosystem is a food source and place of reproduction of many animal species. From this explanation, guides can raise the importance of conserving mentioned ecosystem.

As general information, he (guide 1) also added that "Carneiros beach is often visited by the elite; rich people" and "The value of a hectare on Carneiros beach is approximately three millions Reais" (about 1, 5 million of dollars). This demonstrates there is a great interest in the land around Carneiros beach, because of the profits these areas can generate. This hypothetically shows that this region undergoes an accelerated transformation due to tourism development. As confirmation of this observation, transfer driver is a local, who was born and lives in Porto de Galinhas beach, the place where the tour starts. During our trip to Carneiros beach, he (guide 1) compared the two coastal regions while passing by an untouched coconut grove in Carneiros beach he said to visitors that ... "Porto de Galinhas beach was "like this" (pristine) 25 years ago". When he compares both regions, one still underexplored and the other overused, he sees the changes occurred due to tourist demand. Therefore, one may hypothetically conclude that investors need available areas to establish secondary homes, hotels and other touristic structures.

During transfer, natural beauties and climate of the region are announced before visitors arrive at Carneiros beach when guide 1 says that "the beach has clear waters" and "Pernambuco has a warm weather all year". Guide also explains Pernambuco localization regarding other Brazilian states. By analysing these messages conveyed, one may conclude that guide emphasized the attractions of the region without enhancing the importance in maintain clear waters by avoiding pollution, for example. This guide could incite positive attitudes through simple messages, fostering site conservation.

In the beginning of the catamaran tour, guide presents the attraction, Carneiros beach. He offers bar service, explains security measures (ex. how to use life vest and the location of emergency exit), indicates bins location, introduces crew and expounds each tour stage. As earlier commented, this tour has four stops (Carneiros beach, natural pools, Hurst sand and clay bath). At the first stop, guide

encourages visitors to visit a chapel, located on the beach, historical and cultural symbol of the place. At this same stop, there are other tours offered as horseback hiding. There, it was observed that these rides are offered by locals who have that activity as a source of income; however this activity is carried out without necessary care, leaving animal waste wherever they go.

In natural pools, the message conveyed was related to visitor's security, when guide 2 advised tourists to "Use sunscreen lotion" and to "Wear sandals while visiting coral reefs". Non-verbal messages produced by visitors were perceived in this tour stops as frown and glances of doubt. Just because visitors didn't understand some of the reasons for guides' warnings. For example, some visitors didn't comprehend why they needed to wear sandals to visit coral reefs. The Guide had to take into consideration that there were people who were visiting a coral reef for the first time. To guides, certain recommendations seem obvious, because they work in that environment; however they should consider visitors experience before conveying the message. During the 45 minutes of permanency, visitors' were "free" to enjoy the natural settings in their own way, without any intervention. In Hurst sand, the same situation was repeated and message transmission was once again relegated. There, it was observed that visitors weren't aware of this stop and they didn't understand the purpose of this visit simply because of the absence of explanations.

In clay bath, just "the rejuvenating effect of the practice" was announced by the guide 2. He said that "this clay bath has rejuvenating effects" and started to collect clay to distribute to tourists on-site without further explanations. At this moment, it was observed a high degradation caused in the clay barrier, natural protection of this beach strip. To provide this activity, guides remove part of natural ravine, which has caused erosion. The "rejuvenating effect" of clay bath seems to justify degradation and the lack of knowledge of guide's can also be the element that is causing disturbance. The guide acted as a local leader, more than that, he behave as a host inside of his own house by allowing and providing the realization of all visitors' desires. Figure 4.6 shows two images of clay bath experience.

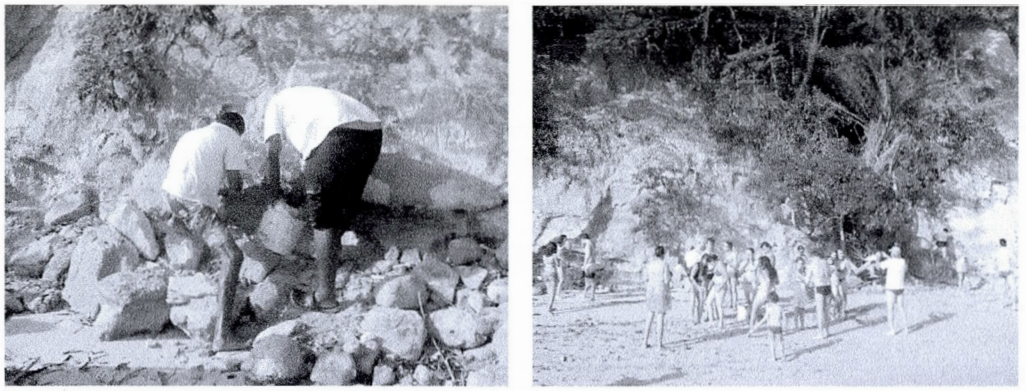

Photo A Photo B

Figure 4.6 Last catamaran tour stop: clay bath activity. **Source:** the author

In Photo A, guides take clay from the hillside to meet tourists' experiences at the expense of the natural environment while in Photo B, visitors have fun in clay bath without questioning the practice. Some visitor's didn't leave the catamaran to participate in this specific activity and one visitor said to me that "I don't agree with the way they were promoting this clay bath, because they are destroying this ecosystem". Table 4.4 summarizes the messages subjects as well as message delivered to each topic.

Table 4.4 Type of messages delivered in Catamaran tour

Messages subjects	Message delivered
Natural beauties of the region	• "This beach has clear waters"; • "Visitor can interact with nature in a preserved area"
Region climate	• "Pernambuco has a warm weather all year"
Local history	• "Visit the Sao Benedito Chapel, built in the eighteenth century"
Safety instructions	• "Use sunscreen lotion"; • "Wear sandals while visiting coral reefs";
Local vegetation	• "There is a demand to diminish Atlantic Forest preservation area from 20% to 10%"; • "Mangroves are the nursery of marine wildlife"
Beach general information	• "Carneiros beach is often visited by the elite, rich people"; • "The value of a hectare on Carneiros beach is approximately three millions of Reais"
Local geography	• "The location of Pernambuco state is privileged, being surrounded by six other northeastern states"
Tour features	• " this clay bath has an rejuvenating effect"

Source: the author

After the end of the tour, I found that in the tour I participated as an observer the environmental message transmission was virtually nonexistent. Guides didn't convey an adequate message, including awareness and care regarding the ecosystems visited in tour. In addition, they promote degradation in the last stop of activity, while collecting clay. Thus, code conduct application has not been established. The tour is intended to provide pleasure to the visitors. Nature conservation is not taken into account and there is a certain omission of the guide in relation to this purpose. Guides are present in tours, but they don't deliver any message favoring natural area conservation. This region, where tour takes place, has an immense natural wealth, which deserves attention and must be preserved; however educational and interpretative process wasn't privileged. Furthermore, given that tour occur during a full day, guides could create opportunities to express messages favoring the conservation of the natural environment. Finally, it is possible to conclude that communication doesn't focus on natural area conservation.

Message transmission in Environmental walks

This activity promotes mainly on-site message transmission to visitors. There are message transmission materials; however those are directed towards government institutions. In environmental

walks, message transmission privileges education and interpretation as communication elements. Communication interventions occur at the beach in a direct way. Costumed actors, responsible to deliver message on site, receive training in environmental education, theoretical basis of this project. These professionals are also accompanied of the masterminds of action during environmental walks. That is, they are there to support message transmission. Guides are quoted by 1, 2 and 3 and they always delivered message together, because message are often conveyed by the three costumed actors (turtle, crab and visitor).

By analysing messages conveyed, one may conclude that all messages are teleological for explaining the reasons why visitors must adopt certain conducts. Message delivery is developed by costumed actors, who approach visitors, conveying educational messages with the intention to stimulate proper behaviors in the natural setting. In this context, the actor costumed as visitor performs inappropriate and dubious behaviors while turtle and crab actors correct visitor. The characters representing fauna demonstrate to visitor the right manner to act as well as explain why visitor must behave in that way. For example, a group of visitors were eating and drinking at the beach and then actors (guides 1, 2 and 3) uttered "Collect produced waste and just throw it in appropriate containers, because trash can harm marine wildlife while animals try to eat waste". They interpret message through actor's performance. Thus, the actress who plays the "turtle" pretends to be choking with rubbish left by visitors with the intention of showing what can happen in the real world with marine wildlife. In approaching visitors, guides 1, 2 and 3 also used the opportunity to convey more messages associated to other environmental issues occurring on the beach. For example, guides stressed the importance to preserve coral reefs and said "Coral reefs are a fragile ecosystem and for this reason we need to take care of this ecosystem. We have to avoid the use of sunscreen, because these products contribute to coral bleaching and death. We should be aware where we step and touch to prevent coral reefs damage". Still worried about the pressures imposed on the reef environment, guides directed the following message "Don't take shells and pieces of coral reefs as souvenirs, because this is how the environment is damaged. In addition, they transmitted messages concerning marine wildlife feeding, advising visitors and telling them the following "Don't feed marine wildlife, because they already have their food at the sea and if you give fish ration you can change fish's habits". Other messages related to the practice of sports and animals at the beach were delivered. In the first situation, actors said to visitors "It is forbidden to play ball at the beach to avoid accidents" and in the second they conveyed the following message "Beach is not the place to bring dogs, because the animal feces may contaminate the sand and spread diseases". During my participant observation, the subjects explored in message transmission were pollution, coral reefs

conservation, animals at the beach, marine wildlife, sports at the beach and natural souvenirs. Table 4.5 shows subjects approached and messages delivered on-site to visitors.

Table 4.5 Types of message delivered in Environmental walks

Subjects	Message delivered
Pollution (residues solids)	• "Collect produced waste and just throw it in appropriate containers, because trash can harm marine wildlife while animals try to eat waste"
Coral reefs conservation	• "Coral reefs are a fragile ecosystem and for this reason we need to take care of this ecosystem. We have to avoid the use of sunscreen, because these products contribute to coral bleaching and death. We should be aware where we step and touch to prevent coral reefs damage"
Animals at the beach	• "Beach is not the place to bring dogs, because the animal feces may contaminate the sand and spread diseases"
Marine wildlife	• "Don't feed marine wildlife, because they already have their food at the sea and if you give fish ration you can change fishes habits"
Sports at the beach	• "It is forbidden to play ball at the beach to avoid accidents"
Natural souvenirs	• "We don't take shells and pieces of coral reefs as souvenirs, because this is a way to damage the environment"

Source: the author

Explanations are interpreted in a ludic manner, including audience in the situation acted. Message transmission occurs naturally, because actors approach visitors in practical situations to demonstrate appropriate behaviour. There, it was possible to observe that actors conveyed messages at the same way in all situations presented. They always had the attention to encourage the application of proper conduct. In addition, actors demand visitors opinions concerning issues addressed, inciting them to acquire sustainable practices. This project transmits a message to reach the general public, whether informed or poorly educated.

In theatrical performance and storytelling, message transmission focuses on children as audience; however this format of communicating can reach all. There, it was observed that people feel attracted by the fun way environmental issues are addressed. Therefore, these actions have the commitment to include conduct codes application in message transmission, inspiring visitors to follow guidelines. These performances convey messages which stimulate proper attitudes in natural areas which may lead

to environmental conservation. The ways characters interact with public incite cognition; educating and raising visitors' awareness. This project uses creativity to educate people about environmental issues. Visitors can learn about several questions such as environmental impacts, appropriate behaviours and conservation in a fun way. In this activity, 18% of visitors surveyed, indicated in their answers that feelings such as joy and contentment were experienced when receiving the message. These same respondents considered the importance of creativity and animation in environmental awareness. That is, this mode of educating touches people's feelings, emotions, which may help to induce visitor's understanding and acceptance of message transmitted. Actors accomplish the role of communicators and pro-conservation agents performing on site message transmission. In this activity, those conveying the message can't assume local leader function, because visitors don't seek an activity, they are relaxing at the beach and then actors arrive to convey an educational message. In this case, site visitors already know the region enough and they don't actually need a local leader to introduce the place.

Message transmission in Jangada tours

Jangada tours provide visitors pre and on site messages. During this activity, most guides advise and convey a message that seeks to conserve the reef environment. They approach environmental protection while conveying messages, however they emphasize what can visitors do or not, but without explaining the reasons. In this activity, guides 1, 2, 3 and 4 are quoted in order to designate what they say in Jangada tour.

