Book of Full Papers

10th International Conference on Islands Tourism

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The Observatory on Tourism in the European Islands (OTIE), was founded in Palermo on 2 February 2007 by public institutions, Universities, Research Centers and other international organizations as a non-profit organization. It is the first observatory with the specific focus on island tourism and development and its main purpose is to draw up statistics surveys and realize researches in order to identify the current issues of Tourism in Islands. OTIE activities are all focused on updating the Databank on Insular Tourism, creating the Documentation Centre of the Islands, achieving studies and researches, organizing forums and seminars, and participating to the European projects of cooperation and social economic development. Thanks to the direct dialogue with the institutions, the companies and the centers of research on tourism, OTIE provides its support to the insular realities to devise strategic, operative and marketing plans on tourism by taking advantage of its wide network of contacts and a steady updated benchmark on insular tourism.

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10th OTIE International Conference on Islands Tourism

The aim of the conference is to promote the scientific and technical exchange between international academics and experts on insular contexts in order to address efficient strategies to insular development by promoting a wide cooperation. The conference is one of the working step of the Islands Economy Working Group created in Brussels the last November, 27th . The scope of the IEWG, as well as that one of this conference is to promote the creation of an International Network of Island Contexts.

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OTIE SCIENTIFIC COMMITTEE

Giovanni Ruggieri, President

Giovanni Ruggieri (1970) is Researcher and Adjunct Professor of Applied Economics at the University of Palermo, Visiting Professor at Malaga University and Coordinator of the International Master Degree 'Hospitality Management and Food & Beverage' in collaboration with the Florida International University. He is the author of several articles published in international scientific journals and concerning the economic impact, the birth and development of tourist destinations and the growth of tourism economies in the island territories. He is President of the Observatory on Tourism in the European Islands (OTIE), of which also he chairs the Scientific Committee made up of professors and international experts. Research topics, with particular attention to island realities, concern: the tourism economy, innovation, micro enterprises, networks and dynamics of aggregation of enterprises, tourist districts and tourist destinations, tourism in fragile or outlying regions such as islands. He is inserted in the list of experts on tourism of the Prime Minister's Office, of the Italian Government. He cooperates with the UNESCO Foundation for the definition of the UNESCO Management Plan in Sicily.

Richard W. Butler

Richard Butler was educated at Nottingham University (BA Geography) and the University of Glasgow (PhD Geography), and spent thirty years at the University of Western Ontario in Canada where he was Professor and Chairman of the Department of Geography. After returning to the UK in 1967 he spent eight years at the University of Surrey as Deputy Head (Research) and Professor of Tourism in the School of Management. He then moved to Scotland as Professor of International Tourism at the University of Strathclyde, Glasgow, and is currently Emeritus Professor in the Strathclyde Business School. He has published many journal articles, fourteen books on tourism and many chapters in other books. He is a past president of the International Academy for the Study of Tourism and the Canadian Association of Leisure Studies.

Francisco Jose Calderon Vazquez

Associated Professor of Applied Economics at University of Malaga (UMA), he teaches Public Finance, Economic Policy and Political Economy in faculty of Economics Science. He started his career in the field of international development cooperation where interdisciplinary training is essential. Very relevant, then, is the interdisciplinary approach, within the social sciences, specially Applied economics and its relationship with the remaining social disciplines (Law, political science, anthropology, history, etc.) which characterizes his CV and which has been a consequence of his life experience. Research has always been one of his main ambitions and challenges.

Razaq Raj

Associate Professor, Chair of Event Management, Tourism and Hospitality, University of Leeds, United Kingdom. Dr Razaq Raj is an internationally renowned academic with over fifteen years higher education experience of teaching and research in UK, Malta, Portugal, Spain, Italy, Germany and China and South Korea. He is Principal Lecturer for Research and Enterprise and is a Visiting Professor at the Kedge Business School,

France and University of Vitez, Bosnia. He has substantial external examining and curriculum development experience of both undergraduate and postgraduate degrees in business management, events and tourism.
He has published work on strategic management, economic and financial impacts, cultural festivals and sustainable tourism and religious tourism. He has both organised international conferences and delivered keynote speeches. He has published in a number of peer reviewed journals and conference proceedings. He has published books on Religious Tourism and Pilgrimage Management: An International Perspective (Cabi), Event Management: An integrated and practical approach (Sage) and Event Management and Sustainability (Cabi). He has recently published text on Cultural Tourism and 2nd edition of Event Management. He has substantial experience of developing international partnership in Germany and Middle East and also sits on a voluntary sector management boards. He is often sought out by news media for his views on international Terrorism and has been a guest on BBC and Sky News.
He is founding co-editor of the Journal Religious Tourism and Pilgrimage and Series Editor, CABI Religious Tourism & Pilgrimage Book Series (with Dr Kevin Griffin) and on the editorial board of the Journal of Tourism Today, Asian Journal of Development Studies, Revista De Turism (Journal of Tourism) and reviewer on the Annals of Tourism Research, Tourism Management and Sustainable Tourism.

Carlos Santos

Carlos Santos is Professor of Economics of tourism at the University of Azores since 2005 and was associate professor from 1998 to 2005. He teaches as well in the Master “Economie du Tourisme International” in the University Toulouse Capitole, France. Since 2006, he is President and CEO of the Azores Tourism Observatory (Observatório Regional do Turismo), a private association involving the Regional Government of the Azores, the University of the Azores and the Azores Tourism Association (Visitors and Convention Bureau). OTA is in charge of defining tourism strategies for the Azores Tourism public authorities and of implementing several tourism studies and surveys in the Azores, Portugal. From 2000 to 2006 he was Senior Tourism Advisor of the Regional Government of the Azores (Secretary of the Economy), Azores, Portugal. He is a participant in the International Cooperation with the Air France “Acting For Life – Groupe Développement International Tourism Program”

AUTHORS LIST

Name	Affiliation
A. Kounani	Research Center of Environmental Communication and Education, Department of Environment, University of the Aegean, Mytilene, Greece
Adalberto Dias de Carvalho	ISCET - Instituto Superior de Ciências Empresariais e do Turismo
Ana Isabel Moniz	University of the Azores, CEaplaa research center
Anna Maria Parroco	Department of Psychological Pedagogical and Educational Sciences, University of Palermo
Antonio Fernández Morales	Department of Applied Economics (Statistics and Econometrics), University of Malaga
C. Skanavis	University of Aegean, in Lesvos, the Department of Environmental Communication and Education
Carlos Santos	Tourism Observatory of the Azores and University of the Azores
Ch. Fountas	Research Center of Environmental Education and Communication, Dept. of Environment, University of the Aegean
Ch. Oursouzidou	Research Center of Environmental Communication and Education
Chrysoula N. Sardi	National technical University of Athens
Constantina Skanavis	Research Center of Environmental Communication and Education
Cristiana Oliveira	Universidad Europea de Canarias
Dou Henri	CI WoldwideThink Tank
E. Moriki	Junion Researcher
E. E Pappa	Med, Senior Researcher of Research Center of Environmental Communication and Education
E. N. Vasdeki	University of Aegean, in Lesvos, the Department of Environmental Communication and Education
E. S. Kalogirou	Undergraduate student of Aegean University, Department of Environmental Communication and Education
Elena Cruz	Universidad de Málaga
Elena Ruiz Romero de la Cruz	Universidad de Málaga
F. Zouridaki	Research Center of Environmental Education and Communication, Dept. of Environment, University of the Aegean
Fournié Pierre	University of Paris Est Marne La Vallée – Research unit EA 7339 - Dicen IDF- Dispositifs d'information et de communication à l'ère numérique
Francisco J. Calderón Vázquez	Universidad de Málaga
G. J. Han3	Junior Researcher
G. Ruggieri	Università degli Studi di Palermo
Gianpaolo Basile	Marketing and Strategy, Faculty of Economics, Universitas Mercatorum, Rome
Joaquim Ferreira	University of Coimbra, IPCDSH – University of Coimbra
K. Antonopoulos	President of Skyros Port Authority
K. Marini	University of Aegean, in Lesvos, the Department of Environmental Communication and Education
K Tsagaki-Rekleitou	Junior Researcher
K. Vratsanou	Research Center of Environmental Communication and Education
L. Vourdougiannis	Research Center of Environmental Communication and Education
Leila Damak	LEGO, UBS (South Brittany University, France) - IUT de Vannes - UniversitÃ© de Bretagne Sud
Licínio Tomás	University of the Azores, CICS.NOVA
M. Ganiaris	Research Center of Environmental Education and Communication, Dept. of Environment, University of the Aegean
M. I. Michail	University of Aegean, in Lesvos, the Department of Environmental Communication and Education
M. K. Seleventi	Research Center of Environmental Communication and Education, Department of Environment, University of the Aegean, Mytilene, Greece
Maria Antonella Ferri	Marketing and Strategy, Faculty of Economics, Universitas Mercatorum, Rome
Maria Botzori	University of Aegean, in Lesvos, the Department of Environmental Communication and Education
Maria G. Liapi	Specialist in Psycho-Educational therapy with Horses

Nicola Capolupo	University of Salerno
Ninfa Pagano	University of Palermo, course in Tourism Science
Osvaldo Silva	University of the Azores, CICS.NOVA
P. Kydonakis	Junior Researcher
Paraskevi Theodorou	Research Center of Environmental Communication and Education
Razaq Raj	Leeds Beckett University, Leeds Business School
Richard W.Butler	University of Strathclyde, UK
Roberta Croce	Professor and member of management department of I.C. G.Caloprese, Scalea, Italy
Salvatore Giovenco	Department of Economics Business and Statistics, University of Palermo
Salvatore Iannolino	Università degli Studi di Palermo
Sheila Furtado	University of the Azores
Stefano De Cantis	Department of Economics Business and Statistics, University of Palermo
T. Kefala	Research Center of Environmental Communication and Education
Teresa Medeiros	University of the Azores, IPCDSH – University of Coimbra
V. Petreniti	University of Aegean, in Lesvos, the Department of Environmental Communication and Education
Valentina Plaka	Research Center of Environmental Education and Communication, Dept. of Environment, University of the Aegean
Virgílio Vieira	University of the Azores, GBA/cE3c

Island vulnerability to Overtourism: Issues and Implications

R.W.Butler
University of Strathclyde, UK

Keywords
Overtourism, vulnerability, pressures, development, controls.

Abstract
The paper first discusses briefly the characteristics of overtourism and how these relate specifically to island destinations, and then examines the characteristics of islands potentially most vulnerable to overtourism in terms of their location, dimensions and pattern of tourism development. The paper comments on the tendency for development on islands and other sensitive environments to take place under the guise of sustainable development, despite the fact that much of such development is not truly sustainable and rarely assessed in a holistic manner to provide a true measure of sustainability (Butler 2018). The paper then evaluates the means by which island destinations might be able to control, limit or mitigate the development of overtourism and how such controls might be implemented. The paper concludes that islands are potentially more vulnerable to overdevelopment than many other destinations but that many islands, in fact, have the means to at least mitigate and in some cases prevent overtourism if they act appropriately and at a suitably early stage of tourism development (Butler 1980). Effective leadership, strong local government and clear locally supported goals are important in helping to achieve such control.

Introduction

Overtourism (Goodwin 2016) has become a major issue of concern to many tourist destinations in recent years (Dodds and Butler 2019), although the phenomenon has been recorded in a variety of forms for many years as some destinations have been subjected to excessive numbers of tourists for considerable periods (see for example, Turner and Ash 1975, Young 1973). Islands would seem to be particularly vulnerable to this phenomenon because they are often small in area, limited in their opportunity to engage in economic activities other than tourism, and therefore become heavily dependent on tourism (Alberts and Baldachinno 2017), and are often subject to external control, both political and economic. Such a situation would suggest that islands, more than most tourist destinations, are therefore liable to experience excessive development and tourist numbers often far beyond their capacity to control and manage.

Overtourism

Overtourism, or at least the term, is a relatively new phenomenon, having only appeared a little over a decade ago, although the existence of over development and excessive numbers of visitors is certainly not new (Briassoulis 2002). Complaints about numbers and behaviour of tourists goes back to at least the middle of the 19th century (Gilbert 1939). While the scale of the problem at that time may have been very different to what is experienced now, the nature of the problem was very similar, discontent from residents of destinations at the rate and scale of development and visitation and also at the behaviour of at least some of the visitors. There are a number of definitions of overtourism

“The phenomenon of a popular destination or sight (site?) becoming overrun with tourists in an unsustainable way” (Dickinson 2018a)
“Destinations where hosts or guests, locals or visitors, feel that there are too many visitors and that the quality of life in the area or the quality of the experience has deteriorated unacceptably.” (Goodwin 2017 p.1)
“The excessive growth of visitors leading to overcrowding in areas where residents suffer the consequences of temporary and seasonal tourism peaks, which have enforced permanent changes to their lifestyles, access to amenities and general well-being”. (Milano, Cheer & Novelli, n.p.2018).

However, it is defined, it is clear that the term includes: large, perhaps excessive numbers of tourists, Inappropriate behaviour by tourists, inconvenience/disturbance for residents, and unwanted change in the physical and social environments of destinations.

What has made overtourism a world-wide phenomenon with considerable attention being given to it in many forms of media is the very visible expression of discontent by residents of destinations, on a scale not seen previously (e.g. Gavarelli 2018). Slogans, protests, acts of damage and threats to people have all been recorded (Ross 2018). It is not clear if overtourism is really more than over-development under a new name, whether for example, it is a media-generated term experiencing a rush of media popularity (Chung and Coo 2015: Huertas 2018), or whether it is a phenomenon that has been around for a long time but has only just received widespread attention. These issues raise others, such as to why the popularity of the term has appeared at this time, and whether it is localised in specific places.

One of the important questions to be resolved is whether overtourism should be considered in absolute terms, for example, in terms of specific numbers that are required for overtourism to exist, or whether it is best thought of as a relative situation. If the latter is true, and given that overtourism appears to be experienced as a result of small numbers of tourists in some locations, this would appear to be most likely, then it becomes site and destination specific, reflecting local conditions and characteristics. In such a case, small, thinly populated but easily accessible islands would seem to be prime candidates to experience overtourism (Dickinson 2018b). Their often limited resources make them vulnerable to any promises of development (Romsa and Blenman 1987) and encourage decision-makers to allow development, along with a reluctance to any challenge agents of development because of a fear that such opposition may result in the loss of potential further growth, leading to economic recession.

Related to this is an often heavy dependence on offshore operators to bring tourism to an island and to promote that island as local agencies may not have adequate funding to do so in an international market which is becoming more and more expensive and competitive. Such dependence can create many problems for a number of enterprises on an island such as small scale accommodation operators (Buhalis et al 2004), and place island tourism operators in a position to not being able or willing to change an image without a risk of losing powerful suppliers of customers. Objecting to excessive development or to competing at the low cost end of the market is thus very difficult, and the degree of influence of external agencies increases in opposition to the size of an island’s market.

Perhaps more importantly, is the fact that most agents of development are generally in favour of continued expansion as long as there is a market, regardless of whether it suits the destination or not, and this can bring about changes in the characteristics of visitors, as Plog (1972) has noted. The pressure on destinations to continue to develop and grow brings about changes in places with little opportunity of slowing or halting expansion and almost no chance of returning to a quiet backwater image, authentic culture, and an unspoiled environment. This can be seen in a loss of cultural strength, and sometimes heritage, at least the living human heritage, as expressed in adulterated handicrafts and other goods produced by indigenous peoples (Smith 1996), and witnessed in island communities from the Arctic to the South Pacific (Carlsen and Butler 2011).

One might have hoped that the application of sustainable development principles in the form of sustainable tourism may have alleviated or prevented overtourism occurring in islands in particular, but the failure to implement sustainability has proven too widespread and politically unpalatable to achieve this (Butler and Dodd 2009). The development of platforms such as AirBnB has allowed private development at a small individual scale to become massive in the overall context and result in overdevelopment in destinations, with properties sometimes being more heavily used than conventional hotels. Such problems have been experienced in Mallorca in particular, and resemble many of the problems associated with second homes, time shares and condominium developments in Madeira and the Canaries. The result is that plans claiming sustainable tourism principles are mostly simply claims and not a great help in avoiding overtourism (Butler 2018).

It is important to note, however, that overtourism is not necessarily the same as overdevelopment or mass tourism and not all busy destinations are automatically experiencing overtourism. Many busy tourist destinations are in fact, successful destinations and thus large numbers of people alone do not mean too many people. There is a need to be careful in the use of overtourism as it should not be in appropriately used as means to automatically criticise mass tourism or large resorts. It may be that such places are busier than some residents would like and the expression is being used in such situations in terms of opposition to tourism generally and the changes it has brought about, rather than being justified in the use of the specific term. This goes back to the issue of whether overtourism is a relative or absolute phenomenon, and so there needs to be care when using the term and particularly in relating it to the concept of sustainability.

Island Vulnerability

As noted above, many islands are small in area and also in population, which makes them potentially vulnerable to a number of pressures, not least of which is often significant numbers of visitors. A limited local population means that even moderate numbers of tourists are highly noticeable and represent increased pressure on facilities and resources. In many cases these facilities and infrastructure have been designed and developed for the small number of local residents and thus any increased pressure, for example by tourists during the tourist season, can be particularly apparent may represent undesired competition as well as congestion. A small resident population may also mean a limited supply of goods and supplies, with replenishment occurring at intervals rather than constantly in more central large population areas, again potentially resulting in shortages if visitors, for example those in self-catering accommodation such as AirBnB, also need such resources.

In the case of small islands, a limited or confined area means the likelihood of contact between residents and visitors is high, and while this may be welcomed in some situations (Brougham and Butler 1981), especially when visitor numbers are small, this attitude may change as visitor numbers increase (Doxey 1975). It is not automatic that residents will become less positive towards tourism and tourists as visitor numbers increase, but such a situation creates the possibility of a level of contact greater than that desired and which then becomes disturbance (Papathanassis 2017). In large areas, where tourists may be dispersed, such pressure is less likely, but on small islands there is often simply nowhere else for tourists to go other than the permanent settlements. This can result in high tourist pressure in specific locations, e.g. scenic spots, heritage sites, beaches, retail areas, parking sites, as such locations are both centres of attraction and sources of necessary purchases and use. Thus a limited area means tourist penetration is likely to occur in most parts of the location and the resulting contact between residents and visitors unavoidable.

Limited area and limited population also make small islands at least, vulnerable to tourism development because of the likelihood of limited alternative forms of economic development. Historically such problems were normally dealt with by emigration and a subsistence level of existence, but in the modern era island residents are less willing to accept little or no economic development, and tourism is often seized upon as a potential source of jobs and income, if not a panacea for development on a larger scale. Thus in many cases tourism is not only welcomed but actively sought and encouraged, sometimes with economic incentives. The full long-term implications of such development may not be appreciated for several or even many years, by which time adjustments and limitations may be difficult to impose.

Many islands have little or no control over tourism to them and are dependent on and under the control of off-island forces and agencies, such as international airlines, externally-owned ferry companies, international hotel chains, and higher levels of government. Islands which are particularly vulnerable to the pressures of tourism include those that are easily accessible from major close markets, i.e., 1-3 hours flying time, have good reliable air service, are on major cruise ship routes, and have attractions that are unique, or eye-catching, and thus very appealing to cruise passengers and mass holiday makers. The Balearics, Canaries, West Indies, Orkney, Malta, Iolean Islands, and Capri are examples of such islands, either individually or in groups. Ones with specific appeal, such as St Helena with its unique Napoleonic connections which is being strongly marketed now coinciding with the opening of an air service, is probably too isolated to experience overtourism, except in a very minor and relative manner compared to current levels of tourism there. Some south Pacific Islands are in a similar position, e.g. Pitcairn and Easter Islands., as they are too far from markets and thus expensive and relatively difficult to reach, although they are receiving visitors in increasing numbers in recent years (Amoamo 2017). However, those with a very small resident population, such as Atutaki (Cook Islands) may still be overwhelmed by the daily tourist flight of some 180 passengers. From these examples, we may conclude that island vulnerability to overtourism reflects their geographical location, their accessibility and links to tourist markets, their local population (numbers and cohesion), their size, and their relative power or control over their own development.

This last point is one which is a problem for many islands, often regardless of their size. By reason of being peripheral and apart from a mainland, many islands, individually and in groups, are part of a nation state rather than independent, and thus lack complete political control over their destiny. (Being independent does not necessarily mean an island has complete control over tourism development, because as mentioned above, the means of access and many sources of investment capital lie in agencies that are external to the island). However, islands and their archipelagos that are suitable for tourism development are often subject to policies dictating the rate, type and scale of development established in mainland or other parts of the specific state (Baldachinno and Ferreira 2015). Such policies may continue in force even when island populations would prefer less or no further growth in tourism or related development, and steps to control and mitigate against undesirable development may not be supported by higher levels of government (Dodds 2007, a, b).

A combination therefore, of political, geographical, cultural and physical characteristics may make islands, particularly small islands, vulnerable to the pressures from excessive tourism development and relatively poorly equipped to prevent or limit such pressures. Overtourism is one possible result.

Political structures

Much depends on the political structure in which any specific island exists. Those which are fully independent such as some in the Caribbean or Mediterranean have the best chance of

being able to control the rate and nature of tourism development, but even then, face major problems of finding alternative sources of employment and income if they reject or strictly limit tourism development. Those islands which have extensive regional controls, Canaries, Balearics, Shetlands, Orkneys, and Greenland for example, may also have sufficient controls and powers, should they choose to use them, to manage and control tourism. The most vulnerable islands are those which are small, with limited resources, populations and powers, such as Gozo, or some of the Canary Islands or the Azores, where they are subject to authorities at several different higher levels of power and thus have little control over development of any kind on their own small island.
Pressure to allow airlines to operate services, for cruise ships to land passengers for short periods, developers to construct resorts and other facilities is always high and often next to impossible to prevent. All politicians, particularly local representatives, are subject to local pressures for jobs and for income to residents and from taxes, and once tourism development begins, it tends to take on a life of its own and becomes increasingly difficult to manage and control. For that reason, the earlier the imposition of appropriate controls can be made, the greater the chances of success in avoiding overtourism. Equally important, is the need to make well-thought out and long term decisions at the beginning of tourism development to ensure development follows a desired path with respect to rate of development and type of development, as well as any possible curbs on non-local ownership and also designation of areas to be protected from development. Limits on level of air services and numbers of cruise ships allowed at any one time are also better and more easily imposed at an early stage of development rather than later.

Locational characteristics
While location is of course of key importance in the possibility of an island attracting tourism development in the first place, it is also important with respect to the likelihood of such development growing into overtourism. Islands which are near major existing or potential markets are most vulnerable as a short relatively cheap journey is likely to attract large numbers of visitors. Being close to major markets also normally means lower costs in terms of importing materials and supplies and thus cheaper development than would be the case in isolated and remote islands. The significance of transportation services is obvious in the pattern of development of tourist destinations from the earliest time of stage coach travel to railways to cars, and to aircraft and cruise ships. While the obvious desirable attributes of sunshine, attractive environment and beaches are important, location relative to established sea routes and existing cruise itineraries are also influential considerations. The change in route patterns in the Caribbean (Lawton and Butler 1989) brought about by changes in the origin ports for cruise liners made new islands potential destinations and the idea of an island being a “unique” destination is a major selling point for cruise lines in determining and promoting their itineraries, thus close to, but slightly off the beaten track, is a prime location for future development and potential over visitation.