Analysing message conveyed one may conclude that they're concerned about environmental protection; however these professionals fail to communicate the importance of acting in a proper way in natural areas. That is, they aren't engaged in explaining why visitors need to behave in a certain way in order to protect the environment. "Don't exceed zoning areas" and "Don't touch coral reefs" are the most delivered messages on-site by guides 2, 3 and 4. Guides could convey these messages in a different manner such as 1) don't exceed zoning areas because if you do it you can disturb marine wildlife and stress animals, who may alter their functions as reproduction and nutrition; 2) don't touch coral reefs because you can harm them and disturb wildlife habitat. These examples exposed may make visitors aware, given that they have a chance to understand the reasons behind the restrictions. Only guide 3 delivered a message with a teleological character. The message approached to visitors was "don't eat in natural pools to prevent pollution at the site". This message demonstrates to visitors

that an inappropriate behaviour (eat on-site) may pollute the ecosystem visited, which figures as an important advice to give during tour. Other usual message communicated by guides on-site was to remind visitors about time of permanence in pools. Guides 2, 3 and 4 often transmitted the following message "You (visitors) have 25 minutes to stay in the natural pools". Implicitly, this may represent care with nature visited, because one suppose that less permanence in a natural area may represent less chances to generate impacts. But the message conveyed is only associated with compliance with the schedule and timing established by the tour organizers. Thus, the message communicated doesn't direct conservational issues in content to visitors and in practice this doesn't represent care with environment visited. Table 4.6 indicated messages delivered on-site by guides and the subjects covered in their transmission.

Table 4.6 Types of message delivered in Jangada tour

Subjects	Message delivered
Respect zoning areas	• "Don't exceed zoning areas".
Coral reefs protection	• "Don't touch coral reefs".
Appropriate behaviors on-site	• "Don't eat in natural pools to prevent pollution at the site"
Permanence in natural pools	• "You (visitor's) have 25 minutes to stay in natural pools"

Source: the author

Still expounding on the purpose of the message, guides interviewed were categorical in stating that the main objectives of message transmission are educate and aware visitors regarding conservation of the ecosystem visited. As stated for them in interviews, guides message transmission has three main focuses:

1. To respect preservation areas;
2. To educate in order to promote environmental conservation of coral reefs;
3. To promote coral reefs conservation/preservation.

However, when analysing messages conveyed on-site one may conclude that the four guides observed fulfilled mainly the role of communicator and local leader. They conveyed messages aiming to protect the environment, but in a deontological basis. In a few moments, guides explain the whys visitors must

avoid certain actions. Thus, they dimly act as pro-conservation agent. The way they conducted the tour demonstrated the commitment in composing only two of guides' functions. During my participant observation, it was possible to highlight that they rarely use educational elements and interpretational techniques while applying conduct codes. Notwithstanding guides do a great effort to express them; they have difficulties in accentuating visitor's awareness, due to the imposition of norms that aren't accompanied by plausible arguments which may lead to visitors' compliance. In practice, guides believe to educate if they prohibit visitor to behave in an inadequate way. Therefore, restricting behavior doesn't characterize education. Imposition isn't education. Educate is assigning values, stimulating thinking and critical sense in order to promote transformation in peoples actions. Therefore, guides sometimes don't comprehend their importance and roles in these natural settings. They don't know they can do better. On site the opportunity to express environmental messages is short and guides do their jobs the way they deem best, trying to advise visitors about coral reef conservation/preservation. Guide 1 acted only as a location leader taking visitors to the site to be visited, but without conveying an environmental message. This guide hinted that "he doesn't convey an environmental message, because he believes that the video exhibited before tour transmits enough information concerning the site". Taking into account this statement, this guide doesn't act as a pro-conservation agent in continuing message transmission on site in order to reinforce positive behaviors and thereby help in the conservation of the natural environment.

To summarize all parameters approached in message transmission a table (4.7) was organized. This table shows the message transmission models used, the educational and interpretation level as well as conduct codes application level applied, guides roles, stages employed in message transmission and finally the conservation commitment level. To raise understanding of presented levels, these are classified with the following criteria: 1) Inexistent: this level demonstrates a total absence of parameters analyzed; 2) High: this level indicates a total presence of parameters analyzed; 3) Medium to poor: this level shows an inefficient application of the parameters analyzed. This inefficiency doesn't mean a complete absence of enforcement parameters in question, but indicates a misapplication. These are justified and presented.

Table 4.7 Message transmission parameters of analyzed activities

Activities	Models of message transmission	Education and interpretation level	Conduct codes application level	Guides roles	Stages of message transmission	Conservation commitment level
Catamaran tour	Presentational	Inexistent	Inexistent	Local leader (show place)	Pre and on-site	Inexistent
Environmental walks	Representational, presentational and mechanical	High	High	Communicator and pro-conservation agent	On-site	high
Jangada tour	Representational, presentational and mechanical	Medium to poor,	Medium to poor	Communicator and local leader (show place)	Pre and on-site	Medium to poor

Source: the author

Analysing this table, it is possible to perceive that we have three distinct activities in nature-based tourism and also three different ways to communicate. In Catamaran tours, guides convey a message; however communication process doesn't direct efforts to educate visitors or to apply conduct codes in natural settings. Indeed, guides only perform the role of local leaders, showing the place to the tourists. Professionals conducting environmental walks transmit teleological messages favoring conservational issues, which may influence attitudes of visitors in environment visited. This activity also demonstrates a high commitment with visitor's education as well as the implementation of conduct codes. Environmental walk guides develop the functions of communicators and pro-conservation agents. In the Jangada tour, guides deliver deontological messages, which may obscure visitor's understanding and conduct codes application. These nature-based professionals don't communicate environmental messages in all tours and they also fail in explaining to visitors the reasons to behave in a certain way. Guides showed to have commitment with conservation, but they show difficulties in message

transmission. To integrate message transmission in tours isn't an easy task and barriers were encountered during this communication process. Table 4.8 present the barriers encountered in communication process in three tours analysed. Barriers are analysed after this table.

Table 4.8 Barriers encountered in communication process

Activities	Barriers
Catamaran Tour	• Lack of objectivity and sensitivity; • Lack of understanding of receivers assumptions, beliefs and attitudes; • Absence of goal direction; • Lack of sender motivation; • Physical noise (loud music); • They don't encourage receiver feedback; • Absence of post-message feedback mechanism.
Environmental walks	• Lack of post-message feedback mechanism from message receiver's; • Physical noises;
Jangada tour	• Lack of understanding of receivers assumptions, beliefs and attitudes; • They don't encourage receiver feedback; • Time pressure; • Absence of post-message feedback mechanism.

Source: the author

In the catamaran tour, message transmission presented several barriers such as: 1) lack of objectivity and sensitivity regarding audience and environment visited: guides weren't aware or sensitive to people`s needs and environment visited as mentioned earlier when the example of wearing sandals while visiting coral reefs was expressed and visitors didn't understand the purposes of doing it; 2) lack of understanding receivers assumptions, beliefs and attitudes, because they don't investigate through questions the frame of reference of the visitor in order to adopt a message appropriate to the audience; 3) absence of goal direction in message transmission, because guides don't show clear goal direction in message transmission during tour. They absolutely don't have established any goals in message transmission; 4) professionals were unmotivated to deliver a message, being mechanical without explaining tour, reasons, talking only when asked in a few words; 5) loud music in vessel during tour figured as a physical noise; 6) guides didn't encourage visitors feedback after message transmission; and 7) there isn't any post-message mechanism option such as an email address to send insights about message received or a suggestion box where visitors can express their opinions.

In environmental walks, there were two barriers observed: 1) the lack of feedback after message transmission. That is, there wasn't any feedback mechanism where visitors could express their opinions, suggestions and so on. That mechanism must be created to see how message is understood and accepted by receivers as well as if they are applying conducts disseminated. 2) Physical noises at the beach such as strong winds, visitors' parallel conversations and loud music disrupted somehow the communication process.

In the jangada tour four barriers were perceived: 1) lack of understanding of receiver's assumptions, attitudes and beliefs. Guides didn't ask questions in order to understand visitors` frame of reference aiming to deliver an improved message; 2) time pressure: it was observed that they had difficulty to deal with the tight time during tour. The jangada tour has about one hour of duration, being twenty minutes to dive, twenty-five minutes to visit natural pools and fifteen minutes of vessel crossing. That is, in practice they have a little more than fifteen minutes to convey a message before tourists get dispersed in natural area; 3) they don't encourage receiver's feedback after message transmission. One of the reasons may be the time pressure; 4) post-message feedback mechanism is also absent in this activity.

4.6 Conclusion

This chapter focussed on message transmission techniques (representational, presentational and mechanical), showing their advantages and disadvantages concerning its efficiency, message transmission barriers encountered in communication process and the ways to overcome them, how message transmission occurs in natural areas, the role of nature-based professionals and how they communicate in natural settings and the case study analysing how messages are conveyed in Pernambuco beaches. The introduction of these issues contributes to an increase in understanding of message transmission in natural settings. In fact, this chapter demonstrates the difficulties and misunderstandings in conveying messages and the three activities presented differ widely in this communicative process. Indeed, in this research, it was observed that there are guides who deliver an adequate message, those who don't convey a message and others who transmit an inappropriate and/or unexpressive message. Catamaran tours guides showed omission and negligence in transmitting an educative, interpretative message able to encourage behaviour that help to conserve environments visited. Conversely, these professionals acted inadvertently and even generating degradation during the proposed activity. Rather than serve as a positive example to tourists they develop negative and permissive attitudes that harm the environment. That is, they convey a non-verbal message which may

stimulate natural area degradation. Natural area is there to fulfil visitor's desires. Jangada tour guides deliver messages; however in doing so these professionals communicate the dos and don'ts to visitors. Guides don't use interpretative and educational elements in the foreground. Despite of conveying a restrictive message, they intend to protect the visited area, because they know natural setting importance. There, it was observed that guides don't know how to transmit teleological messages on-site or they don't understand the importance of explaining the reasons of restriction for visitors. In this case, it was realized that these professionals have an interest in improving tourism in natural pools as well as encourage environment conservation. In effect, guides answered in interviews that they received training to employ their function and environmental education appears as the main subject exposed classes. Despite guides asserted to have access to this environmental education formation and after participant observation, there, it was observed that they need to be better prepared to exercise guides' functions and to convey a less negative and more convincing message. In environmental walks, message transmission proves to have several ways to communicate. This activity uses innovative, ludic and entertaining modes to convey messages, being able to reach all audiences. Education and interpretation are present, adding value and understanding to the message conveyed. Environmental walks professionals know what they are doing as well as the goals they pursue. Therefore, this is clear that in natural areas we can come across with many models to communicate a message or even the nonexistence of it. Until then, the lack of standardization in this process so important in tours figure as an issue to the management of natural spaces. In addition, activities don't include post site stage in message transmission, which reduces the possibilities to reinforce values, conduct codes and further attitudes while visiting natural areas. Feedback is really important in order to correct possible communication fails in message transmission and none of activities analysed presented a feasible mechanism, in which the visitor could give suggestions and opinions concerning message received. Ultimately, message transmission represents a challenge to those who sent it, because when a message is delivered it is assumed that those who received it understood it. However, often this statement is not correct, because many factors can influence its delivery failure as: messages not well encoded, source (message sender) has not clear or adequate information, and destination (message receiver) is not able to handle the decoded message among others (Schramm, 1997: 53). That is, if message construction is not well-designed, if the responsible to transmit or interpret information are not well-prepared and/or if visitors are not able to receive messages, due to language, common ground directives as interests, cultural elements, educational levels among other issues, this communication process may not occur efficiently. Within this perspective, this communication process can be subject to failure, undermining the goals of message transmission. Considering that this situation can occur, efficiency of messages is a relevant aspect, aiming to the accuracy of

communication process. Thereby, visitor's perception of message content, transmission and efficiency in behavioral changing are investigated in fifth chapter also designated as discussion.