Culture and Heritage Factors
Island destinations, in many respects, are the same as mainland destinations with regard to the appeal of cultural and heritage attributes. Tourism has long been drawn to unique or different cultures, to different culinary traditions, ways of dress, languages, architecture, historical remains, sites of major events, both real and imaginary, even existing and non-existent attractions. Thus the more different, and in some cases, the more remote or less visited the island, the greater the attraction to some tourists and to some tour companies, again raising the risk of ever-increasing development and overtourism as knowledge about a place spreads. Where local populations are small and often without significant powers of control over

development, heritage in its many forms may become subject to the impacts of overtourism, with subsequent loss of authenticity and ultimately of the islands' key attractions. Venice is perhaps the most vivid example of an island experiencing overtourism attracted by its cultural heritage attributes and which is often cited as losing or having already lost, not only much of its appeal, but also a large proportion of its traditional population. Here the key issue is how to limit, mitigate or prevent overtourism and its effects while maintaining the quality and nature of life for the residents of such islands. Venice has faced these problems over the years with little success or indeed, with little being done to try to prevent or mitigate the problems. Many solutions have been discussed but few if any steps actually taken, and development outside but adjoining Venice has accentuated the problem by increasing the number of day visitors without the benefits that accrue from their staying overnight in the city.

Physical and Environmental Attributes

In recent years growing interest in the physical world, driven greatly by organisations such as National Geographic, and television programmes such *Planet Earth* and *Blue Planet* hosted by celebrities such as Sir David Attenburgh, has seen many islands increase in visitation. The Galapagos Islands are a case in point. Relatively inaccessible for many years, on the "wrong" side of South America to the major markets of Europe and much of North America, accessed only via a country (Ecuador) that was not itself a tourist destination, the islands are an unlikely tourist destination. Despite the disadvantages of a required transhipment from Ecuador, the absence of any cultural features of note, the high expense of access, limitations on group size and behaviour, the requirements for the vast majority of tourists to go on a package tour, and the minimum time involved for a visit, visitor numbers have increased rapidly over the past three decades and exceeded the supposed tourist number limit many times. Growth of tourism has been matched by resident population growth as the islands offer the potential of above average income for Ecuadorian citizens compared to those on the mainland, in turn generating the need for further development to support such residential growth. Thus if the attractions of an island are great enough, rare enough, or of sufficient interest to the social-media conscious public, then tourist numbers will continue to grow and be driven in part by continued mass exposure.

Such trends are visible even in islands more remote than the Galapagos, with islands in the far north of Canada and Norway being visited by cruise ships and aircraft, as are islands in Antarctica, with tourists attracted by sea and bird life, or in the case of Svalbard, polar bears. As well as icebreakers, reinforced hulled cruise liners are making excursion to these islands, soon to be followed by luxury "yachts" carrying a few hundred passengers. In such thinly populated or even deserted environments, overtourism takes on a new face and operates at much lower absolute levels of visitation than in locations like Venice or Mallorca. As with cultural heritage, the pressures of tourism on rare and endangered species and environments are often not acknowledged or even noticed until sometimes impacts have exceeded the level of self-correction and irreparable change has occurred. Many such areas are relatively unprotected because of the absence of a permanent human presence to enforce any restrictions on behaviour and operation of tourists and tourism. Self-regulation on cruise ship operations overall in particular are unlikely to be very effective, despite the praiseworthy efforts of some companies.

Controls to mitigate and prevent overtourism

It is necessary, if destinations are to avoid the problem of overtourism, or indeed over-development of any kind, that the ways in which control over tourism may be exerted in the insular context are examined and strengthened. The considerable attention being paid to overtourism raises the issue of whether there are actions which could be taken to prevent or mitigate the effects of too many tourists in a destination. A key issue in any such potential actions is that of who has power and control over key issues and where that power is located, whether it is local or external to the destinations affected. Where control is vested in a local or regional island authority the introduction of mitigation measures has much greater potential to implemented than when such power belongs with other, generally external, agencies.

Given that the problems of overtourism are primarily and mostly experienced at the local destination level, which may be a whole island in some cases, then it is logical to argue that solutions are most likely to be found at the local level and it is at that level that actions should be taken. When residents, community groups, and other local stakeholders can combine together to identify and express common concerns and then are able to take actions, the chances of mitigation or prevention are much higher than when actions are discussed at other levels. Local residents are generally better able to identify specific problems and areas experiencing over-use and over-development and possible ways to mitigate such problems.

One approach that is being tried is to gain ownership of key sites in order to make them more resilient to tourism pressures, and thus be able to shield them from impacts and reduce more general problems in the wider area. Such steps are being taken on the Isle of Skye, (Scotland) where residents have become concerned over inappropriate levels of use of locations without adequate facilities such as parking and toilets (BBC news.2017). In this case residents of the surrounding area are in the process of using existing powers to buy out specific sites with a view to providing toilets and car parking spaces to alleviate problems in these areas.

In a more general sense, proactive management such as the provision of facilities and services in some locations and not in others, provision of information and directions, controlling of behaviour in specific locations can all reduce the effects, if not the numbers, from overtourism. The increasing use of social media to identify areas to visit (Gretzel 2019) has led to crowding at specific sites and also to the development and maintenance of inappropriate behaviour. Again on the Isle of Skye, the practice of stacking stones into small cairns has become a source of annoyance and danger to local residents and their livestock, and has resulted in locals destroying the piles of stones, although having to risk criticism from tourists for "spoiling their fun" (Horne 2018; Ross 2018). When residents have to resort to direct action to counter the effects of overtourism, it is an indication that all levels of government and the private sector have failed to develop tourism appropriately and that alternative actions are required.

In principle islands can often exert control, even when possessing only small populations if they have the appropriate powers. The Shetland Isles, to the north of Great Britain, gained such powers over development and the use of the shoreline when they argued for the need for local control over oil and gas development in the 1970s. The acquisition of such powers has enabled the island authority to be able to limit and control the scale, nature and rate of all kinds of development, including tourism, on the islands since, with considerable success. If control over development by multi-national companies such as Royal Dutch Shell and British Petroleum is possible for a small island group, then controlling and directing tourism is clearly possible also. As well as gaining such powers, however, it is necessary to present a united front in terms of local opinions and preferences and to have strong and consistent leadership to present and push such opinions in order to withstand pressures from external forces

Control over means of access can be critical and this is one area in which islands may have an advantage over mainland destinations as means of access may be limited and clearly identified. Simply stopping visitors coming to islands is not an effective or desirable way of dealing with potential overtourism. It would send a very strong message that tourism of any kind is not welcome, and most islands do not wish to do this. Limiting or even reducing the frequency and capacity of access can be highly effective and does not necessarily send a negative message to tourists. It may simply make access for tourists more difficult but does not imply they are not welcome. Priority and lower costs to residents may be appropriate and is often accepted by tourists who appreciate the importance of giving priority to maintaining access and egress for local residents.

Another alternative action is to reduce or refocus promotional messages in order to change or reduce demand. When appropriately done, such messages may make a destination more attractive to desired markets and less attractive to inappropriate ones. National and regional level messages and images may be difficult to change as they are decided at non-local levels and may be intended to produce different results. Locally focused messages and images, especially those using social media, if correctly designed and packaged can be highly effective at not only passing on useful information but also redirecting visitation and changing visitor behaviour. Clearly such messages are not going to be successful in all cases and may be beyond the capability of local destinations to create and send, but it is becoming increasingly possible to reach large numbers of potential visitors at relatively low cost through the many forms of social media.

A number of other approaches have been suggested (UNWTO 2018), although unfortunately many are relatively ineffective in the long term and often only succeed in creating a new problem in another area or at another time. Suggesting tourists visit alternative quiet areas, while possibly reducing pressure in high use locations may serve only to make previously little-visited areas also become subject to excessive use, and by virtue of being previously unused, are very likely not to have adequate, if any, facilities to handle a sudden increase in visitation. Such a 'solution' also ignores the fact that highly popular spots are highly popular for a reason, such as unique attributes, and these will not be found in other locations, resulting in either disappointed visitors. Attempting to shifting demand from peak to off-season is extremely difficult to achieve because of seasonal climatic and also institutional limits on when people can take vacations and when it is suitable to visit specific places. Having tourists visit outside of the main season may create other problems as facilities and services may not be open then. It has been found (Butler 2001) that attempts to attract visitors out of season may in fact simply create additional demand, not diminish peak season visitation and mean locals have a longer period of disturbance as the peak season continues into what were shoulder and rest seasons. Such seasonal extension can have negative impacts on environmental recovery from visitor use also.

Conclusions

It has become very clear that inaction and failure to implement policies (Dodds and Butler 2009) can lead fairly directly to overdevelopment and overtourism in many situations, and that islands are often more highly vulnerable in this regard than other destinations. Some island attributes, remote locations, limited attractions, lack of attention on social media and difficulty of access themselves mitigate against overtourism occurring there. However, many other islands are major tourist destinations in what are regarded as highly suitable tourist locations and clearly susceptible to high levels of visitation. In many cases the populations of these islands desire and are content with visitation by large numbers of tourists, but in many cases concerns are being expressed over excessive numbers and inappropriate behaviour of some of these visitors. What responsibility social and other media play in such situations is not clear (Gossling 2017) but increased attention through these forms of media have certainly played a part in the development of overtourism. In some, perhaps many cases the problem of overtourism has been exacerbated, or actually caused, by social media. Inauthentic messages can create tourist perceptions endorsing inappropriate behaviour which then becomes the norm, and also draws attention to specific locations (ABC News 2018). Being too successful in attracting tourists is not something many destinations anticipated and few have made preparations for such an eventuality. There is no immediate nor any single solution to this problem, and it clearly is not confined to islands, although they may be the most vulnerable of destinations.

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Emerging cultural issues and policies for the islands

Dr Razaq Raj
Leeds Beckett University
Leeds Business School
Leeds, LS1 3HB
E-Mail:r.raj@leedsbeckett.ac.uk

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Culture is important tool for the tourism development in any region to benefit with visitors to area. The cultural experiences can enhance tourism and attract tourist to local area. Tourists are attracted to the area for local products, heritage and local community experience as a motivational factor to local region.
The term 'culture' has been debated intensely over the last two decades and no clear definition of the concept has yet been accepted by the community as a whole. Culture, in modern day terms, is largely seen as a product of governments, large organisations and individuals who are aiming to develop their own standing in the given market (Raj et al, 2017). Culture is closely linked to our national identity and the importance that individual people place on local and national social organisations, such as local governments, education institutions, religious communities, work and leisure.
It could be argued that a catalytic effect ensues whereby an increase in investment additional monies are made available for local infrastructure and long term promotional benefits are created. Further to this other tangible benefits are; improved tax revenues and increased property prices, with subsequent connections to the community. Significant economic benefits provided by outdoor events to the host city can create the potential of high-status profiles and increased tourism potential and awareness for the future.
This paper therefore offers discussion points on the Emerging Cultural Issues and Policies for the Islands and the role of cultural tourism in the creation of opportunities, through use of Social Media and Information Technology for islands. It will also contest how local communities benefit from the cross-cultural festivals and increase the tourism in to the area.

The development of Cultural Tourism for the Islands

The concept of travel has been part of the human life for centuries through trade, commerce and pilgrimage. Tourism is a form of travel for leisure, business or recreational purposes by individuals, with the World Tourism Organisation (1995) defining tourists as individuals who travel from one place to another for more than 24 hours and not more than one year. The Tourism and travel industry over the last three decades has become a profitable and economic vibrant leisure industry, highlighted by the UNWTO who stated that in 2008, over 922 million international tourists travel the globe, creating income generation of $944 billion. Within a UK context the Department for Culture Media and Sport stated:
"The value of domestic and inbound UK tourist trips was over £74 billion in 2002. The UK's attractions are at the very heart of the tourism industry, with the top twenty major paid attractions accounting for 45 million visits alone in 2003." (http://www.culture.gov.uk/)
Therefore, tourism is vital for creating products and services of many countries in the world, such as Greece, Spain, Egypt, Thailand and many Island economies, creating employment in a range of secondary and service industries directly involved in the tourism. The common feature of these highlighted destinations, is that they provide a magnate for mass tourists,

‘seeking out the sun’, and as destinations of ‘escape’. Whilst mass tourism destinations retain their allure for tourists, the act of engaging in mass tourism is viewed as a form of ‘old’ tourism in its emphasis on the climatic aspects of tourism, and this form of tourism is often immune to the cultural features of destinations both in material and immaterial terms. Raj et al (2013:5) argues that:

“The powerful forces and patterns of globalisation and related social narratives have stimulated people to travel to cultural centres in many parts of the world. These social narratives might be expressed through diverse typologies of culture which reflect the consumptive trends of globalisation and internationalisation.”

Cultural tourism is regarded as a niche tourism concept which has grown in popularity within the events and festivals industry for last 20 years. Cultural tourists visit heritage, religious and arts based sites, and take part in cultural activities to develop their knowledge of the way in which other communities live. There are a very wide range of cultural tourist experiences, including, for example, performing arts; festivals; visits to historic sites and monuments; educational tours; museums; natural heritage sites; and religious festivals.

The meaning of culture has constantly changed throughout history, with no universally accepted definition. Culture is wide ranging; with Yeoman (2004) stating that culture ranges from high culture, such as the arts, to popular culture such as contemporary culture, which embraces diverse subjects such as football, music and television. Cultural identity can be manifested in the importance that individual people place on local and national socially orientated organisations, such as local governments, education institutions, religious communities and through, work and leisure.

Reisenger and Turner (2003:32) argue that:

“Culture is a multivariate concept. There are many definitions of culture. These definitions of culture are complex, unclear and there is no consensus of a definition that can be widely accepted. The majority refer to culture in psychological terms. There is a dominant culture that influences most people, and there are subcultures with regional differences”.

For Hall (1995: 176) an eminent sociologist, and cultural observer:

“The term ‘culture’ includes the social practices which produce meaning as well as the practices which are regulated by those shared meanings. Sharing the same ‘maps of meaning’ gives us a sense of belonging to a culture, creates a common bond, a sense of community or identity with others”.

Cultural tourism describes tourists who take part in cultural activities while away from their home location. Cultural tourism is partly a form of tourism whose purpose is to discover heritage sites and cultural monuments. Moreover, cultural tourism relates to groups of people who travel around the world, to individual countries, local communities, to festivals and events, to experience heritage, religious and art sites but importantly to develop knowledge of different communities’ ways of life. Clearly, this can include a very wide range of cultural tourist experiences.

The future of cultural tourism in developing Islands relies significantly on event and festivals tourism strategies. Therefore, it is important for governments to develop clear and effective tourism strategies. It is also important for destinations and Islands to understand the potential customer / tourist needs and expectations, and therefore introduce the consumer decision-making process for events. In addition, the aim is to encourage tourism by developing and implementing complex and extensive event tourism planning strategies for the future. However, relying on events to generate tourism in the future is difficult to predict. Islands are fastest growing destinations for millions of visitors each year. Islands are being seen by tourists as cultural rich in heritage and natural beauty is attracting visitors to destinations all over the world. World Tourism Organisation (2018) stated that:

They present three key characteristics: small size, with implications for pressure on resources and limited economic diversity; remoteness and isolation, leading to challenges for trading but also to a unique biodiversity and cultural richness; and a maritime environment, leading to strong tourism assets but vulnerability to climate change. (http://sdt.unwto.org/content/tourism-and-small-islands-developing-states-sids)

Festival organisers are now developing Islands as a Niche tourism, using historical and cultural themes to develop a calendar of annual events to attract tourist visitors and create cultural image in host cities, by holding festivals in diverse community settings. The desire for festivals and events is not specifically designed to address the needs for any one particular group. The hosting of events is often developed because of the tourism and economic opportunities additional to social and cultural benefits. Many researchers, Raj et al (2009), Yeoman et al (2004), Kim (2002) have contested that local communities play vital roles in developing tourism through cultural festivals, sporting events and hall mark events. On the other hand, in spite of tremendous increase in tourism and events, cultural festivals are now assessed by visitor numbers attending the event, and tourist experience is disregarded and treated as economic tool to generate income for events managers and organisers. This can disguise the wider significance of festivals in establishing the link between culture, identity and place (Hall, 1995).

Richards (2001) therefore argues that event-led strategies which market the 'cultural capital' of towns and cities, have to consider balancing benefits between tourists and residents, warning of the pitfalls of 'social spaces' being utilised for commercial gain and competitive advantage over other urban centres. Event-led strategies according to Richards create; "the danger, however, that the city will become trapped on a treadmill of investment, requiring a constant supply of events to ensure visitor flow" (2001:62). He suggests the possibility that more appropriate and sustainable strategies should focus on improving the 'cultural capital' of a city, which might benefit both residents and tourists. The inference is that the 'hijacking' of contested social spaces, creates environments for events and tourism to the exclusion of community needs (Richards, 2001:14).

Festivals can be big business for a destination. Festivals become part of destination tourism strategies because they can bring in new money to the local economy. Also, now, it seems the importance of cultural events is higher than ever. Festivals can act as a spectacle in attracting the tourist attention and concentrating their focus on a particular city during a short intense period; this can enable the hosts to showcase their destination on a world stage and highlight key attractions and activities they offer. Therefore, local authorities are using events to position their destinations in the market, and thus fulfil their cultural, tourism, festivals and arts strategies Raj and Morpeth (2006), (Yeoman, et al (2004), Hall (1992).

Technology Tools Influence Islands as a Destination

Currently, ICTs play a critical role for the competitiveness of tourism organizations and destinations as well as for the entire industry as a whole (UNWTO, 2001). ICTs and the Internet improvement empowered the new consumers who is becoming well informed and is looking for special value for money and time. Tourists are much more enthusiastic to pursue their own preferences and schedules less following the crowds and packaged tours. Package tours are losing market share in favour of independently organised tourism facilitated by dynamic packaging (Online Travel Market). ICTs offer a range of tools to facilitate and improve the process for information search, to destination/product consumption and post experience engagement. Customers search for travel-related information, make online air-ticket bookings, online room reservations, and other online purchases themselves instead of relying on travel agencies to undertake this process for them (Morrison, Jing, O'Leary, and Lipping, 2001). This trend is confirmed by Eurobarometer studies (2012), according to which, 53% of Europeans booked their holidays via Internet, 49% of those who went on holiday in

2011 organised the various elements of their trip separately, rather than booking them altogether in one package. Besides, EU tourists still rely on recommendations from family and friends about where to go. Word-of-mouth was relevant to 52% of EU travellers, more than Internet websites (40%). Thus, Internet is crucial source information that influences the image that potential tourists will have of a tourist destination (Govers, Go and Kumar, 2007). Govers and Go (2003) reports that social network on the Internet can play an important role as a source of inside information for potential tourists, whether through images, interaction and multimedia on the Web, making it possible to configure a stronger and lighter image of a destination. To achieve customers' centricity, destinations need to integrate all their systems and develop mechanisms for both recording customer reaction to stimulus and also for providing suggestions to both employees and the customers themselves.
The Internet has deeply reshaped the way tourism-related information is distributed and the way people plan for and consumer travel. In latest years, two "mega trends" have noticeably emerged on the Internet, underscoring changes that can significantly impact the tourism system. On one hand, so-called social media websites, representing various forms of consumer-generated content (CGC) such as blogs, virtual communities, wikis, social networks, collaborative tagging, and media files shared on sites like YouTube and Flickr, have gained substantial popularity in online travelers' use of the Internet (Pan, MacLaurin, and Crotts, 2007). Many of these social media websites assist consumers in posting and sharing their travel-related comments, opinions, and personal experiences, which then serve as information for others. At the same time, the Internet also increasingly mediates tourism experiences as tourists use these social media sites to portray, reconstruct and relive their trips (Pudliner, 2007; Tussyadiah and Fesenmaier, 2009). On the other hand, due to huge amount of information available, searching has become an increasingly dominant mode in travellers' use of Internet. As such, search-engines have become a powerful interface that serves as the "gateway" to travel-related information as well as an important marketing channel through which destinations and tourism enterprises can reach and persuade potential visitors (Xiang, Wöber, and Fesenmaier, 2008).

Emerging of Social Media as a Tool for Islands Tourism

Social media is one particularly powerful web-based application for Islands tourism. Social media is defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content" (Kaplan and Haenlein, 2010). Although there a number of approaches in terms of social media taxonomies (Costantinides, et al., 2010; Kim, Jeong, and Lee, 2010; Mangold and Faulds, 2009). Social media provide a large amount of information regarding specific travel destinations, allowing both potential travellers to gather a high level of information and tourism strategy researchers and planners to gather costumers feedback (Pan, MacLaurin, and Crotts, 2007). They also plays a most important role in the experience of travellers, with Xiang and Gretzels' research (2010) indicating that a majority of travel-related search results include a high rate of social media returns. These results allow travellers to access reviews, recommendations, and other information directly from other travellers, rather than from formal sources of marketing information (Xiang and Greztel, 2010). In addition, users may access social media not only on dedicates sites, such as Trip Advisor, Lonely Planet or Virtual Tourist, but also in the context of review and ratings featured on travel display sites. The growth of online social media represents a significant change in information provision from Internet sources of travel information. The role of Internet is more important in the formation of destination image.
The contents generated by these social media include a variety of new and emerging source of online information that are created, initiated, circulated, and used by consumers with the

intent of educating each other about products, brands, services and issues (Blackshaw and Nazzarro, 2006). In contrast, to content provided by marketers and suppliers, social consumers to be shared among them produce media. Since more and more travellers seem to tap into this "collective intelligence" available on the Web (Litvin, Goldsmith, and Pan, 2008), this will challenge the established marketing practices of tourism businesses and destinations. Today Web 2.0, also referred to as Travel 2.0 in tourism, include a range of new technological applications such as media and content syndication, mash-ups, tagging, wikis, web forums and message boards, costumer ratings and evaluation systems, virtual worlds, podcastings, blogs, and online videos (Schmallegger and Carson, 2008). Consumer blogs have emerged as one of the most prominent themes in research on social media in travel and tourism (Braun-LaTour, Grinley, and Loftus, 2006; Mack, Blose, and Pan, 2008; Waldhör and Rind, 2008).

The social media focus on its use as well as its impact on travel decision-making. Multimedia sharing (i.e., video, photos, podcasting, etc) represented by Websites such as YouTube and Flickr, has attracted tourism researchers by generating interests in understanding the role of this type of social media content in transforming travel experiences (Tussyadiah & Fesenmaier, 2009).

Tourists have new ways to learn about tourist destinations and their products and services directly from other consumers in Internet. Travellers use a new method of communication that is similar to word-of-mouth and empowers consumers and through e-mail one another, post comments and feedbacks, publish online blogs, and form communities on the Internet improve the content.

User-generated content (UGC) or consumer-generated media (Blackshaw and Nazzaro, 2006) include online information sources that are created, initiated, circulated and used by consumers who intend to educate each other and share information about products, brands, services, personalities and issue. As this information emanates form a third party, consumers tend to rely on and trust it (Mack, Blose, and Pan, 2008; Pan et al., 2007), and it thus serves as a strong image builder (Ye, Zhang, and Law, 2009) for particular products. User-generated content is an electronic communication phenomenon enabled by Web 2.0, the second generation of web-based services, which allows people to collaborate and share information online (Cox, Burgess, Sellitto and Buultjens, 2008); because of the experiential nature of tourism products for which previous quality cannot be ascertained, word of mouth and, more recently, electronic word of mouth are much relied on by potential tourists in forming images (Cox et al., 2008; Gretzel, Hyan-Yoo, and Purifoy, 2007; Pan et al., 2007). Tourists search for online information pertaining to travel partners, attractions, costs, activities, itineraries, transportation, possible stops, and food centres. Consequently, UGC information serves as an image source for potential tourists (Ye et al., 2009). Owing to the development of information communication technology (ICT) and the upsurge in usage of user-consumer generated content, there has been growing interest in its application in destination image research (Mack et al., 2008; Pan et al., 2007; Wenger, 2008).