CHAPTER V

MESSAGE UNDERSTANDING AND ATTITUDE CHANGE: AN ANALYSIS AND DISCUSSION OF COMMUNICATION EFFICIENCY IN NATURAL SETTINGS

"Don't feed the fish" said a guide to the tourists. After delivering this mentioned message, the guide went out to observe other visitors and a tourist accompanied by a child, just started to give fish ration to marine wildlife. In another situation observed, a group of visitors threw garbage in the containers provided for this purpose at the same time they received the following message "garbage should be thrown in the trash, because waste pollute the beach and also can cause damage to marine animals". These examples show how a message can be effective or ineffective regarding visitor's understanding and behavioral changing. Therefore, after analysing message construction and message transmission in previous chapters, the aim of this discussion is designated to observe message efficiency on-site through visitors' behaviours. That is, this chapter seeks to understand why some messages or approaches work while others do not.

Case study results concerning visitors' behaviours after receiving a message in tours are demonstrated. The analyses of questionnaire answers are presented exposing visitors' motivations and choices to visit natural areas, visitors' perceptions of message content, comprehension and further attitudes. In addition, visitors' environmental knowledge is demonstrated and compared with gender and educational level in order to verify if these parameters are somehow linked. Besides data gathered in surveys, visitors' behavior were observed and further described. This is justifiable if we think that visitors may conceal own negative behaviors in case of answering a survey. The observation of tourists' behaviour occurred while they interact with natural settings in order to understand peoples' attitudes toward the visited environment. The results of these observations may contribute with insights, information to manage these recreational areas.

Of interviews administered with nature-based professionals, their perception regarding message efficiency in visitors' behaviour were extracted. Receivers' barriers to understand message and apply the conduct codes are also presented. For instance, these limits may hinder message understanding and attitude change in natural areas. Finally, other recommendations to communicate an efficient message are added as a complement of previous chapter (fourth) advice.

5.1 Communication factors influencing visitors' understanding and message efficiency: an analysis of visitors and professional insights

Talking interpretation is an allied in environment conservation, because this communication technique offers a wide range of opportunities applications in natural areas through music, storytelling, theater, oral information about traditions, arts, dances and so on. In short, interpretation has six main objectives (Knudson *et al.*, 1995:13) able to help in reaching desired purposes:

1. To raise visitors awareness, understanding and appreciation of nature, heritage and site resource;
2. To acquaint messages in a holistic manner which include natural and historical processes as well as ecological relationships and human functions in this environment;
3. To implicate people in nature and history through personal experience with mentioned elements;
4. To affect behaviour and attitudes of audience about the appropriate use of natural, resources, the preservation of natural and cultural heritage and the respect to the natural and cultural environment;
5. To provide an enjoyable and meaningful experience; and finally
6. To increase public support to the organisations in dealing with management objectives and their policies.

Besides the objectives listed above, talking interpretation has two other important points to be analysed for influencing the fulfilment of mentioned objectives; those are interpretation intensity and visitor learning experience (Hughes and Morrison-Saunders, 2002; 2005). This interpretation subset demonstrates 1) the quantity of information delivered in tours; 2) the way an activity is planned; and 3) how this organization may influence visitor's experience. Visitor learning experience consists of visitor's perceptions of the experience and what he learns during leisure moments. This is also important to emphasize that learning depends on site educational facilities as well as visitors' interest in learning during tours. Packer and Ballantyne (2002: 184) assume that educational facilities have an important function in the sites; however there will be visitors who will not learn something. The fact that visitors are present in the field may create an atmosphere to the educational and learning process;

however this doesn't mean that the communicator will achieve message efficiency and negative experiences can be developed through inappropriate behavior that can be harmful to the environment (Newsome *et al.*, 2002). From these leisure moments, different visitors' attitudes may arise. Certain visitors will show excitement for having paid the price for being in the natural setting and they won't be inclined to proper conducts and respect to nature. To some visitors, to pay the price for a particular product means that you can do what you want with the product purchased. But the product in question is the natural environment. On the other hand, other tourists will probably present positive behavior promoting conservation of natural settings.

As studied earlier in chapters three and four, a well-constructed and transmitted message is the one able to reach goals by communicating. In this study, an efficient message figures the one that is able to 1) gain audience attention, 2) employ communication able to get the meaning across, 3) arouse personality needs in audience and suggest some ways to meet those needs (Schramm, 1997: 60). In addition, as aforementioned, to be efficient a message must overcome the barriers that appear during communication process. Efficiency in communication is the end stage process and achieving efficiency is certainly the pinnacle of the communicative process. Therefore, this efficiency depends on outside agents (senders and receivers), influencing the positive or negative development of this efficiency. Communicating a message has the objectives of influencing and educating an audience. However, according to Ballantyne and Packer (2005: 11), efficiency in visitor learning experience is more effective if messages and media are designed to each visitor group. Between this and that, this visitor-nature relationship can be established in natural settings through communication, influencing visitor's perceptions about the environment visited. Natural area design figures as a complementary condition to influence these comportments. Site organization may determine educational content of a tour as well as visitor's compliance in natural settings. For example, in a trail, specific pathways are determined in order to avoid soil degradation. Thereby, guides know the right path visitors are allowed to follow, helping them in the application and explanation of conservation conditions and educational measures. However, given that this discussion analyses the influence of messages in visitors behaviors, natural area design isn't included in this study analysis. An efficient communication consists as a fundamental management tool, being able to contribute or undermine conservation of natural settings.

In the general tourism context, an efficient message is the one able to lead tourists to understand what they should do. For example, this communication can have several functions such as making visitors aware of the time breakfast will be served, where they should wait for the transfer or how they are

supposed to behave while visiting a natural setting. In nature-based tourism, messages raising conservational issues reflect a need and a tendency. Moscardo (1999: 16-18) states that in natural settings an effective communication need to help to make tourism and recreation more sustainable; assisting managers to deal with impacts increased by visitors numbers as well as informing appropriate behaviours in order to shape thoughtful visitors.

As stressed before, in general, nature-based tourism has as communicator guides and tour operators. Interpersonal media is included in personal-based techniques. Oliver *et al.* (1985) and Roggenbuck (1992) advocate that interpersonal contact is preferred as a communication medium in natural settings. This media is extremely personal and usually meaningful for visitors. As a disadvantage, personal-based techniques are costly for demanding a permanent, skilled staff available to deliver messages. In addition, interpreter's performance should ally communication competencies and visitor learning (Hughes and Morrison-Saunders, 2005: 162) in order to achieve efficiency. To do this, these professionals must be prepared to face tourists in natural areas by giving support to their experience as well as creating conditions to stimulate positive attitudes regarding the environment visited. According to Forestell (1993), Kimmel (1999) and Armstrong and Weiler, (2002), tour-guides are in an influential position able to modify and correct visitors' behaviour in natural areas. This face to face contact allows professionals to answer questions, providing useful messages about locations, activities, site choices and also educating visitors about appropriate behaviours. In addition, these "tour nature representatives" may warn in case of excess and stimulate conservation behaviour; extremely important to the management of natural areas. This act of educating may create and/or enhance visitors' awareness, prerequisite able to assist in the conservation of natural spaces (Brown *et al.*, 2010: 879).

To achieve efficiency, personnel need to be familiar with ecosystems they are presenting in order to direct consistent messages. The training of these professionals appears as a pre-requisite in reaching communication efficiency in natural settings. According to Mason and Christie (2003:10), an appropriate training can help prepare guides to satisfy their customers and being sensitive to their basic needs as well as they have opportunity to change the way visitors think and act. Ryan and Dewar (1995: 301) also support that using these communication skills is important to contribute for the physical protection of any site. Moreover, tour-guides need to know well the environment they are presenting with up-to-date, accurate and solid information. To hence guide preparation, training should be performed before peak season, including communication techniques, information about the natural

and cultural area settings as well as other items and low-impact recreation behaviours. If well prepared, guides can act as direct managers of the environment visited. However, on the other hand, if they are not well trained, visitors may have little chances to access appropriate information or have their questions answered. In this case, visitors' expectations will probably be not achieved as well as tour guides will not work directly as conservation agent in natural areas. Certainly, professionals without adequate preparation don't intend to harm nature, but they may do it so far for lack of knowledge. Thus, conservation messages and conservational attitudes tend to be limited. In activities analysed in this study, different messages were transmitted in each tour. In order to analyse visitors' understanding of messages delivered in tour, visitors were inquired about what they learned of message delivered by the guide. Tables (5.1, 5.2, and 5.3) show the messages delivered by guides and compare these with visitors understanding. Tables are further analysed.

Table 5.1 Guides messages in Catamaran tour and visitor understanding of message delivered

Message delivered in Catamaran tour	**Catamaran tour - N= 21** **What did you learn with the message delivered by the guide?**
"This beach has clear waters"; "Visitor can interact with nature in a preserved area"	➢ 14% learned about conservation/preservation of ecosystems visited; ➢ 47% didn't receive any messages; ➢ 39% learned about region general information (ex. local history).
"Pernambuco has a warm weather all year"	
"Visit the Sao Benedito Chapel, built in the eighteenth century"	
"Use sunscreen lotion"; "Wear sandals while visiting coral reefs";	
"There is a demand to diminish Atlantic Forest preservation area from 20% to 10%"; "Mangroves are the nursery of marine wildlife"	
"Carneiros beach is often visited by the elite, rich people"; "The value of a hectare on Carneiros beach is approximately three millions of Reais"	
"The location of Pernambuco state is privileged, being surrounded by six other northeastern states"	
" this clay bath has an rejuvenating effect"	

Source: the author

By analysing this table, it is possible to notice that the 39% of visitors, who stated they received a message about region general information, demonstrated that some of the message delivered coincided with what guides said. On the other hand, 14% of visitors asserted they have learned about conservation/preservation of ecosystems, however during my participant observation, I didn't have the

opportunity to receive this kind of message. Maybe, other transfers (transportation) to Carneiros' beach had guides more concerned with environmental issues. 47% of visitor's claimed they didn't receive any messages and I disagree with them. Because, there were times that visitors received a few messages. But most of time message was absent, especially communication including environmental messages. Of the messages delivered by guides, most of them were not understandable or clear. For instance, one of the Catamaran guides told visitors... "Don't step on the coral reefs" and visitors commented that... "he didn't know if this recommendation aimed to avoid coral reefs degradation or because he could cut his feet". This demonstrates that catamaran tour guides didn't give enough attention to tourists' yearnings. Another tourist reveals that... "They (guides) aren't worried about delivering information". Visitor complaints indicate hypothetical guides' unwillingness and unpreparedness in delivering the message. These two examples show guides' failure in dealing with information transmission due to lack of explanation or lack of the message. Therefore, there are problems in the communication process (message construction and transmission), which may lead to visitors dissatisfaction and environment degradation. For sure, these are examples of inefficient messages.

Table 5.2 Guides messages in Environmental walks and visitor understanding of message delivered

Message delivered	**Environmental walks – N = 28** **What did you learn with the message delivered by the guide?**
"Collect produced waste and just throw it in appropriate containers, because trash can harm marine wildlife while animals try to eat waste"	➢ 80% of visitors received a message based on how to behave in natural settings in order to conserve visited ecosystems, apprehending knowledge of what kind of behaviours they should perform; ➢ 20% of visitors asserted they didn't learn anything, because they already knew information delivered.
"Coral reefs are a fragile ecosystem and for this reason we need to take care of this ecosystem. We have to avoid the use of sunscreen, because these products contribute to coral bleaching and death. We should be aware where we step and touch to prevent coral reefs damage"	
"Beach is not the place to bring dogs, because the animal feces may contaminate the sand and spread diseases"	
"Don't feed marine wildlife, because they already have their food at the sea and if you give fish ration you can change fishes habits"	
"It is forbidden to play ball at the beach to avoid accidents"	
"We don't take shells and pieces of coral reefs as souvenirs, because this is a way to damage the environment"	

Source: the author

On the other hand, in environmental walks, it is possible to observe that visitors received messages concerned with environmental and conservational issues. In addition, guides were committed in demonstrating to visitors how they should behave as shown on the table. Of the messages conveyed, only two of them are not directly linked with conservation and stress laws regarding the prohibition to play ball at the beach and take animals to the beach. Then, most visitors (80%) indicated what kind of messages was presented by guides at the beach. These messages figure as examples of communication efficiency. Only 20% of visitors stated to have previous knowledge concerning the information conveyed.

Table 5.3 Guides messages in Jangada tour and visitor understanding of message delivered

Message delivered	**Jangada tour – N = 47** **What did you learn with the message delivered by the guide?**
"Don't exceed zoning areas". "Don't touch coral reefs". "Don't eat in natural pools to prevent pollution at the site" "You (visitor's) have 25 minutes to stay in natural pools"	➢ 44% learned about conservation/preservation of coral reefs; ➢ 34% claimed that they didn't receive any message; ➢ 17% learned about other subjects such as local history, general information about fishes and coral reefs and zoning areas.