User Generated Content (UGC) can be seen as the sum of all ways in which people make use of social media while web 2.0 represents its ideological and technological foundation. The term, which achieved broad popularity in 2005, is usually applied to describe the various forms of media content that are publicly available and created by end-users (Kaplan and Haenlein, 2010).

User-generated content information serves as an image source for potential tourists (Ye et al., 2009). As destination image is developed through a complex process of learning and information sharing (Wenger, 2008) that usually pertains to diverse entities in a destination (Gallarza, Saura, and Garcia, 2002), researchers have to focus on the shared component that can be captured only when tourists communicate with each other in a communication space such as blog forums in order to capture destination image.

Summary

Islands can position themselves within established migrant travel routes, and through communities, which have emerged through patterns of diaspora and immigration, particularly hosting distinctive festivals and events. Host audiences in marketing terms reach niche as well as mass audiences, not simply through increasing visitor numbers at events but by creating powerful associations of the destination in the mind of visitors. In this respect multicultural communities have a key role to play in creating narratives and themes which are the basis for diverse festivals and events within a range of destinations.

Islands destinations can further develop social media as tool to promote tourism for Islands, either current or potential, with huge economic impact and importance. ICTs and the Internet improvement empowered the new consumers who is becoming well-informed and is looking for special value for money and time. Tourists are much more enthusiastic to pursue their own preferences and schedules less following the crowds and packaged tours.

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Walking tourism in urban destinations: some preliminary results from a survey in Malaga with gps-based technologies

Salvatore Giovenco[1], Stefano De Cantis[1], Anna Maria Parroco[2], Antonio Fernández Morales[3]
[1]Corresponding author: Stefano De Cantis. Department of Economics Business and Statistics, University of Palermo, e-mail: salvo.giovenco@hotmail.it; stefano.decantis@unipa.it;
[2]Department of Psychological Pedagogical and Educational Sciences, University of Palermo, e-mail: annamaria.parroco@unipa.it
[3] Department of Applied Economics (Statistics and Econometrics), University of Malaga, email: afdez@uma.es

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Walking tourism; Tourism mobility; GPS-based technologies; urban tourism; Malaga.
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Abstract
Walking tourism in urban destinations can be defined as a sequence of day visits and/or a sequence of walking tours.
In this work, GPS tracking data on spatio-temporal behaviour of walking tourists in Malaga are reported as case study. Malaga is a booming tourist destination characterized by a city centre, particularly suitable for a pedestrian visit. From 22nd January to 19th March 2018 for a total period of 41 days, a survey was carried out with a specific protocol: 103 interviews were conducted and 101 GPS valid tracks were collected. Walking tourists were systematically sampled, starting from the population of all tourists staying in the surveying day at some selected hotels in the city centre. The approach was based on the use of GPS technology as a supplementary tool used in conjunction with the traditional questionnaire-based survey.
The survey has achieved three specific objectives; the analysis of:
- the most visited attractions and the characteristics of mobility of walking tourists in Malaga;
- the main routes taken by walking tourists during the visit of the city and the corresponding movement patterns;
- the factors that have significantly influenced the spatio-temporal behaviours of walking tourists within the city.

Introduction
Tourism is increasingly becoming more relevant in the economies of many countries. Therefore, the attention is aimed at getting to know in greater detail the tourist's behavior, his habits or his movements more and more. In the tourist-receptive landscape we know the identity of the guests, some socio-demographic data, but in reality, we do not have information on some aspects that would be extremely useful: for example, the knowledge of who the tourist really is, his habits, what he prefers to do, where he prefers to go, how much he is willing to spend and what he wants to buy.
The research carried out consists of a pilot survey that highlights the strong potential of the data obtained by fully exploiting the resources offered by the new technologies. This way it is possible to understand what to plan to improve the offer of tourist destinations, allowing decisions to be made in the light of empirical evidence and avoiding the risky tourism-commercial strategies.

This paper briefly presents the empirical survey which aimed to analyze the movement of tourists within the city centre of Malaga. It aimed to investigate in detail the mobility of tourists who have chosen the Andalusian city as a destination where to spend most of their holidays, through the support of GPS Tracking technology.
In order to implement the aforementioned research, during the time spent in Spain, we focused more on the phase of the project related above all to the collection of data in the examined tourist destination.: this way we took advantage of an approach based on the use of GPS technology as a supplementary tool to be used in conjunction with the traditional questionnaire-based survey.
The study of the mobility of tourists through the use of GPS technology, which monitors the real position of tourists and time spent in a particular place, is essential to analyze the demand and might help public institutions or private tourism operators to know and to get an immediate feedback on the movements and places most used by the tourists. This new technology has often been seen in a skeptical way by the tourist operators, as they think to know the movements and characteristics of the tourist (for example, sensing the most important areas where tourist flows are concentrated). We must remember that many visited areas help to create the tourist destination and are often real "discoveries" for the visitors who do not like to have everything programmed.
In addition, as pointed out in the case study of *"hotel location and tourist activity in cities"* (Shoval et al., 2011), the data collected thanks to the implementation of this survey methodology showed that the hotel position has a profound impact on tourist movements.
For this reason, to carry out the research, the movement of tourists has been monitored at two different accommodation facilities located almost on opposite sides of the city centre of Malaga.

Walking Tourism

Mentioning the title of the book of the Policy Studies Institute, "*Walking is Transport*" (Hillman and Whalley, 1979), indeed, walking is by far the most important form of transport in the world, also applied to travel at the destination. It also has the lowest environmental footprint. In reality, it is the form of travel that is consistently undervalued by transport and tourism planners in terms of planning, funding and provision. Walking is defined in relation to tourism as a trip made on foot, where the choice of mode is made mainly for recreation, relaxation or as a form of geotourism to exploit places where earth-science features can be explored (Pralong, 2007). In some cases, walking is simply a means to physical exertion. It represents a conflation of physical exercise (Roberson and Babic, 2009), social engagement (Kyle and Chirk, 2004) and access to different places of interest (Markwell et al, 2004). However, there is no set formula regarding the balance between these elements. There is another dimension to consider; walking allows access to other forms of transport as part of an overall journey (from originating to receiving destination, or whilst at the destination).
This form of walking can be split as follows (Dickinson & Lumsdon, 2010, p.122):

- **Walking holidays**, where the main reason is to walk for most days and for most of the day between accommodation points, either on a linear or circular route. The main purpose of the holiday is to explore a destination on foot.
- **Holiday walking**, where walking is one of the several activities carried out by the tourist; walking may account for one or two days of a stay.
- **Day walking**, where the main purpose is to explore a destination area. The main activity of the day visit will be walking, although it might include stops for refreshment, sightseeing or to visit an attraction.

There is also a further subdivision: **independent walking** and **guided walking**, which take place in either an urban, rural or mixed context. The self-guided market is very important in tourism, and the internet has opened a wide range of opportunities and an associated form of communal branding. The importance of walking in relation to mass tourism, especially in city destinations, is under-estimated and under-researched (Gehl, 1987). Walking in cities is an integral part of slow travel, and there is much that researchers need to learn about the interface between the tourist and the peculiarities of urban locations which make them places where the tourist wants to walk. Definitely, walking tourism in urban destinations can be defined as a sequence of day visits and/or a sequence of walking tours, where walking is a choice to access the urban experience and to maximize tourism satisfaction.

Statistical Survey Tools: Questionnaires and GPS

With the aim to analyse the daily path of walking tourists, the statistical tools used to carry out the pilot survey conducted in Malaga were questionnaires and GPS devices. In particular, two questionnaires were drawn up, one for opening and one for closing. Opening and closing questionnaires were admistered before the walking visit and after the visit, respectively.

The first part of the opening questionnaire focused on the collection of socio-demographic data: -main reason for staying in the city of Malaga; - gender (sex); -country of residence; -age group; -education: generally higher levels of education correspond to different choices (from booking the accommodation to the choice of the itinerary, up to the travel expense); -group of subjects who are sharing the stay in the city (in order to understand how many people have shared the experience we have gathered data on); -number of the group; -focus on the group (if the holiday is shared with partners, children, parents, friends, business partners or with no one).

The remaining part of the opening questionnaire focused on the detection of different aspects: -if it is the first visit to the tourist destination; -the initial opinion on Malaga; -information about destination; -the vehicle used to reach the tourist resort; -the number of nights spent in Malaga.

The closing questionnaire, on the other hand, focused on gathering information regarding the tourist visit. Some tourist attractions have been selected, the best-known ones, and the tourist was asked if he /she visited them or not. The remaining part of the closing questionnaire focused on the detection of different aspects: -the main vehicle used for city visit; - general satisfaction of the visit; -the modality of getting information about the attractions visited; -the intention to return to the destination; -the intention to recommend the destination to friends and relatives; -items of expenditure (in euros) on the day-visit by the whole group; -the professional position; -the Total Annual Household Income (for all members of the household).

In the field of walking tourism, GPS technologies allow for the collection and the analysis of accurate information related to the experiences of walking tourists, in terms of attractions visited, time spent on each attraction, the most well-beaten path, use and type of transportation mode, and so on. This information is essential in order to improve the management of services and provide a positive experience at any given destination.

Although research employing GPS technology for the analysis of tourist mobility is relatively recent (see Spangenberg, 2014, for an overview of field of studies using GPS-based tracking methods), the number of publications appearing in peer-reviewed journals and book chapters, one book (Shoval & Isaacson, 2010), and one review chapter (Shoval, Isaacson, & Chhetri, 2014) all demonstrate the relevance of this topic to the tourism research agenda. Many factors have contributed to this growth of studies relating to tourist mobility and activities using GPS technology: First, the public availability of GPS, at least since 2000 when the US Department of Defense’s system opened up the system to individuals and business enterprises across the world (Shoval & Isaacson, 2007b, p. 146), and second, the market availability of GPS devices at relatively low prices and reduced dimensions (for a detailed description and comparison of

different GPS devices, see Hallo et al., 2012). Third, several studies have demonstrated a high degree of willingness to participate in GPS-based surveys. This is probably due to the fact that tourists are provided with a device, which is re-collected at the end of the day; thus, they generally feel no personal invasion of privacy (Shoval, McKercher, Ng, & Birenboim, 2011).
Almost all the research using GPS technology applied to tourism are in agreement in recognising that the best results are produced when different methods are employed in parallel, as they complement each other effectively (Pettersson & Zillinger, 2011; Zakrisson & Zillinger, 2012). Most of the research into walking tourism is based on traditional questionnaire-based surveys (Brida, Bukstein, & Tealde, 2015; Brida, Fasone, Scuderi, & Zapata-Aguirre, 2014; Cessford & Dingwall, 1994; Chase & McKee, 2003), which provide detailed but static information regarding the motivation of tourists and their experiences at their destination. When the aim of the survey is related to an analysis of the behaviour of tourists at their destination, further information, such as patterns of movement, the distance travelled, and attractions visited, is required. With the aim of overcoming these limitations, the authors of this paper would like to propose an approach based on the use of GPS technology for the analysis of cruise tourists' behaviour at their destination. Similar to previous studies (Edwards & Griffin, 2013; McKercher et al., 2015; Zakrisson & Zillinger, 2012), the use of GPS technology is suggested as a supplementary tool to be used in conjunction with the traditional questionnaire-based survey.
Defining research aims is an initial and fundamental step in the implementation of any survey. Research into analysing the behaviour of walking tourists with GPS technology can have various aims. Given the lack in the literature of information relating to the behaviour of tourists at the destination, GPS technology offers a powerful tool for analysing mobility behaviour. A knowledge of the movements of tourists can be useful from several perspectives, including transportation planning and, more generally, the management of tourism services. Moreover, it is possible to investigate various aspects regarding the experiences of tourists at the destination as a function of their observed behaviour. Aspects of this include the level of satisfaction of the whole visit, or in relation to specific attractions; the intention to revisit the destination or to recommend the destination to friends and relatives; the level of expenditure as a function of a given mobility pattern; etc.
An analysis of GPS tracking data usually involves the processing of a large quantity of information due to the fact that GPS devices are able to produce a pair of coordinates every 10 seconds or less. If we consider an average amount of 8 hours spent by a walking tourist at his/her destination, this would result in more than 2.8 thousand observations per individual.
Since GPS devices produce very accurate information over a very short time period, outliers can be produced in certain cases, such as closed areas, urban canyons, and the like (Stopher, 2004). Consequently, the first step in data analysis involves removing invalid data points and replacing them with various imputation techniques if necessary. Several approaches can be undertaken to detect outlier observations (Erenoglu & Hekimoglu, 2010; Třasák & Štroner, 2014). One basic approach is to consider the distance between consecutive observations since the so-called urban canyon effect (due to a loss of signal) often determines sudden jumps in position.