Source: the author

Regarding visitors participating in the jangada tour, 44 % learned about conservation/preservation of coral reefs. When we consider that this activity has a video as pre-site communication, it is possible to agree with them, because I had the opportunity to watch the media; this material approaches conservation/preservation issues. However, I didn't have a chance to receive this kind of message on-site by guides. 34% of visitors claimed they didn't receive any messages and I don't agree with these answers. Messages were delivered by guides; however it is possible that transmitted messages were not committed with the environment visited as the ones showed on table. Or given that I couldn't be present in all tours, some guides may have failed in convey a message on-site. 17% of visitors said they learned about local history, general information and zoning areas. During my participant observation, it was possible to realize that tourists received general messages related to coral reefs and zoning areas as indicated. Guides of the jangada tour communicate messages in tours; however in this activity guides don't have a standard manner of communication, which demonstrates a lack of planning to achieve goals. Then, they lose opportunity to take more advantage of this direct contact with tourists. On the threshold of communicative skills and competences required to a well trained guide, interpretation techniques may help them to address conservational messages. This activity shows both examples of messages (effective and ineffective). After present visitors' understanding of messages received and compare them with messages delivered, it was possible to remark that each activity has a different level of message efficiency. Examples of efficient and inefficient messages were showed through this case study.

Interpretation intensity is another issue discussed as a factor which may influence visitors' behaviour. On site interpretation may range from low to high intensity, depending on the kind of activity. There are distinct points of view related to leading with this intensity. Hughes and Morrison (2005: 162) indicate that low interpretation may not integrate necessary meaning of an experience. So, visitors should have enough knowledge and sensibility to recognise its significance (Howard, 1998). If a visitor does not have enough ability to recognize experience meaning, the activity may not influence this person behaviour at all. Therefore, low intensity poses a risk in this aspect, because visitors are increasingly expecting educational experiences on site (Moscardo and Woods, 1998; 2001). On the other hand, a high intensity interpretation may facilitate meaning exchange, but it may also overload visitors with too much information, inducing to negative feelings about site experience (Hughes and Morrison, 2005: 162). McKercher (1993) also highlight visitors are consumers and they don't need to receive a message as if they were anthropologists or ecologists searching to acquire scientific knowledge, since they want to experience contact with nature. Enjoyment and leisure is probably the visitors' main motivation; however guides can take advantage of these visitors "relaxed" moments to educate them, inform them. Bramwell and Lane (1993) suggest that intensity regulation is required to avoid experience stress, although this seems to be difficult to set in practice. To help influencing visitors' attitudes, it is necessary to find a balance in this item. This item should be analysed, depending on the region, culture, activity. The faint line dividing the intensity of this interpretation in the act of communicating a message can indicate the most appropriate way to achieve efficiency, without overwhelming or shortage information to visitors. Find balance tend to be a challenge to communicators.

To analyse interpretation intensity on-site, three questions were asked to visitors as follow 1) if they found educational elements in message transmitted; 2) what would be the best way to protect the place visited; and 3) the most important things guides said. The idea is to analyze if they would indicate education and/or interpretation as relevant mechanisms to be used in natural areas. In addition, results regarding visitors' preferences of deontological and/or teleological messages are commented. This also represents an attempt to analyze their interest in interpretation. Tables (5.4, 5.5 and 5.6) show visitors answers that are further commented with examples comparing answers to messages delivered.

Table 5.4 Visitors' perception concerning educational elements in message delivered

Questions	Activities		
	Total respondents N = 96		
	Catamaran tour N = 21	Environmental walks N = 28	Jangada tour N = 47
In your opinion, the activities you have participated have in its message content educational elements?	50% of respondents stated to find educational elements in message content.	100% of respondents stated to find educational elements in message content.	83% of respondents stated to find educational elements in message content.

Source: the author

When analyzing visitors' answers, it is possible to observe that to each activity respondents determined a different level of educational elements included in message delivered. Half of the catamaran tour found educational elements in message delivered while in the environmental walks all visitors indicated the presence of educational elements in communication. In the jangada tour, 83% of visitors could detect educational elements in message transmitted.

As an observer, it was possible to remark that in Catamaran tour, as mentioned earlier, no educational element was found in message delivered as well as any interest in doing it. However, I couldn't be present in all transfers. Thus, these visitors may have received environmental message with educational elements with the guide of the transfer. In Environmental walks, all respondents report that messages have an educational focus and this really was reconfirmed in the two participant observations where I had opportunity to get engaged. Environmental walks are part of a Pernambuco government project in which professionals convey an environmental message loaded with educational content, stimulating appropriate and ethical behaviour concerning the visited ecosystems. On the other hand, I can't state all environmental walks performed along the Pernambuco coast had the same focuses, because I just can base my observations in the activities I could take part. Finally, the jangada tours presented important pre-site message deliverance where educational elements were included. The use of words/expressions such as "environmental sensitization", "environmental protection" and "preservation of ecosystems" appear in printed materials as well as video. In this first communication

stage, visitors receive mostly deontological instructions. Neither message has a teleological character. On-site, it was observed that few messages regarding conservational issues were raised; however guides do what they can with the educational background they have. Proper training can improve what they already know and also add new directives to the act of communicating during tour. According to the results, it was possible to realize that messages appear in the three activities; however, on-site, I could experience message interpretation with the inclusion of educational elements only in the environmental walks and the jangada tour.

Table 5.5 Visitor's opinion concerning the best way to protect environment visited

Questions	**Activities**		
	Total respondents N = 96		
	Catamaran tour N = 21	**Environmental walks N = 28**	**Jangada tour N = 47**
In your opinion, what would be the best way to protect the place visited?	Education (33%);	Education (50%);	Education (38%)
	Environmental preservation (24%);	Environmental preservation (11%);	Environmental preservation (28%);
	Waste management (15%);	Waste management (57%);	Waste management (7%);
	Limit number of visitors (5%);		Limit number of visitors (7%);
	Development of sustainable tourism (10%);		No answer (20%)
	Guide training (5%);		
	No answer (8%)		

Source: the author

In the environmental walks, it is possible to notice that there are more replies than the number of visitors' investigated; however some visitors gave more than one answer to this question. Regarding the results of this question, one may conclude that in general visitors do not associate conservation with education. For instance, in environmental walks 100% of visitors found educational elements in

message conveyed, however just half of visitors indicated that education is the best way to protect the environment visited. In the catamaran tours, 33% of respondents, about seven visitors, institute education as the best way to protect environment and in the jangada tour, 38% of tourists', about 18 visitors, determined education as the best way to protect environment visited. Analysing these results, one may complete that few tourists indicate education as the best way to help in natural area conservation. Therefore, most nature-based visitors aren't willing to receive an educative, interpreted conservation message or they don't associate educational messages as an action able to protect the environment visited.

According to visitors' answers, it is possible to highlight that more there is a conservation message conveyed in activity, more visitors allege that education is the path to raise awareness; consequence of conservation of the visited areas. This statement is accessible when promoting a comparison of environmental walks, which had a more educational focus followed by the jangada tour. In Catamaran tour, the percentage of respondents determining education as the best way to protect nature was quite astonishing if we compare with Jangada tour, once the environmental message was absent in the first tour. In addition, unlike environmental walks and the jangada tour, this activity doesn't present any other materials (signs, folders) as well as post-site message. One may associate visitors' answers with their high educational level, because 43% of tourists (28% female and 15% male) hold a graduate degree and 38% (28% female and 10% male) an undergraduate degree. That is, even if those visitors haven't received a proper environmental message, they probably realize the need to take care of nature, because of their educational background and previous experiences. On the other hand, these people may have a tendency to demonstrate resistance to accept ideas that differ from their current knowledge, believing they understand enough. In the environmental walks most visitors (61%, 43% female and 18% male) finished high school while 32% of visitors hold an undergraduate degree (25% female and 7% male). To these visitors, environmental walks messages may have added new knowledge or improved existing acquaintance, since they are less educated. In the jangada tour, 45% (34% female and 11% male) of tourists hold an undergraduate degree while 36% (23% male and 13% female) a graduate one.

Besides education, other answers were pointed as the best ways to conserve environmental settings. For two tourists on the catamaran tour, tourism - "seems more important than nature visited and tourism... seems rampant". Along with these two visitors, other 24% demonstrate concern with environment visited and stated the importance in stimulating environmental preservation. This same

opinion was shared by 28% of the jangada tour tourists as well as 11% of visitors participating in the environmental walks. The waste management also figures as one measure indicated to assist in the protection of the environment in Catamaran tour (15%), in jangada tour (7%) and environmental walks (57%). This answer may reflect the immediate problem identified by tourists when visiting a place. That is, they clearly see waste on the beaches and to them this is the issue that must be urgently solved to protect the environment. In reality, ecosystem degradation usually occurs as a long-term process and therefore this is only perceived by most users when the site is already degraded. One visitor said that... "I don't know how the natural pools visited support so many people, boats, sunscreens residues". This indicates tourist's suggestions to limit visitor's numbers in natural areas in catamaran tour (5%) and jangada tour (7%). Catamaran tour visitors also included in their answers the development of sustainable tourism (10%) and guide training to perform activities in natural areas (5%).

Table 5.6 Important things said by the guide according to visitors opinions

Questions	**Activities**		
	Total respondents N = 96		
	Catamaran tour N = 21	**Environmental walks N = 28**	**Jangada tour N = 47**
What visitors consider the most important things said by these professionals?	90% of respondents indicated that guides didn't deliver any relevant information;	68% of respondents highlighted professionals concern in awaring and educating;	55% of all respondents didn't find special information in message conveyed;
	10% of visitors claimed as important that guides delivered conservation messages regarding environment visited	32% of visitor's answers were associated to avoid pollution in general	15% of tourists determined as significant guides concern with conservation of natural settings;
			11% information about zoning areas;
			9% information about local history;
			6% information about wildlife;
			2% information about visitor's safety and health;
			2% information about carrying capacity

Source: the author

Most visitors participating in the catamaran tour, about 90%, claimed that guides didn't deliver any relevant information and visitors' complaint proceeds. During my participation in the tour, it was

possible to observe that guides delivered few messages, as mentioned earlier. In addition, these messages conveyed didn't approach conservational issues. The interpretation of environment visited was absent in this activity. Only 10% of visitors surveyed told guides conveyed conservation messages regarding the natural area visited. Unfortunately, I didn't have a chance to listen to these messages. Probably, these messages were delivered by the guide who did the transfer where I was not present. In the environmental walks, 68% of visitors highlighted as important the concern of guides in awaring and educating. Other participants told guides approached messages associated to pollution avoidance. In this activity, guides interpretation was present at all times, especially through theatrical performance, as earlier cited. Visitors' answers demonstrate that guides were able to educate them in some way; otherwise they wouldn't show the above results. This activity had a considerable positive feedback of target audience demonstrating how engaging and interesting this government initiative present interpretation. Professionals work in conjunction with the intent to promote good practices.

In the jangada tour, more than a half of visitors claimed for not receiving important messages from guides. Only 15% of tourists indicated that guides delivered messages with environmental concern. Other answers were indicated as general information regarding local history, zoning area, wildlife, visitor's safety, health and carrying capacity. As an observer, it was possible to experience low interpretation in this activity which is reflected in visitors' answers. The finding of a low interpretation faced in the catamaran and the jangada tours designate a harsh reality, because nature may suffer consequences through impacts, which may be generated by visitors' behaviour on-site.

The end point approached concerning interpretation was to understand visitors' preferences regarding ethical nature of messages. Then, the presentation of messages in teleological and deontological ways was also investigated in order to trace visitors' preferences. Below I present a figure (5.1) demonstrating how questions were disposed in visitors' questionnaires, with two sentences favoring deontological messages and two favoring teleological ones. Visitors' answers were further analyzed.