Data and methods

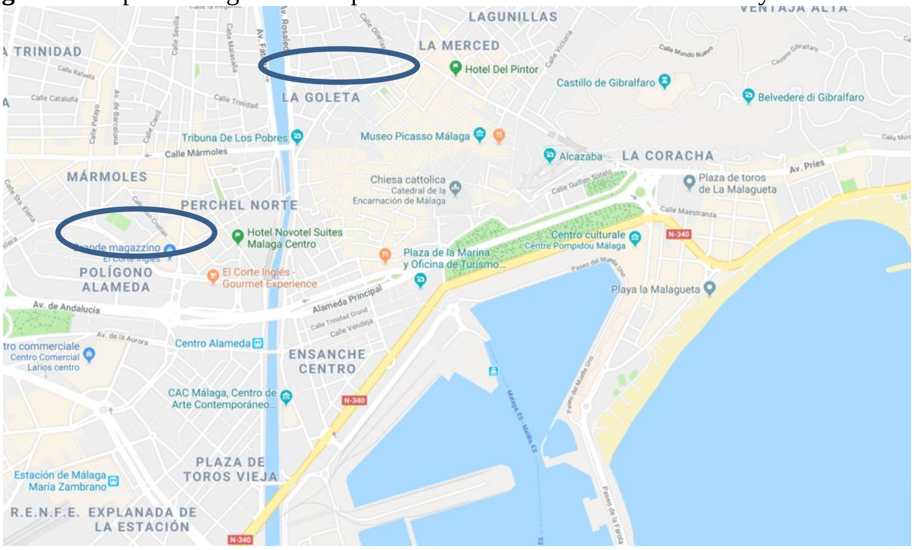
To carry out the research, the movement of tourists has been monitored at two different accommodation facilities located almost on opposite sides of the city centre of Malaga. Being able to get in touch with the accommodations and receiving answers quickly was not easy, while it was not difficult to collaborate with them. Although the facilities are both close to the centre, they are located in different areas; they are also hotels belonging to different categories and offering heterogeneous services.

In order to ensure a random selection of the units, a pseudo-systematic sampling procedure can be implemented. This could be made by selecting one unit for every k tourists crossing a real or imaginary line, immediately on breakfast time, taking into account the estimated number of hotel guests and GPS device availability.
Whilst performing the survey, it is important to ensure the anonymity of answers given and the related GPS tracks, and to remind every sampled hotel guest to return the GPS device on terminating their visit.
The sample of individuals interviewed is characterized by subjects who stayed in the accommodation facilities for different reasons (holiday, business reasons, visit to friends or relatives, etc.).
For the planning of the surveys, a special register was created to write down a series of information to support data collection [the date of detection, the code of the GPS device delivered to the tourist, the tourist identification code, the name of the hotel, the tourist's room number, the Time Start (start of survey and delivery time of the GPS) and, finally, the Time End (survey term, which coincides with the return of the tourist to the accommodation and with the recovery of the device).
Considering that the research had to be carried out between the months of January and March, the survey took place between 22nd January 2018 and 19th March 2018. The following dates were identified: 22nd, 23rd, 25th, 27th, 28th, 31st January 2018; 1st, 2nd, 3rd, 5th, 6th, 7th, 8th, 9th, 10th, 12nd, 13rd, 15th, 16th, 17th, 19th, 20th, 21st, 22nd, 26th, 27th, 28th February 2018 and 1st, 2nd, 3rd, 5th, 6th, 7th, 8th, 9th, 13rd, 14th, 15th, 17th, 18th and 19th March 2018.
As previously mentioned, the survey phase involved the administration of an opening questionnaire and the delivery of a GPS device, from which the tracks have been extracted. When the tourist returned to the facility, a closing questionnaire was administered.
The time slot identified to meet the tourist was in the morning, from 9:00 to 11:30, near the breakfast room where the tourist who had already finished breakfast was gently stopped. In a very short time the tourist was asked if he was interested in taking part in the survey, whose purpose was explained straight afterwards. At this stage, the tourist was also asked whether it was the last day in the structure, as the guest could have not take part in the survey if he had to check out the same day; in this case the interview was suspended and the GPS was not delivered .
Then we proceeded with the first questionnaire and the GPS device was delivered, together with the relevant information regarding the final delivery phase of the device. The closing questionnaire had to be completed at the hotel reception at the end of the visit. This implied the support of the reception, which had to be ready to receive the GPS and to provide the tourist with the closing questionnaire to be filled in when he came back to the hotel. In addition, having no names, if the tourist had left the structure, there was the risk of losing the GPS device.
As the survey was anonymous, in order to avoid the possible loss of GPS, only the customer's room number was registered: this way, the privacy of the guest was not undermined. The room number was communicated only to the reception operators so that the client could remember to return the device when giving the room key back to the reception at the end of his visit. .
This strategy let us work quickly, with the unfortunate loss of only two GPSes out of twelve devices available throughout the period of the survey.

Concise results

From 22nd January 2018 to 19th March 2018, for a total of 41 days of data collection, a pilot survey was conducted with the aim of exploring the spatio-temporal behaviours of tourists visiting Malaga; 103 interviews were administered and 101 GPS tracks were collected (in only two cases, GPS tracks were lost).

Figure 1. Map of Malaga with the position of two hotels where the survey was conducted



The survey was carried out mainly at Novotel Suites (70 interviews out 103, 68%) compared to Hotel del Pintor (Figure 1) for logistical reasons. The 66.0 % of tourists had never been to Malaga and 34.0 % had already been at least once to the city (for details, see Table 1). Regarding the reason they stayed in the city of Malaga, it turned out that 92.2% was in Malaga to spend a holiday, 4.9% was in the city for business reasons and 2.9% to visit relatives or friends. The group sizes (people sharing the same travel experience) are also reported in Table 1. The majority of tourists moved in pairs, i.e. 63.1%, while only 3.9% moved with a number of people equal to 5 or more. The average group size was therefore 2.6. Most of the tourists moved with partner, that is 82.5%, but also a 20.4% with sons and daughters and 11.7% with friends. The average party size was therefore 2.6 .

With reference to the age of participants, six classes were identified: the age classes with the highest frequency were : 56-65 years, with a percentage of 28.2, and 36-45 years and 46-55 years (both with 21.4%).

The last three age classes represent about 3/4 of the whole sample.

As for the country of residence, as we can see from Table 2, we are faced with a sample consisting mainly of residents in the United Kingdom (28.2%), while the Spanish people follow with a percentage of 10.7%. We are in any case in the presence of a very varied sample from the point of view of the country of residence, however most of them come from of European countries (88.3%).

Considering socio-cultural aspects of the sample, education level of the respondents is high, in average. It is noted that 67.9% of the sample has a high level of education, that is the Masters of Art (MA) or Master of Science (MS) or Bachelor degree. 25.2% was graduated at high-school and only 1.9% had the primary school education .

In the first section of the questionnaire, socio-demographic data were analyzed, while in the second part the tourists' behavior was investigated in relation to how they visited the city of Malaga with respect to the research variables. The first section (opening questionnaire) was given at the time of the first contact with the tourist; the second section (closing questionnaire) was self-compiled by the tourists instead, when the GPS was returned at the end of the day.

Table 1. Opening and ending questionnaires: descriptive statistics (n=103)

VARIABLE	CATEGORIES	%	VARIABLE	CATEGORIES	%
Hotels	Novotel Suites Hotel del Pintor	68.0 32.0	**Education**	Elementary High-School Bachelor Master of Arts (MA) or Master of Science (MS) P.H.D. or more	1.9 25.2 67.9 4.9
First visit	Yes No	66.0 34.0	**Degree of satisfaction**	Very satisfied Satisfied No opinion Somewhat dissatisfied Dissatisfied	58.1 39.8 1.1 1.1 0
Gender	Male Female	54.4 45.6	**Intention of returning**	Yes No	94.6 5.4
Age group	18-35 26-35 36-45 46-55 56-65 66 or more	0 12.6 21.4 21.4 28.2 16.5	**Willingness to recommend**	Yes No	97.8 2.2
Party size	1 2 3 4 5 or more	4.9 63.1 17.5 10.7 4.0	**Job type**	Employed Self-employed Unemployed Retired Student Other	54.9 22.0 1.1 20.9 0 1.1
Main motivation	Holidays Business reasons Visit to friends/relatives	92,2 4,9 2,9	**Total Annual Household Income**	<10.000 € 10,001 – 20,000 € 20,001 – 30,000 € 30,001 – 40,000 € 41,001 – 50,000 € 51,000 – 60,000 € > 60,001 €	2.4 3.6 4.8 16.7 22.6 13.1 36.9

Table 2. Country of residence (n=103)

COUNTRY OF RESIDENCE	%
UK	28.2
Spain	10.7
Belgium	6.8
Italy	6.8
Ireland	4.9
Holland	4.9
Sweden	4.9
Germany	3.9
Switzerland	3.9
Other European Countries	12.3
Non-European countries	11.7
Missing	1.0

In addition to the individual GPS tracks analysis, tourists have been asked about attractions visited, in order to observe their behavior within the city and to check if there was a correspondence between what they actually did (and GPS tracks showed), and what they said or remembered they did (it turned out that in some cases there was no perfect match). This also highlights a number of weaknesses. Sometimes the tourists said they did not visit a place even though they actually did. The main reason for that is a lack of information or signage: . many tourists pass near the attraction but they do not know what they are looking at. Another aspect investigated is the movement through the city, and it emerged that tourists move mainly on foot (75.7%), starting from the accommodation facilities that are both located very near to the city centre , while the bus is the most used mean of transport for the longest itineraries (9.7 %).