In the two messages bellow, circle the one that you prefer:

- A) a) Don't litter ☐ b) Don't litter, waste can pollute the coast and harm ecosystems ☐
- B) a) Don't feed animals, food may affect their health ☐ b) Don't feed animals ☐

Figure 5.1 Teleological and deontological messages

In the analysis of results, 87% of visitors' crave to receive teleological messages, corresponding to the second message of first sentences and the first message of the second sentences. The position of teleological and deontological messages was inverted in order to see if visitors really read and choose messages with the same ethical nature. This was the way I found to validate this question. Independent of age, gender and educational level, they want to understand the environment they are visiting through explanations, reaffirming that teleological messages are more recommended in codes of conduct aiming to address visitors' behaviors in tours (Fennel and Malloy, 1998). Only 6% demand deontological messages while 7% agree to receive messages both deontological and teleological. Nature-based tours figure as excellent opportunities to address these messages.

Besides talking interpretation, other techniques are used to try to convince visitors to change their behaviour. Brochures, posters, signs and video are the media presented. Brochures, posters, signs and video media are passive ways to communicate messages. Brochures are inexpensive per copy and may influence visitors depending on how and where their distribution occurs. This media can be published in different languages for different audiences; however printed materials can be easily ignored by visitors, who may not read those. Messages can be easily and quickly forgotten. Visitors usually don't read and don't take materials with them. In addition, printed materials can also create litter, polluting natural areas. Posters can convey consistent messages in an attractive way and this material can be displayed in most touristic sites. This media may frustrate visitors, who have additional questions. That is, if visitors read this material and they don't understand it, they won't have a chance to get additional information. Signs convey brief messages, in order to communicate general information, suggest

proper behaviour and/or reinforce regulations. This material is obstructive, impersonal and takes away the chance of visitors asking questions. Still, signs are prone to deterioration, vandalism and poor maintenance. These three last information-based tools presented do not demand very much from the staff's time. Videos are attractive, entertaining and familiar. This material can deliver the message before a trip and prepare visitors to face natural areas through advice covering appropriate behaviour, for example. Videos may reach many visitors at once; however this resource doesn't work in all locations (outdoors). This media is expensive and tend to be impersonal. However previously mentioned issues may limit message efficiency (Lancaster County Planning Commission, 2007; Wearing *et al.*, 2007). Figure 5.2 demonstrates two examples of passives medias found on natural areas investigated. One image shows a sign out of order. The message of this sign is "Do not destroy the coral reefs" and this material was found unattended in a square in front of beach area, close to coral reefs. The other one is a poster placed in the physical structure assembled on the beach, where visitors watch a video before boarding the jangada tour.

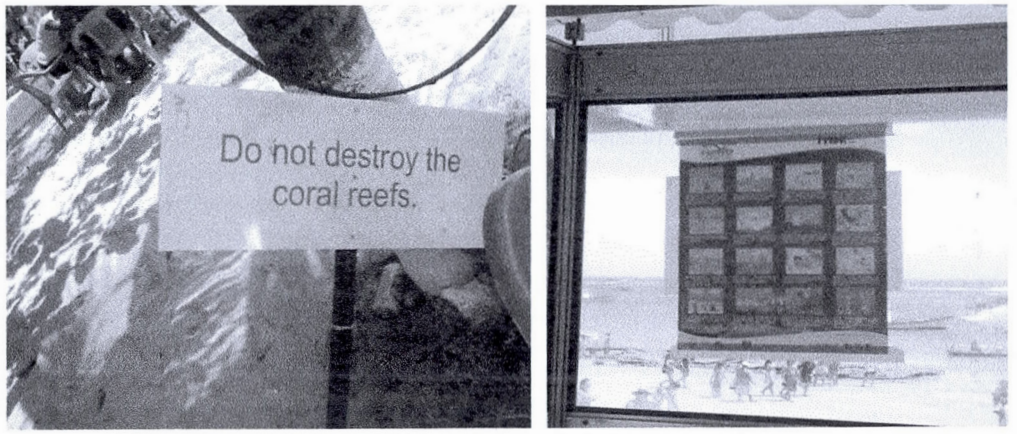

Photo A Photo B

Figure 5.2 Examples of medias (sign and poster). **Source:** the author.

By analysing these passive materials, one may conclude that photo A presents a semantic barrier to visitors, who don't speak English and also this sign does not say what could destroy coral reefs, conveying a deontological message. In addition, this material is not established in the proper place. This is supposed to be placed in front of the beach area where people can see it. The poster is placed in a good and visible place, however it was observed during my participant observation that visitors

ignored this material. Therefore, posters and signs were relatively useless communication instruments in the observed situations. To decrease the chances of communication inefficiency with passive materials, guides could read the written message to visitors, before the start of the tour. This indicates that these communication instruments may present low efficiency in achieving goals. On the other hand, according to the jangada tour answers, there, it was possible to observe that the video presented before activity showed efficiency in the transmission of conservational messages.

Techniques presented are important tools, helping communication process in natural areas; however other issues can blur message efficiency. This occurs, because, in practice, there are chances of failure in this process, due to human behaviors and perceptions that are not related to presented techniques. These obstacles may impede or eliminate message efficiency and correspond to receiver's barriers. Even assuming that all competencies mentioned above are appropriately applied; notwithstanding, a communicative process may fail, because certain mental faculties may prevail. These faculties are related to psychological and sociological aspects intrinsic in human comportments and full of previous educational and cultural principles, beliefs and values, which are independent of employed techniques in the communication process. To understand how tourists perform attitudes in natural settings after receiving messages, next discussion sections are devoted in analyzing visitors' motivations and behavior.

5.2 Why people visit natural areas? Tourists motivations and behaviour in natural areas

Personal motivation and destination representation are pointed by some authors (Pearce, 1982; McDougal and Munro, 1994; Pearce, 2005; Pearce, 2011) as the main reasons influencing tourist behavior. That is, factors including visitors' culture, personality, values, experiences, social networks and demographics as well as destination activities, setting, facilities, service, hosts, management and other tourists influence in behavior development. These factors have an effect on tourist action on-site, triggering diverse results to tourists, hosts and setting (Pearce, 2005: 17).

However, before tracing visitors' behaviours developed on site this section explores tourists' motivation in visiting natural settings. Motivation is a personal willing of behaving in a determined way aiming to reach a goal. According to Raynor (1975 in Pearce, 1982: 50), this means "the perceived success and incentive value of future tasks and outcomes. Pearce *et al.* (1998 in Pearce, 2011: 59) add that "tourist motivation is the total network of biological and cultural forces which give

value and direction to travel choice, behaviour and experience". That is, the feeling(s) that makes people leave their homes to visit a place.

In this study, visitors indicated six main motivations to attend natural areas, including natural beauty of destination, interaction with nature, travel with family, the fame of the place; accessibility, closeness with the big city and to know a new destination. To collect visitors' motivation answers, no response was suggested. An open question was presented to them in order to avoid biased results as well as to gather and understanding of visitors' opinions and main stimulus to travel. To explain these motivations, this study used the idea of the theory of tourist motivation (Pearce and Catalbiano, 1983; Moscardo and Pearce, 1986, Pearce, 1988; 1991; 1993 in Pearce and Lee, 2005: 227), denominated Travel Career Ladder (TCL). This theory classifies tourist motivations in five different levels: relaxation needs, safety/security needs, relationship needs, self-esteem and development needs, and self-actualization/fulfilment needs (Pearce and Lee, 2005: 227). Visitors' motivations and comments are grouped according to Pearce and Lee (2005: 231) model of Travel Career Ladder. All visitors who responded to the survey are Brazilians. Table 5.7 demonstrates tourist's motivations and its factors of influence. Results are furthered analysed.

Table 5.7 Travel Career Ladder – tourists' motivations

Factors	Motive items	Respondents percentage N = 96
Nature	Interact with "different" nature (fauna and flora); Appreciate nature; View beauties of scenery.	52%
Relationship	Travel with family	12%
Recognition	Famous sightseeing; Friends indicate place.	11%
Autonomy	Closeness to the big city	6%
Novelty	To know a new place; Participate in a different tour; To know other Brazil regions.	4%
Other answers	Weather conditions; Relaxation; Economic factors.	15%

Source: Pearce and Catalbiano, 1983; Moscardo and Pearce, 1986; Pearce, 1988; 1991; 1993 in Pearce and Lee, 2005.

In data analysis biotic motivation (natural resources) appears as the main attraction. This reaffirms the great and continuous interest for activities taking place in natural areas (Lascurain, 1996; Mowford and Munt, 1998; Diamantis, 1999; Hall and Page, 1999; Fennell, 2003; Franklin, 2003; McCool and Moisey, 2008). In this research, most visitors demonstrate the interaction and appreciation of nature as main motivators, however there is little interest in promoting biodiversity protection and avoid negative impacts on local society (Budeanu, 2007) through the participation in tours concerned with the promotion of environmental conservation. Just one questionnaire respondent showed interest in participating in a tour which promotes environmental conservation/preservation.

The following motivators are associated to relationship strengthening, recognition, autonomy and novelty. Dann (1977 in Pearce, 1982: 63) and Pearce (2011) comment that recognition is related to the "prestige of travelling" providing a social status to the tourist and can be included in self-esteem need. The society assigns status to certain tourist's attractions and this generates a search for these regions. Then the traveler can be "recognized" as part of the group who already knows the place. This demonstrates the human need to be accepted and be part of a travel "reality". For example, one of the Jangada tour guides (guide 1) interviewed stated that "Porto de Galinhas beach is a post card". In this guide opinion, visitors seek the jangada tour, because Porto de Galinhas beach and its natural beauties are a famous sightseeing in Brazil. According to him, the demand for this tour is the result of a lot of advertisements and he considered that "most visitors are more interesting in realizing the tour, because tourists consider it different, than to interact with nature". People curious to see other cultures and places, stimulates displacements. Humans are prone to discover novelties and these are included in tourist motivations and represent the self-actualization needs described in TCL theory. Other visitors surveyed (15%) listed weather conditions, economic aspects and relaxation as travel motivators. Sun and guarantee of good weather, contribution to local economy and opportunity to rest figure as visitors answers justifications.

5.3 Visitor behavior on-site – Is message influencing pro-environmental behavior?

This section traces visitor's behaviour on-site after message deliverance promoted in activity. The idea is to analyse if the transmission of conservation messages may produce sustainable behaviour and help in the management of natural areas. That is, it was described if communication in tours is able to help in the conservation of natural areas and contribute to the management of natural settings. To gather this information, some questions were asked to visitors in order to analyze behavioral changes regarding the environment visited. In addition, guides also answered some questions related to their perception

concerning visitors' behaviour on-site. These data collection instruments helped me to analyse how communication may influence visitors' behaviors. The idea is to analyze if visitors acquire pro-environmental behavior after receiving a message on-site.

5.3.1 Pro-environmental behavior

As earlier studied in this research, more specifically in chapters three and four, when a message is conveyed the main objective is convincing people to follow its content. That is, communication has in its purport a strong and intrinsic desire on peoples' attitude change with the introduction of certain habits or the collapse of old habits no longer accepted. In this study, the behavioral changing must be related to the environment visited, since this work analyzes activities in nature-based tours. The aim is see if visitors demonstrated to acquire pro-environmental behavior after tour. Pro-environmental behavior consists of behavior that "consciously seeks to minimize the negative impact of one's actions on the natural and built world" (Kollmus and Agyeman, 2002: 240). This research analyses visitors' environmental knowledge, environmental values and attitudes, the possibilities to act pro-environmentally, the incentives for pro-environmental behavior and finally the perceived consequences of such behavior (Fietkau and Kessel, 1981 in Kollmuss and Agyeman, 2002). These variables compose the empirical model of ecological behavior of Fietkau and Kessel (1981in Kollmus and Agyeman, 2002) and these aspects may influence directly or indirectly pro-environmental behavior. Variables are defined as follow 1) Possibilities to act ecologically represent the external, infrastructural and economic factors which provide or prevent an ecological behavior; 2) incentives for pro-environmental behaviors consist of internal factors (social desirability, for example) supporting ecological actions; 3) environmental knowledge is not influential to ecological behavior, but it can act as a modifier of values and attitudes; 4) Perceived consequences of behavior are concerned with the stimulus to continue performing ecological behavior. For instance, people can act environmentally because of economic, social or personal aspects (Kollmuss and Agyeman, 2002: 246).

5.3.2 Visitors' behavior in natural areas: Frequency of natural areas visitation, environmental knowledge, change of values, communication barriers and behavioral outcomes

Frequency of visitor's encounters with nature is analysed. The first pro-environmental behaviour parameter is presented. The idea of these inquiries is to understand why these visitors seek tours in nature. Are there some sort of environmental concerns or other interests associated with these visits? Tables (5.8, 5.9, 6.0 and 6.1) demonstrate visitors' answers. Results are further analysed.

Table 5.8 Visitors' frequency in natural areas

Question	**Respondents N=96**		
How often you visit other natural areas?	10% of respondents visit a natural area for the first time.	90% of respondents have already visited a natural area before.	
		Visitors frequency:	Visitors comments:
		41%	Once to twice a year
		16%	Four times per year
		12% of visitors didn't accurately define frequency	I often take my kids to the park; I always go to natural areas.
		12%	Once a month
		9%	Every weekend

Source: the author

Of the 96 visitors surveyed, 90% have already visited a natural area before. For 10% of visitors, this was the first time in a natural environment. To make sure that tourists would have an understanding of what is a natural area, examples of natural areas were cited in the question presented to them. Results indicate that 41% of respondents visit natural settings once to twice a year, followed by 16%, who take time to see nature four times per year. In addition, 12% of respondents didn't accurately define frequency; however comments reveal they have the habit to interact with natural environments. More answers demonstrate that 12% go to natural settings once a month while 9% do it every weekend. In fact, when analyzing all visitors' answers one may conclude that visitors often interact with nature. The inclusion of an environmental message figures as an important strategy in order to manage natural areas visited. This action can raise awareness of visitors already committed with environment visited and curb possible undesirable behaviours of uninformed tourists, promoting environmental conservation in natural settings, where recreational activities occur.

Regarding to visitors' environmental knowledge of the natural area visited, results are presented. The purpose of this question was to understand how visitors consider their knowledge about the environment visited. In addition, this study compares environmental knowledge with visitor's

educational level and gender in order to see if environment acquaintance is associated to these parameters.

In the catamaran tours, more than half of visitors', about twelve, considered to have a fair knowledge of environment visited, six participants had very good knowledge while three stated they hold a modest knowledge. Table 5.9 summarize visitors' knowledge comparing it to visitors' gender and educational level.

Table 5.9 Catamaran tour visitors' environmental knowledge

Visitors Environmental knowledge N = 21	**Catamaran tour visitor's Educational level and genre**		
	High School	**Undergraduate**	**Graduate**
Very good	-	3 women	2 women and 1 men
Fair	2 men and 1 woman	4 women and 1 men	2 women and 2 men
Modest	1 woman	1 man	1 woman

Source: the author

By analysing this table, one may conclude that most visitors of the catamaran tour are women (fourteen). Except for two participants, most women hold a high educational background (undergraduate and graduate degree). Of the three visitors holding a modest familiarity with ecosystems, each one presented a distinct educational background and is composed by two women and one man. Of twelve visitors who defined their knowledge as fair, this result reveals that there are seven women versus five men. Of those, one woman and two men completed high school degree, four women and one man undergraduate studies and two women and two men graduate formation. Visitor's knowledge range from very good to modest, however the fair knowledge is appointed by the majority of visitors. None of the catamaran tour participants indicated environmental knowledge of environment visited as excellent or poor. Given that only 14% of catamaran tour visitors asserted to have a modest knowledge, in this activity, one may complete that educational level is associated to environmental knowledge. In this specific case, more educated visitors are more environmental knowledgeable.

In Environmental walks, most visitors (about thirteen) determined they have a fair knowledge of environment visited followed by very good and poor, corresponding to five participants each, four visitors hold a modest familiarity and finally just one participant determined his knowledge as excellent. Table 6.0 condense this data while associating it to participants' educational background and gender.

Table 6.0 Environmental walks visitors' environmental knowledge

Visitors Environmental knowledge N = 28	**Environmental walks visitor's Educational level and gender**		
	High School	**Undergraduate**	**Graduate**
Excellent	1 man	-	-
Very good	1 man and 1 woman	3 women	-
Fair	3 men and 3 women	4 women and 1 man	2 women
Modest	2 women	2 women	-
Poor	4 women	1 man	-

Source: the author

In this activity, women constitute the majority of participants. The participants of environmental walks present a basic educational level and more than a half of visitors, about fifteen, have a high school degree; ten being women and five men. Regarding a better level of education, women are also more educated than men; two hold a graduate degree and eight an undergraduate formation. Meanwhile, none of men have higher education (graduate studies) and only two men finished undergraduate studies. In the environmental walks, visitor's environmental knowledge range from excellent to poor, however most participants defined their familiarity with the ecosystem visited as fair. Of these, six have a high school degree, five an undergraduate formation and two graduate studies. Only one man stated to have an excellent knowledge and five people determined knowledge as very good. 32% of visitors asserted their familiarity as modest and poor. Except for one visitor who holds a high school degree and considers his knowledge as excellent, as the previous activity, it is possible to link educational background with environmental knowledge. In this activity, visitors present shallow environmental knowledge and therefore many visitors are less educated.

In the jangada tour, most visitors, eighteen, consider they have a fair environmental knowledge followed by visitors, fourteen, who stated to hold a very good familiarity with visited ecosystems. In this activity, seven tourists stated their knowledge as excellent while eight participants regard their knowledge as modest. Table 6.1 compress the jangada tour visitors' environmental knowledge and connects this information with their educational level and gender.

Table 6.1 Jangada tour visitors' environmental knowledge

Visitors Environmental knowledge N = 47	**Jangada tour visitor's Educational level and gender**		
	High School	**Undergraduate**	**Graduate**
Excellent	1 man and 1 woman	2 men and 1 woman	2 men
Very good	1 man	2 men and 4 women	6 men and 1 woman
Fair	3 women	1 man and 9 women	2 men and 3 women
Modest	2 women	3 women	1 man and 2 women

Source: the author

This activity is composed by twenty six women and twenty one men, which shows a balance regarding gender, differently of previous activities in which the presence of women represented the majority. In the jangada tour, women are more educated than men. According to questionnaires answers, seventeen women hold an undergraduate degree versus eight men. Concerning higher education (graduate studies), eleven men finished graduate studies against six women. High school degree is the last formation of two men and six women. In this activity, visitors' environmental knowledge range from excellent to modest. Visitors who consider their knowledge as excellent are mostly composed by men. Of those two hold graduate degree, two an undergraduate degree and one a high school formation. Just one woman who completed undergraduate studies and one woman holding a high school formation considered their familiarity with ecosystem visited as excellent. Nine men and five women defined as very good their environmental knowledge. Of those six men have completed high education, two undergraduate studies and one has completed high school. Of this group just one woman holds a graduate degree followed by four women who have completed undergraduate studies. As mentioned earlier, fair environmental knowledge represents visitors' majority answer and fifteen women consider their knowledge as fair versus three men. Of those, nine women have completed undergraduate studies,

three hold a graduate education and three a high school degree; one man finished undergraduate formation and two higher education. Tourists who consider their environmental knowledge as modest are composed of two women holding high school degree, three women who finished undergraduate studies and two women who have graduate education versus one man. Considering that only 17% of participants state their environmental knowledge as modest, there is a possibility of completing that education is again valued as an important parameter to be considered, because educational background is directly linked with environmental knowledge.

By analysing the total results of the three activities, one may conclude that 44% of tourists stated to have fair knowledge regarding the environment visited, 26% believed to have a very good acquaintance, 16% of visitors allege knowledge as modest and 5% of tourists have a poor knowledge. Finally, 9% consider their familiarity as excellent. When analysing the level of education of the three activities, it is possible to complete that educational level of participants of the catamaran tour and the jangada tour are almost the same and most visitors hold high studies (undergraduate and graduate degrees). Unlike presented activities, environmental walks participants are less educated and the majority of people just received a high school degree.

As indicated, most visitors surveyed believe to have a fair knowledge of visited area, which gives opportunity to communicate messages and increase learning. This high percentage of visitors who claim to have a low to medium environmental knowledge emerge as an advantage to persuade people, because message receivers presenting a low level of prior knowledge tend to be more susceptible to persuasion and raise their attitude change (Cacioppo *et al.*, 1992). Considering that this knowledge is fair, this result also demonstrates a need to increase the communication of environmental messages in tours with the ideal of directing efforts to raise visitors' awareness. However, the opposite may also occur. Visitors who feel more knowledgeable may feel they already know enough. Thus, they may ignore or think they don't need to receive an environmental message.

Communicating a well-established message using interpretation may determine a behavioral change assumption as well as other factors such as previous education, for example. Results of visitors' questionnaires show that 35% assumed that idea/perception (values) about environment had changed or improved. Of these, 14% of answers correspond to the participants of the jangada tour, 12% to the visitors of the environmental walks and 9% to the tourists of the catamaran tour. Visitors' answers were varied, and these are compiled in table 6.2. These responses are further analyzed.

Table 6.2 Change of visitor's values

I've changed my perception about the environment, because this activity...	**Activity**	**Gender**	**Educational level**	**Environmental knowledge**
"raise awareness in relation to environmental conservation/preservation"	Catamaran tour	Woman	Graduate	Fair
"show me the need to change some daily habits as diminish water and energy consumption"	Catamaran tour	Woman	Graduate degree	Very good
"strengthened my existing idea of preservation/conservation"	Catamaran tour	Woman	Graduate degree	Fair
"improved my knowledge"	Catamaran tour	Woman	Undergraduate degree	Very good
	Environmental walks	Man	High school	Excellent
"show me to give more value to preservation"	Catamaran tour	Man	Undergraduate degree	Fair
	Jangada tour	Man	Graduate degree	Very good
"to visit this place showed me the need to preserve nature"	Catamaran tour	Woman	Undergraduate degree	Very good
"show me that this nature exists because of preservation"	Catamaran tour	Woman	Graduate degree	Very good
"more interaction with nature increase my knowledge about environment"	Catamaran tour	Woman	Graduate degree	Fair
"gave me a warning about the need to take care of nature"	Catamaran tour	Man	Graduate degree	Fair
"more I interact with nature, more I respect and admire it"	Catamaran tour	Man	High school	Fair
"open my mind to environmental preservation"	Environmental walk	Woman	High School	Modest
"sometimes we are not thinking about the importance of ecosystems preservation and this activity open our mind"	Environmental walk	Woman	High school	Modest

Table 6.2 Change of visitor's values (continued)

"show me that is possible to learn having fun"	Environmental walk	Man	High School	Fair
"can change people opinion; changed mine"	Environmental walk	Woman	High school	Modest
"stimulate awareness in a fun way"	Environmental walk	Woman	Undergraduate degree	Very good
"the need to take care of nature, because we depend on it to live"	Jangada tour	Woman	Undergraduate degree	Modest
"contact with nature made me change my environmental values"	Jangada tour	Man	Undergraduate degree	Very good
"depend on us to take care of nature"	Jangada tour	Woman	Undergraduate degree	Fair
"acquire more knowledge about the sea and the respect we should nurture to nature"	Jangada tour	Woman	Graduate degree	Fair
"show me that there are still wonderful places that human didn't spoil"	Jangada tour	Woman	Undergraduate degree	Fair
"remind me about the importance of nature preservation"	Jangada tour	Man	Graduate degree	Very good
"increase my learning about nature and its preservation/conservation"	Jangada tour	Woman	Graduate degree	Modest
"show me that we are all responsible to act properly in regarding visited environment"	Jangada tour	Woman	Undergraduate degree	Modest

Source: the author

By analyzing this table, it is possible to observe that catamaran tour participants indicated the following values in their answers 1) awareness; 2) respect; 3) admiration; and 4) care. However, these visitors rarely received environmental messages and this limitation may demonstrate a lack of "possibilities to act ecologically". However, considering that they hold high previous educational level (graduate and undergraduate degrees, respectively) and fair to excellent environmental knowledge, one may complete these visitors probably had changed values because of mentioned aspects allied to of "existing internal factors" (social desirability) (Kollmuss and Agyeman, 2002: 246). Other visitors indicated that the interaction with nature made them change values and/or reinforce existing ones. This experience is known as the "enrichment without words" (Field and Gough, 1998) in which the fact of being in nature is so significant that visitors see nature in a different way. Most visitors who changed values are composed of women. Sustainability and conservationism present the mainstream of some answers ("visiting this place showed me the need to preserve nature"; "show me that this nature exists because of preservation" and "gave me a warning about the need to take care of nature").

Environmental walks participants determined awareness as the main important value acquired in activity. They also pointed the fun way the activity was conducted, demonstrating the importance to include interpretation in communication. Most respondents hold a high school degree and are women. Message conveyed in environmental walks gave participants "possibilities to act pro-environmentally", since this activity promotes education and adequate conducts to be performed in a natural setting.