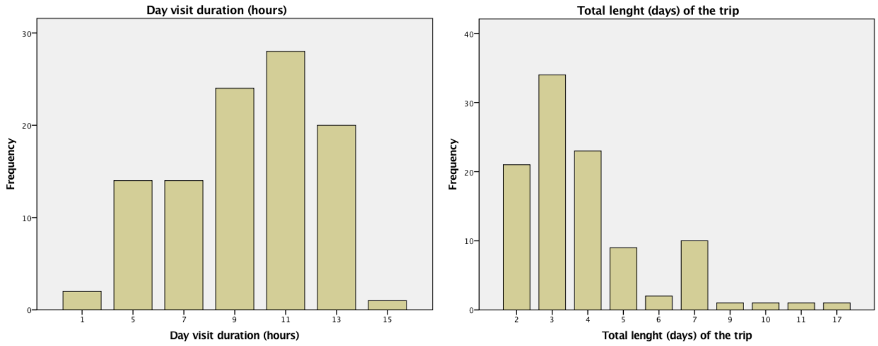
Table 3. Company type and main visited attractions

COMPANY TYPE	YES %	NO %	MAIN ATTRACTIONS VISITED	YES %	NO %
Alone	4.9	95.1	Port of Malaga, Muelle Uno	58.4	41.6
Partner	82.5	17.5	Malaga Cathedral	46.0	54.0
Sons/daughters	20.4	79.6	La Malagueta Beach	40.2	59.8
Friends	11.7	88.3	Picasso Museum	33.7	66.3
Family and relatives	5.8	94.2	Alcazaba	32.6	67.4
Parents	1.9	98.1	Castle of Giblalfaro	20.9	79.1
Business Partners	1.9	98.1	Picasso Birthplace Museum	14.9	85.1
			Carmen Thyssen Museum	5,8	94.2

Regarding the professional position, the majority of the tourists (48.5%), claim to be an employed worker; followed by self-employed workers with 19.4% and retired with 18.4%; only one respondent (1%) claims to be unemployed. Another interesting element can be the analysis of the tourists' income, in order to know the economic condition of the interviewee. 30.1% claims to receive an annual household income of over € 60,000, 18.4% an income between € 40,001 and € 50,000. Only 8% of respondents said they receive an income lower

than € 30,000; so it is clear that the economic condition of the tourists examined is quite good.
As for the experience related to the visit, it appears that most of the tourists were satisfied (35.9%) or very satisfied (52.4%), as a consequence, , they were keen to come back later to the city of Malaga and to recommend the destination to friends and relatives.
In general, the data evidence that the tourists' nights spent for the total holiday range from 2 to a maximum of 17 days and that the average stay is 3.9 days. On the other hand , as regards the duration of the daily visit, expressed in hours, we can see that for the majority of tourists, the visit lasts from 9 to 13 hours, as shown in the Figure 2.

Figure 2. Day visit duration (hours) and total length (days) of the trip



Conclusion

Walking tourism consists in holiday and day visits where recreational walking is a significant part of the visit. Otherwise, in a more poetic perspective, we can say that walking tourism is a way to explore our world (destination) *one step at a time*. Moreover, walking tourism is a way to experience communities and cities, and at the same time, it is a sustainable mode of movement in urban destinations because it represents an environmentally friendly solution. Further, it constitutes a direct way to explore most of cultural attractions and immaterial heritage, representing a good occasion to come into contact with residents' lives and local behaviors, too.
Some following trends are also likely to stimulate the growth in the interest for walking activities: demographic changes in tourists' characteristics and the increasing interest in specific segments as senior tourism; a growing interest in health (with an increasing awareness that walking is an ideal form of exercise and promotes good health) and in the environmental issues (where walking is seen as a 'green' activity, compatible with the conservation of the countryside).
However, space-time mobility of walking tourists at destination is a rather poorly investigated phenomenon. On the contrary, the increasing availability of GPS-based technologies to collect and analyze information regarding movements of people, is a relevant opportunity for researchers to assess the impact of tourism in urban destinations.
Although several papers discuss the models and the patterns of spatial behaviours, and analyze the factors affecting the mobility of walking tourists, the integration of GPS tracking data with traditional survey instruments (e.g. face-to-face interview, self-administered questionnaire) within a adequate sample design, represents, in our opinion, a good opportunity to elaborate new models and theories about time-spatial behaviours of tourist; and at the same time, it represents a profitable possibility: to test empirically these models; to study specific patterns; to specify factors affecting tourism mobility and, finally, to study specific markets segments of walking tourists.

The pilot survey here briefly presented, has achieved three specific objectives; the analysis of:

- the most visited attractions and the characteristics of mobility of walking tourists in Malaga;
- the main routes taken by walking tourists during the visit of the city and the corresponding movement patterns;
- the factors that have significantly influenced the spatio-temporal behaviours of walking tourists within the city.

However, in this (first) contribution only some concise results are presented and commented and more attention is given to the description of the survey settings . A deeper analysis will be necessary to take into account some further remarks. Thus, the potential offered by tracking data opportunely merged with data deriving from traditional data collection tools, is really high an opportunity for decision makers and destination managers.

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Waste management education tailored to tourists' interests through augmented reality

P. Theodorou[1], P. Kydonakis[2], G. J. Han[3], K. Tsagaki-Rekleitou[4], C. Skanavis[5]
[1]PhDc, Senior Researcher of Research Center of Environmental Communication and Education. ptheod@env.aegean.gr
[2]Junior Researcher. pantelis.kid@gmail.com
[3]Junior Researcher, georgejohnhan@gmail.com
[4]Junior Researcher, mar13087@marine.aegean.gr
[5]Professor at University of the Aegean, Head of the Research Center of Environmental Communication and Education. cskanav@aegean.gr

Keywords
Augmented reality; climate change; environmental education; insular tourism; waste management

Abstract
This study examines the promotion of environmental awareness through augmented reality technology. Its purpose is to highlight the importance of new technology tools on climate change communication with the aim of raising public awareness and possibly influencing people's behaviors and attitudes in places where tourism is of prime importance, like the small Greek islands. In order to conduct the survey, 97 tourists participated from both domestic and foreign regions, on Skyros island. Specifically, two activities combining this technology were designed to address environmental learning goals concerning climate change concepts. The study assessed whether the tourists liked the applications and the rate of knowledge, attitude, and willingness to change behavior, driven by pre and post questionnaires, which were given at the start and at the end of the implementation. The results indicated a change in knowledge, attitude and willingness to change behavior. Finally, the research outlines outstanding concerns on the topic, suggesting possible avenues of research and innovative educational methods to train for climate change effects in the informal form of education.

Introduction
For the last ten years, we are witnessing a technological shift and continued progress towards powerful mobile computing devices as well as smart applications. Most of these systems feature high-quality video cameras, GPS and wireless internet access. These new technologies shape the way people learn at the beginning of the twenty-first century in formal and informal conditions (Ifenthaler & Eseryel, 2013).
The emerging digital systems offer new dimensions and innovative ways to challenge the transformation of experiences and the creation of new opportunities for interactivity. Augmented Reality, a relatively new technology, has more advantages compared to the traditional learning methods. One of these advantages is that it activates many senses such as touch, hearing, and vision at the same time. In this way, learners have an active participation in learning (Kaufmann, 2003).
The specific study focuses on the relationship between tourism and waste generation and the development of an effective way to reduce the negative effects of increasing waste production due to the annual tourist wave in the islands. The aim is to raise awareness and to educate about changing the behavior of a particular target group, such as tourists. The idea of designing an attractive waste collection system could be an incentive also for tourists to do proper waste separation.

In the following section of this paper, background issues of this study are briefly presented including climate change, environmental impacts of tourism and waste management. Additionally, the importance of environmental education to understand and solve environmental issues is discussed. Augmented Reality is analyzed in connection with tourism.

Background and literature review

Climate Change and Environmental Impacts of Tourism

Worldwide environmental change has shown observable consequences on earth's environment. Icy masses have shriveled up, ice on streamlets and lakes is dissolving earlier, plant and creature ranges have changed, and trees are blossoming much earlier. Researchers had anticipated impacts from worldwide environmental change, which are presently making a striking appearance: loss of ocean ice, quickened ocean level ascent and longer, more intense heat waves (NASA Climate, 2018).

Climate change calls for action all citizens and not only the scientists (Skanavis et.al. 2017) and this is achieved through the expansion of the audience of climate change literacy. Active citizens operate with responsible environmental behavior through awareness stimulation processes. Participants in environmental education programs are provided pertinent knowledge which gives them the opportunity to practice responsible environmental actions and develop new environmental behaviors (Dressner et al., 1994; Hudson, 2001).

Tourism is a fast-growing industry and is a key to a country's economy. However, the relationship between tourism and the environment is complex. In particular, coastal and insular destinations are highly vulnerable to the direct and indirect effects of climate change such as storms and extreme weather events, coastal erosion, physical damage to infrastructure, rising sea levels, floods, water shortage, salinization of ground waters and water contamination (UNWTO, 2008).

Uncontrolled regular tourism presents potential dangers to several natural regions around the world. Huge pressure on a region can impel to effects, for example such as soil disintegration, expanded contamination, accelerated contamination, discharges into the sea, natural habitat loss, increased weight on endangered species and increased exposure to forest fires. (Sunlu, 2003).

Overproduction of Waste and Waste Management

In the summer season, due to the annual tourist wave, islands host a far greater population. This is beneficial for the local economies, but it also places a great burden on the local infrastructures, especially for waste management systems. The creation of massive waste is one of the most relevant poor externalities of tourism. Tourists as waste producers, result in particular demands related to waste prevention and management that tourist cities have to face (Gruber et al., 2017).

Waste management appears to be one of the most critical issues facing today's society. The strongest and most successful solution is recycling (Jekria & Daud, 2015). According to the United States Environmental Protection Agency, recycling is the procedure of collection and selection of materials that otherwise would be considered garbage and turn them into new products after being processed (EPA, 2018).

The first step towards household recycling is the separation of waste at source. Tourists have different waste management experiences when traveling around the world. Ways of collecting solid waste vary across countries and within countries, among local municipalities. In cases of mal practices in waste management, people are facing daily waste recycling problems. In some countries, people can find a bin, in other countries none or more than enough. The number of bins is only one problem in household waste recycling. Furthermore someone needs to know which bin to use and in which case (Singh & Livina, 2015).

Environmental Education and New Technologies

According to Hungerford and Volk (1990) the ultimate aim of education is shaping human behavior. Education plays a key role in promoting knowledge, skills, attitudes and values needed to bring behavioral changes, which can enable children, youth and adults to protect the environment. For that reason, education has become an essential strategy for government, and many local and international non-government groups and organizations in protecting the environment (WCED, 1987).

Environmental education can be defined as the process through which the knowledge and experience of environmental problems are the way to create environmentally sensible people with perceived environmental behavior and a positive attitude towards the physical world, its preservation and protection (Rakotomamonjy et al., 2014).

In order to achieve a deeper environmental education apprehension, it is necessary to invest in all three forms of education: formal, non-formal and informal (Plaka & Skanavis, 2016). Environmental education and training increase human capacity and ability to participate in environmental management and solving environmental crises and challenges. This could be achieved by raising awareness and substantially awareness, changing therefore the individual's environmental outlook. We need a behavior and ethical values tailored to protect and preserve the environment and improve the quality of human life. The challenge of achieving the benefits of environmental education requires particular attention in selecting effective education strategies. Education - teaching and learning - is the logical starting point for every cultural effort addressed to the public (Mohamed & Kidundo & Tagelseed, 2006).

Many emerging technologies have been explored and proposed to optimize and enhance the learning experience. More recently, researchers have turned their attention to the AR applications on mobile devices such as mobile phones (Lin et al., 2013). Augmented Reality (AR) is a relatively new technology promising a great tool for communicating concepts and ideas about environmental issues (Kamarainen et al., 2013; Parvathy et al., 2015; Kamarainen et al., 2018; Theodorou et al., 2018).

Augmented Reality

Augmented reality (AR), can be defined as a system or interactive experience that meets three key features: a combination of real and virtual worlds, both registered into a 3D environment and interactive in real time (Azuma, 1997).

Computer interfaces can be represented as a continuum between a totally real environment and a totally virtual environment (Milgram et al., 1995). Starting from left to right and moving away from reality, there is an increase in virtual content (Figure 1). Augmented reality, unlike virtual reality (VR) where the user is completely immersed in a digital environment, can be seen as a mixed state of a physical environment that has been augmented by adding virtual elements for creating a real-time mixed reality. Therefore, AR supplements reality instead of replacing it.

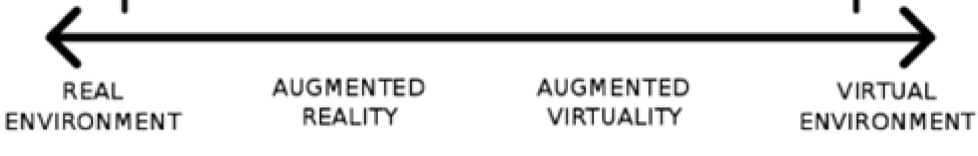

Figure 1. Reality-Virtuality Continuum (Milgram et al., 1995)

Virtual elements used in Augmented Reality can be any computer-generated content like images, video, audio, 3D objects, animations or text information onto real-world scenery (Hsieh & Lin, 2011), increasing its possibilities of interaction with the user (Martín-Gutiérrez et al., 2017).