The jangada tour participants listed the care and the respect to nature as the values obtained in activity. Most answers are associated to women who hold higher studies (undergraduate and graduate degrees). Mostly, pre-sited messages stimulate education and proper behaviors on-site, which give visitors possibilities to engage in pro-environmental actions. The jangada tour respondents linked their answers with the concept of sustainability and conservationism ("show me that we are all responsible to act properly in regarding visited environment"; "the need to take care of nature, because we depend on it to live"; "remind me about the importance on nature preservation" and "depend on us to take care of nature").

A small proportion of respondents (12%) admitted to already having knowledge of messages transmitted; however they extol the importance of communication to reinforce good behavior. Other respondents (44%) said they already knew the subject approached and therefore their opinion remained the same. To these visitors messages delivered didn't integrate new knowledge about the environment.

In my participation in field research, it was possible to observe that conservation messages are addressed, but this doesn't happen in all tours and the way this information transfer occurs, fail in dealing with time and message deliverance as well as in selecting what to communicate/interpret on-site.

On the other hand, communication is a two-way road and also depends on how the receiver of the message listens to communication effectively. That is, the message receiver must be skilled to decode and transform the physical impulses on the message retrieved. To listen effectively a message an actor involved in communication needs to assume some roles and have the willingness to overcome barriers. Many visitors have an established opinion about the environment in general, demonstrating resistance in acquiring new knowledge. Therefore, they don't take in consideration that each nature visited present different features. These receiver barriers correspond to selective memory and perception and fear of being persuaded. That is, visitors just hear what conveniently aims at reinforcing their own beliefs, desires and needs; this can distort the original message. The fear to be influenced generally affects people who already have values and beliefs well-established and often they aren't willing to change old thoughts or feel afraid to alter the "organized" opinions they built in mind. As example, one of the visitors surveyed wrote that "he goes on a tour to relax", that is he is not interested to spend his time and attention to apprehend new information. (Aswathappa, 2005: 424-427).

Another issue compromising communication and visitors behavioral change is related to the difficulty in dealing with tourists' mood on-site. This barrier consists of interference from emotions. That is, audience must be emotional to receive a message; otherwise feelings like anger, sadness, and worries will hinder communication process. According to the perceptions and experiences of guides, this represents often a hard task. During interviews, guides told me that there are tourists who don't want to listen to explanations, because they claim it wastes time; to them only half of visitors apprehend messages conveyed. To deal with hot tempered visitors, guides try different actions, then distinct data was gathered from each person interviewed. One guide said that "try to convince people calmly". Another guide was more emphatic in his response and told me that "he treats visitors the way they should be treated". As example, he explained: "Once, I had to return from a tour just to bring a tourist back, because he doesn't want to follow my verbal instructions. I told him that if he harmed the wildlife I could do the same to him". This guide reported that he reinforces messages in order to contain more difficult tourists. According to him, there are some stubborn tourists, who do not follow instructions and act randomly. As an example, a guide told me that had a problem with a visitor, who

carried food to feed the fish. He decided to intervene and explain to her that the action wasn't correct. Then, she said that "the natural setting was a public area, where she could act however she wanted, without the interference of others". Guides also informed me that they face visitors opposition when they express some prohibitions related to the invasion of zoning areas and wildlife feeding. There are many visitors who don't want to follow the rules. This barrier may be classified as biased and being judgemental. That is, previous wrong or incomplete information may generate inadequate judgements. In this case, a deontological message, without providing explanations, figure as an incomplete communication, generating visitors' judgement in regards to the guides` messages. Tourists may think these professionals want to prohibit their interaction with nature, when in fact they want to minimize impact. The inclusion of teleological messages may help to overcome this biased interference. Guides remark that tourists desire to attract fish to take pictures and keep this moment as a souvenir. They need to touch nature, contemplating does not seem to be sufficient. That is, they need to prove visitation through images and for them it may not be enough. On the other hand, guides confirm that there are also "civilized" and curious visitors, who aim to learn in tours. In general, these tourists ask questions about the ecosystem visited, demanding fish species and why they can't feed and interact with wildlife. Unfortunately, in field research, it was observed more unskilled and undesirable behavior than positive ones. There, it was possible to perceive in tourists an anxiety to experience this leisure moment greater than the desire to learn something more about the environment visited. In my observations on-site, I could see that they need to perpetrate excesses and wills restrained in daily routine. The positive attitudes observed were associated to put waste in trash bins in the environmental walks. Only in this activity the concept of "perceived consequences of behavior", associated to the incentive to reinforce and continue ecological behavior, was applied. In the catamaran tour and the jangada tour, this parameter of pro-environmental behavior wasn't put in practice by the guides, for example. As examples of what I witnessed in my observations in natural areas, some images are presented (figure 5.3) that show unwanted behavior practiced by visitors, which are commented below.

Photo A

Photo B

Photo C

Photo D

Photo E

Figure 5.3 Visitors undesirable behaviours. **Source**: the author

Images A, B and C show behavior of visitors on coral reefs. In first image (A), a tourist and a child feed fishes, which can generate several impacts such as 1) alteration of natural behavior; 2) alteration of population; 3) dependency, habituation with other food than the one of natural habitat; 4) health, disease and injury problems, for example, give food may increase fat deposits in wildlife liver (Orams, 2002: 283 – 286). Images demonstrate visitors' surpassing zoning areas to take pictures (B) and observe wildlife (C). These actions generate degradation on coral reefs. Photo D exhibits visitor's degrading a hillside area to collect clay aiming to take a "clay bath". Last image (E) shows a visitor, who gathered clay to bring home as a souvenir. These images expose message inefficiency containing visitors' bad practices.

In spite of observed bad practices, I've gathered visitors and professionals opinions regarding to tourists future behavioral changes. That is, visitors were asked if they think this tour will affect their actions concerning the environment. To my surprise 68% of all respondents stated that they were impacted in tours in some way to transform their attitudes. Of these, 32% of respondents participated in the jangada tour, 25% in the environmental walks and 11% in the catamaran tour. Guides also told me that "most visitors, who have the interest in listening to the message and learn about environment visited, finish tours more aware; only a minority of visitors is not pleased after the tour". They just don't know how long this awareness will last. In Table 6.3 Some visitors' answers were compiled to be shared in this study. These are further analyzed.

Table 6.3 Visitor's future actions

In what way, do you believe that messages transmitted in tour can change some of your actions regarding the environment?
"I'm aware what I should do in regarding environmental preservation and conservation"
"I'll act on behalf of the environmental conservation and preservation"
"I'll throw waste in garbage and recycle"
"I won't pollute beaches and ocean"
"I'll be more aware of environmental conservation, preservation and respect the ecosystems"
"I'll give more value to nature"
"I'll participate in pro-environmental actions"
"Now, I think that care for the environment is our responsibility"
"I'll multiply message received"
"I'll do my part"
"I'll take more care of nature"
"I'll reduce water consumption and maintain environment clean"
"I'll conserve the natural habitat"
"I'll respect more nature"
"I'll leave the environment visited the same way after encounter"

Source: the author

Visitors indicate they will adhere to different behaviors regarding the environment such as avoid pollution, throw waste in appropriate containers, act on behalf of environmental conservation/preservation, participate in pro-environmental actions and multiply messages received. Most visitors' on-site behavior demonstrate precisely the opposite of what they established as future attitudes, however it is possible to highlight that messages conveyed were partially absorbed and can be put into practice in a next opportunity. To educate people about environmental conservation through communication isn't an easy task and may take time to produce positive outcomes in practice, however, according to demonstrated results (tables 6.2 and 6.3), this management tool is fundamental to increase awareness and positive behavior. Guides also share with me this same opinion. They think that this strategy should be fostered, because they stated tourists and even some guides don't comprehend totally the need to conserve ecosystems, developing behaviors contrary to conservation.

In practice, it was remarked that behaviour vary widely and actions may differ of survey answers. Often people know the proper way to act, however personal circumstances make them confront right attitudes. For example, many people litter in natural areas, even assuming that this action is not adequate. In other situations, certain human attitudes are thoughtless and generate consequences; however actors are unaware of their mistakes. As an example we can mention visitors who touch coral reefs without realizing the harm they are causing to this important ecosystem. Finally, there are situations in which the data are ignored by visitors, who despite having access to a consistent message take incorrect action. For example, the act of feeding animals demonstrates a human desire to interact with wildlife, no matter what the outcome of this action will be. Thus, acquire new habits is very difficult even assuming that new ways to act can be better than the older ones. However, results demonstrated that the more knowledgeable communicator and communication where there are more chances of message transmission achieve efficiency (visitors' understanding and compliance with codes of conduct on-site) and assist in the conservation of natural settings.

5.4 Conclusion

In this discussion relevant points associated to message efficiency were raised such as 1) the application of talking interpretation in communication process considering interpretation intensity and visitor learning experience; and 2) the ways to overcome barriers and achieve message efficiency (guides training, the use of teleological messages, confront visitors' emotions as fear to be persuaded and resistance to learn). As stated earlier, most visitors aren't truly concerned with environment conservation (Budeanu, 2007: 502) when they buy natural holiday products they do not plan to generate degradation. In fact, they're consumers and their main objectives are to experience the natural area to fulfill their expectations (Iso-Ahola and Park, 1996). We don't say that these visitors visit natural areas and have the intention to harm the ecosystems, causing impacts. However they can affect these natural areas, because they're often unprepared in intellectual, educational and/or emotional aspects to deal with nature. In reality, when a tourist purchases a travel package to natural settings, he/she usually isn't previously prepared to deal with the attractions he/she will encounter. A natural area isn't a built space, which can be reconstructed in case of deterioration. Ecosystems tend to be fragile areas, needing the collaboration of tourists and professionals to remain preserved. Then, nature-based professionals must be included as key stakeholders promoting and contributing to the conservation of these natural areas. They are an important communication channel between environment and visitors. Therefore, to achieve message efficiency and conduct code compliance, tour operators, guides and government institutions must engage in the communication process (message

construction and transmission) in order to help in the management of natural settings. Besides, raise visitors' awareness about conservation issues communication can also enhance the quality of visitors' experience through the learning of the environment visited. Indeed, visitors' satisfactory experience is a result of a good communication and this achievement depends on how professionals administer this management tool in tours. Message efficiency in natural areas culminates with visitors' behavioral change in a short, medium or long term. Any new gesture of change represents a memorable win to the environment and also to people engaged in the promotion of positive attitudes. Each change in behaviour expresses for researchers and managers a confirmation that this management is feasible and can substantiate great results in this field. In addition, this achievement is a result of a joint effort of professionals (guides and tour operators), civil society and government, seeking the same goals, which consists in the management and conservation of fragile ecosystems. Therefore, communication and education are essential tools to minimize impacts and foster sustainable actions as well as to make visitors aware.

CONCLUSION

The main objective of this study was to analyse the efficiency of message transmission. More than that, the core idea of this research intended to examine in detail message construction and transmission as well as its efficiency in conduct codes accomplishment in environmental and nature-based tours. In addition, this study was also oriented to verify if this management tool could influence visitors behavioral changes in regarding to the environment visited and as a consequence generate the conservation of natural resources. In order to realize this research intention, I directed my efforts to study three main goals divided into the following sub-questions: (1) message construction covering its environmental choices and values; (2) message transmission investigating if conduct codes and their application were included in its communication process; and (3) observe efficiency of its communication in message reception and application.

The information described in this investigative process and case study showed that activities developed in natural areas tend to cause impacts on ecosystems. However, it is possible to observe that visitors' management through appropriate educational and communicative processes are capable of promoting conservation. On the other hand, when message construction and transmission elaboration aren't produced and directed to this end, this management tool becomes void in contributing to visitors' awareness. In message construction, I could find a tendency of professionals to include environmental education, conservationism ideas and sustainability perceptions in their communication process. In conduct code guidelines, these were the insights included. Most messages basis were deontological in nature and only one of the activities (Environmental walks) analysed in case study completely supported teleological message construction. Another activity (Jangada tour) showed a message construction based on both ethical natures (deontological and teleological). That way, it was realized that the first communication step started to present initial glitches which can lead to critical points in further stages (message transmission and efficiency) as incomprehensibility of message and failure in achieving goals. Although, I noted this ethical nature issue in conduct code construction, there is a strong concern in including conservational issues on the construction of communication. These facts made me understand that in two of the activities (Catamaran and Jangada tour), there is a lack of specialization of professionals in message construction. That is, they need the support of people who

master this subject in order to have success. This initial support could substantially improve message construction, leading to excellent outcomes.

The analysis of the second sub-question related to message transmission and case study results revealed that nature-based managers and professionals have available a wide variety of channels to convey messages. This figure as an advantage, because they can choose the options that best align with audience they will approach. Two of the activities (Environmental walks and Jangada tour) analysed in case study use multiple message transmission techniques (signs, folders, posters, videos, theatrical performance, music, storytelling, guides) while one relies efforts in interpersonal communication. All message transmission techniques were analysed, however the main focus was communication conveyed in interpersonal contacts. It was possible to see a distinct commitment in message transmission, ranging from low to high level in aspects as inclusion of education, interpretation and conduct codes application while guides perform utterance. Just one of the activities (Environmental walks) presented had a high and incontestable level of message transmission quality and the other two tours (Catamaran and Jangada tour) demonstrated failures in the development of message deliverance. The communicators of two tours mentioned do not efficiently expose conservational issues as well as they barely apply codes in the messages delivered. In addition, the three activities didn't dispense attention to post-site message transmission, as a way to reinforce proper behaviours and conservation practices. Environmental walks present a lack of post message stage while in Catamaran and the Jangada tour, this aspect is completely absent. In this case study, it was not possible to find a mechanism to monitor visitors satisfaction in relation to the communication received. This action could be a way for managers and researchers to understand what visitors expect while receiving a message in tour. Moreover, this feedback is really important, because managers may use it as a way to monitor and improve communication process. Unfortunately, during my participant observation it was possible to notice that some visitors left the natural setting with the same environmental conceptions they had before. This was generated because of the shallow environmental knowledge presented by some guides, which can cause misunderstandings in the information transferral; or due to the absence of a more consistent communication able to arouse thoughts and questions related to the natural area visited. These difficulties can trigger visitors' dissatisfaction with tour and discouragement to pay attention to next guide's exposition.

The analysis of the last sub-question related to the observation of message efficiency and the case study made me realize that communication is of paramount importance in natural areas to raise

visitors' awareness and attitude change. However, the communication effectiveness can only be reached if managers and professionals responsible for formatting communication processes plan and dispense time in the elaboration of this tool in order to achieve conservation goals. The more coherent and consistent a message is, the more visitors accept and demonstrate content understanding; however previous environmental knowledge also showed to be relevant in message comprehension. The opposite occurs when communication presents gaps in construction and transmission, leading to visitors' misunderstandings and doubts. However, it was possible to remark that message understanding is not associated with conduct codes compliance. That is, even having a well constructed message and a message transmission that favors interpretative and educational aspects, compliance with conduct codes may still not occur, but this communication demonstrated to change visitors' values and future actions. As new values acquired, visitors cited 1) respect for nature; 2) the care to the environment visited; 3) admiration for its natural beauty; and 4) awareness regarding to the natural environment. Promises of future changes were revealed by visitors through questionnaires and the most relevant assertions of conducts are 1) act on behalf of the environmental conservation and preservation; 2) multiply message received; 3) do my part; 4) participate in pro-environmental actions; 5) take more care of nature; 6) leave the environment visited the same way after encounter; and 7) avoid pollution. These answers appear as positive outcomes for these natural areas studied and other environments these people may visit one day.

In spite of the difficulties presented concerning visitors' behavioral change through communication and education, managers and professionals must persist on the inclusion and improvement of an appropriate message to be administered during the tours. Educate people is a very hard task that requires patience, which would take several years to yield effective results. Researchers and managers interested in this kind of subject should continue to be encouraged to make new research with the intention of contributing to the establishment of to this management tool establishment. In fact, this management instrument if compared with other is accessible and feasible regarding its implementation. Based on this statement, some recommendations are proposed to tour operators, guides, visitors and government institutions with the main intention of enhancing discussion about the topic as well as improving the communication processes.

Recommendations to tour operators and government institutions concerning message construction:

- To include the participation of guides and locals in this communication process, because they interact directly with visitors. The participation of these people is fundamental to gather valuable suggestions in order to improve conduct codes content;
- To ask guides to observe what are the main issues taking place on-site, when visitors interact with the environment. Thus, it will be easier to know what issues must be approached in message planning, construction and adjustment;
- To construct an organized and standardized message, in order to facilitate communicators in message transmission by communicators;
- To formulate messages emphasizing the teleological ethical nature;
- To discuss during message construction what would be the main visitors' doubts and questions pre, on and post-site in order to prepare convincing answers which highlight conservation values and conduct codes applications;
- To create monitor mechanisms for visitors to give suggestions regarding message construction. A simple and viable example could be the implantation of suggestions boxes in strategic points where visitors would deposit proposals after tour. A more sophisticated example would be the use of technology through company's website or social networks where visitors could access some sort of page in which they would add suggestions and opinions about the tour and communication available;
- To create support material for guides use on-site. This material would serve as a reminder, reference guide containing the main ideas to be conveyed. This would help to avoid oversights;
- To train guides. This way they can better communicate the environmental message. Trainings should have a dynamic and periodical format in order to keep communication efficient. For example, the trainings could take place before peak season aiming to better prepare guides and after peak season in order to analyse problems and results of communication process. This also may help in the improvement of communication, since errors detection will create the opportunities to modify messages, for example.
- To create partnerships with hotels and hostels to provide informative materials about the tours. These communication instruments would address tours features and would also

emphasize the characteristics of local ecosystems as well as the importance of behaving properly in natural settings in order to contribute to conservation.

Recommendations to guides concerning message transmission:

- To stimulate visitors questions in tours;
- To ask questions to tourists after message transmission aiming to verify comprehension;
- In case of visitor's questions in relation to message exposed, guides should have a positive position if they don't know how to answer the question immediately. However, after tour, guides must seek a way to clarify eventual questions. These professionals can't let visitors go away without receiving proper clarifications;
- Pre-site passive media (poster, signs) must be read by the guides. In addition, these professionals may also encourage visitors to read each recommendation in order to emphasize proper conducts on-site;
- To prioritize the transmission of teleological messages, which favor the explanation of attitudes consequences in order to increase visitors' compliance to conduct codes;
- Guides must have an ethical behaviour concerning the environment, especially in front of visitors, because behaviours transmit a non-verbal message, which may encourage and/or restrain the positive attitudes of others.

Recommendations to visitors:

- To seek information on the environmental characteristics of the site to be visited;
- To pay attention to the messages delivered by the guide;
- To follow the guidelines and in case of doubt ask why they should comply with the advice;
- To participate the pre-site stage, reading written materials and/or watching the video (s) in order to learn more about the place and the codes to be followed;
- To ask questions on and post-site in case of doubts. This action may generate the acquisition of new knowledge and subsequent learning.

The recommendations listed figure as an attempt to improve communication in activities performed in nature-based tours, more specifically those analysed in the case study. More than that, the application of these ideas aims to 1) help managers and nature-based professionals in the development of their work; 2) enhance visitors' learning and experience pre, on and post-site; and 3) contribute to the conservation of visited ecosystems. To conclude, my expectation is that this work can add new insights and academic knowledge to the field of nature-based tourism studies.

APPENDIX A - TOUR-OPERATORS, GOVERNMENT INSTITUTIONS AND GUIDES INTERVIEWS AND VISITORS QUESTIONNAIRES

Tour operator interview

1. Your company has adopted an environmental policy. How this policy did come about?
2. When did you adopt this policy?
3. For what purpose or goals did you create this policy?
4. Who were you initially targeting with this policy?
5. What are the main ideas expressed in this policy?
6. Are there any special words, expressions used to emphasize the environmental message?
7. How to do communicate the message to the visitors? (Through brochures, through the staff, guides, before, during, after the tour?)
8. Once your message has been passed on to the visitors, do you have any system to monitor its impact of the visitors?
9. If we compare your activities before this policy was adopted and after its implementation, did you noticed any changes in your visitor's behaviour?
10. Does this policy have any impact on your company? If so, what are they?
11. Has the policy changed since you created it?
12. Are you planning to make changes to your policy? Should there be other issues addresses by your environmental policy?

Guide interview

1) How did you become a guide?
2) Did you have any previous training for the job or did you have to get a special training for it? If yes, what kind of training/course did you get? (ex: environmental education, ethics and environment, course of ecology etc)
3) In general, when tourists are looking for this tour, do you believe that their expectations are associated with interaction with the environment, to learn more about nature or are for other reasons? When you talk to the visitors, what type of information do you wish to pass on to them?
4) Do you address the specific issue of the protection of the environment?
   - Yes? What do you tell them? What is the most important part of the message?
   - No? Why?

5) For you, what is or are the main purposes of the message addressed to the visitors in this tour?

- To inform___
- To educate___
- To sell tour, place___
- To describe sightseeing's or the region ___
- Other ___
-

5) In your opinion, which of the elements of this message may stimulate the visitor's education in the interaction with nature?
6) Do you believe that this message is complete and can be understood by your visitors?
7) Given that you have a direct contact with visitors, do you participate in the construction of this message? How does it occur?
8) Do you think that it is possible to increase understanding and effectiveness in this communication focusing on each type of audience (adults, children, teens etc)? Do you have suggestions?
9) How do you delivery your information/messages? What's the focus of your information? (conservation/protection of environment, region ecology, visitors safety in contact with nature, visitors education etc).
10) How do people react to your message?
11) Do you notice any change in reaction according to the type of audience (children, adults, teens, seniors)?
12) In general, do you think that visitors interact; they have questions about the information/message presented?
13) What are the most common questions people ask you? (What % of these questions is about the conservation of the environment?)
14) As a guide, do you notice any difference in visitor's behaviour before and after this tour? If yes, cite examples.
15) How do you deal with the uncomprehending tourists, those who are more difficult to hear what you have to say, who will not follow instructions?
16) Is there any environmental information you don't consider appropriate or feel some resistance to address, share with visitors? If yes, why?

17) When you talk to the tourists about the environment, do you feel any resistance or disagreement in regards to some topic?

18) In your opinion, what are the advantages of having messages on tours? Do you think that they are essential or dispensable? Do you believe that they add or not important information on tours? Please explain.

19) Do you think that the messages can help manage nature-based tourism? How these messages can help in conserving the natural environment?

Visitors questionnaire

UQÀM

My name is Angelica and I'm a master degree student in environmental sciences of the Université du Quebec à Montreal (UQAM). Presently, I'm conducting a research that aim to analyze messages broadcast in tours. Participation is voluntary and unpaid.

I agree to participate as a volunteer in this research ☐

1) Is this your first visit to a natural environment as a tourist? Yes No

2) What made you choose this particular tour/location?

_____

3) How often do you take tours in natural environments?

_____

4) How would you evaluated your knowledge of the ecosystem you are visiting/or visited here today?

a) Extremely good b) Very good c) fair/average d) modest e) poor

5) What do you consider to be the most important environmental issue
a) on a global scale? _____
b) for your home environment _____

6) In your daily life, do you do any of the following actions and if so, how often?

			On a scale of 1 (never) to 7 (often), how often do you do the following actions?						
ACTIONS	Yes	No	1	2	3	4	5	6	7
a) recycling									
b) taking public transportation;									
c) reducing your amount of water consumption;									
d) reducing your domestic energy consumption									

7) Would you agree that part of this tour focussed on education? Yes No

8) What did you learn / or what were you made aware of during this excursion/tour?

_____

9) During this tour, our guide has talked about different aspects of the environment we visited. What would you say are the best ways to protect this location?

_____

10)What would you say are the most important things the guide said?

_____

11)Did your idea about environment changed during this tour?

_____

12) Will this tour affect any of your actions at home, (in regard with the environment)?

_____

13) In the messages bellow, what approach would you prefer?

- a) Don't litter___ b) Don't litter, waste can pollute the coast and harm ecosystems___;
- a) Don't feed animals, food may affect their health ___ b) Don't feed animals___.

14) What will be your strongest memory from this tour?

_____

15) Would you recommend this tour to anyone? If yes, why?

_____

Visitor's information:

Age: 18 to 24 ___ 25 to 34___ 35 to 44 ___ 45 to 54 ___ 55 to 65___

Last degree completed: High school diploma ___ University degree ___ Postgraduate diploma ___

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