The main hardware components of an Augmented Reality System are: an input such as a video camera, significant storage space for virtual objects, a powerful processor, and a display that places both images of the real and virtual environment (Bower et al., 2013). Modern mobile computing devices, such as smartphones and tablets, also includes sensors like accelerometer, GPS, gyroscope and digital compass to determine user location and direction (Chatzopoulos et al., 2017).

In the past, technological constraints often restricted AR devices and their users to a fixed position. However, developers have always intended to make AR portable (Azuma et al., 2001). Over the years, AR has been a growing phenomenon on mobile devices, associated with the increase in mobile computing in recent years and the worldwide omnipresence of Internet access. A smartphone consists of all hardware requirements of augmented reality. This means that the hardware required to implement an AR application is portable (Craig, 2013).

There are two main types for AR, marker-based and location-based AR (Munnerley et al., 2012). Each one offers different opportunities in different cases.

Marker-based AR is based on image recognition and allows the camera of a mobile device to recognize the pattern of a marker, which might be an object, image, or QR code, and activate the associated information and media, which is then displayed to the user. In this technology, the position and orientation of the object depends on the position of the marker. When you are moving the marker, the displayed model or animation is transformed accordingly (Carmigniani et al., 2010).

Location-based AR, on the other hand, does not need markers, instead using GPS-enabled smartphones or tablets to activate media at particular locations in an outdoor space. It reads the data through GPS and predicts the locations where the user wants to go and finally shows embedded information or media on the screen of user’s mobile device when the user reaches that location. This technology is usually used for displaying directions, locating nearby businesses, and other mobile navigation applications (FitzGerald et al., 2013).

Augmented Reality in Tourism

Prior research (Urry, 1990; Kang & Gretzel, 2012), suggests that tourists' experiences are socially and culturally derived from various senses. In addition, many technologies have also been found to play an important role in enriching a tourist’s experience (Kang & Gretzel, 2012).

Information technologies (IT) have invaded the tourism industry in all sectors and at all stages of a tourism-related visit, with the main goal of increasing profit and saving costs (Buhalis & Law, 2008). Similarly, tourists have benefited from this development. Mobile technologies and social media tools provide information on tourist destinations and attractions from anywhere, at any time (Beckendorff et al., 2014).

IT can be used in several ways in tourist experiences, for example, as an enabler, creator, attractor, enhancer, protector, educator, substitute, facilitator, reminder and destroyer. In particular, VR and AR are used as attractors, enhancers and educators (Beckendorff et al., 2014).

Using AR mobile apps, tourists are given the opportunity to access a large number of valuable information in a different way than in the past, where they had to either check on a travel guide or online sources (Yovcheva & Buhalis & Gatzidis, 2013). Tourists can now instantly receive information about unknown areas (Han et al., 2013).

This new approach, in addition to improving knowledge of tourist attractions, at the same time enhances the overall tourist experience and increases the levels of entertainment (Fritz & Susperregui & Linaza, 2005). AR's ability to supplement natural attractions with digital content allows tourists to have a more enjoyable experience (Jung et al., 2015), giving them new opportunities in terms of mobility, visualization, alternative perspectives and comparison (Munnerley et al., 2012).

The availability of attractive AR applications could potentially contribute to a tourism learning experience (Leue et al., 2014). Tourists tend to participate in activities at their tourism destination in order to increase their skills and knowledge (Oh et al., 2007). Previous research (Lin & Fernandez & Gregor, 2012; Pendit & Zaibon & Bakar, 2016) has shown that content consists of the following three factors: commitment, positive effect, and fulfilment. Commitment requires the person to engage in an activity with a high level of attention, the positive effect requires the person to have the sense of satisfaction and happiness and, finally, fulfilment requires the person to feel that a purpose has been achieved. In brief, we can say that in order for learning to be enjoyable and entertaining, the trainee should not feel that she/he is in a state of schooling but in a pleasant process of gaining new knowledge. Extending tourist experience through technology is of vital importance.

Methodology

Approach

This study aims to examine the possible role that AR can play in increasing awareness of climate change concepts among tourists and, potentially, how it can affect their behavior. To understand the impact of AR on the learning outcomes of tourists about environmental concepts, two activities were made. Both activities had the same topic, about recycling and waste management. Along with the activities, participants had to respond to two questionnaires.

The implementation lasted around 30 minutes, depending on the level of the attention that participants showed during the elaboration of the implementation. Specifically, a pre-test questionnaire was given to the participants to examine their former knowledge, attitudes and willingness to change behavior about recycling and waste management. Then, the first learning activity followed in order to inform them about the concept of waste management.

In the assessment phase, the second learning activity was performed. Participants were invited to play an AR game. Afterwards, the same questionnaire was given for the second time, with a further 5 new questions about the experience they gained from the AR activities. The measurements showed the change of knowledge and willingness to change behavior and attitudes.

Participants

This survey was conducted on the island of Skyros during summer of 2018 and involved a total 97 tourists. The selected participants were all from an average socioeconomic background. Seventy-one (73.2%) of them were foreigners and the rest 26 (26.8%) locals. On the whole, 39 (40.2%) participants were less than 30 years old, 32 (33%) between 31 and 40, 13 (13.4%) between 41 and 50, 9 (9.3%) between 51 and 60 and 4 (4.1%) over 61 years old. In terms of educational level, participants with less than a high school degree were 9 (9.3%), 38 (39.2%) were had a high school or equivalent degree, 35 (36.1%) were Bachelor's degree graduates and 15 (15.5%) had a master's or high degree. More than half of the participants were males, a total of 56 (57.7%), and the rest of them (41) were females (42.3%). The demographics of all participants are presented in Figure 2.

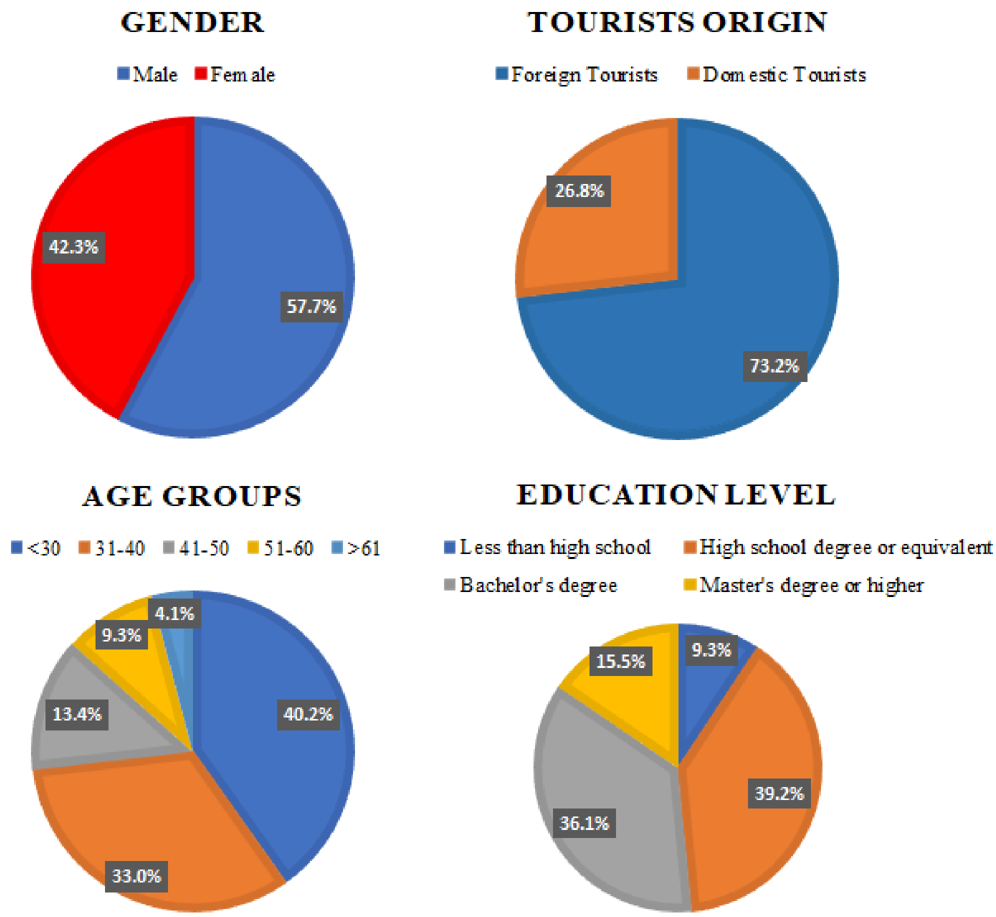

Figure 2. Demographic data of the participants

Questionnaires

The questionnaire (Table 1) had to be completed within a 10-minute time period. Participants were informed that the questionnaires were not a test, but part of a research program in order to assess their background knowledge of environmental issues. The questionnaires were approved by the Research Center for Environmental Education and Communication, of the University of the Aegean.

The items in this questionnaire comprised yes–no, multiple-choice and Likert scale questions. A total of 25 questions were used. Initially, participants were asked to answer questions dealt with demographics and personal information. Specifically, in the questions one to four, participants were asked to put in an anonymous tracking code, gender, age, origin, and education level. Following this, the next items were questions related to knowledge, attitudes and willingness to change behavior. More specifically, there were eight questions about their former experience concerning waste recycling, three questions that were associated with attitude and five questions dealing with the willingness to change behavior regarding recycling concepts. Finally, the five additional questions about AR experience were measured on a five-point Likert scale where 1 = ‘not at all’ and 5 = ‘extremely’.

Table 1. Questionnaire

Category	No.	Question	Answers
Knowledge	Q_5	Do you know what recycling is?	Yes, No
	Q_6	How informed are you about recycling?	Sufficiently, Satisfactorily, I know nothing
	Q_7	Do you know which household waste is being recycled?	Yes, No
	Q_8	Do you know which waste the municipality collects?	Yes, No
	Q_9	Do you know what color recycling bins are?	Yes, No
	Q_{10}	Do you separate your waste into recyclable or non-recyclable?	Yes, No
	Q_{11}	How important is recycling as a component of solid waste management?	Very, Fairly, Not at all
	Q_{12}	How important is recycling for the conservation of natural resources?	Very, Fairly, Not at all
Attitudes	Q_{13}	I find it inconvenient to recycle here?	Yes, No
	Q_{14}	Whether I recycle or not does NOT make a difference?	Yes, No
	Q_{15}	Reason for recycling:	Concern for the environment, Self-satisfaction, Pressure from friends or family
Willing to change behavior	Q_{16}	If I have rubbish that can be recycled:	I will certainly use a recycling bin, I will try to use a recycling bin, I will use any bucket I find closest even if it is not a recycle bin
	Q_{17}	I am willing to talk to my friends and family members about recycling?	Yes, No
	Q_{18}	I am willing to think more about recycling and its effect on the environment?	Yes, No
	Q_{19}	I am willing to make changes to improve my recycling behavior?	Yes, No
	Q_{20}	I am willing to separate my trash so that I can recycle?	Yes, No
Learning experience	Q_{21}	How easy was it to use the application?	Not at all, Slightly, Moderate, Very, Extremely
	Q_{22}	How useful was the application in helping you learn new information?	Not at all, Slightly, Moderate, Very, Extremely
	Q_{23}	How much did you enjoy using the application?	Not at all, Slightly, Moderate, Very, Extremely
	Q_{24}	Do you think that the graphic design of the application is visually appealing?	Not at all, Slightly, Moderate, Very, Extremely
	Q_{25}	Would you like to have other environmental issues with this application?	Not at all, Slightly, Moderate, Very, Extremely

Although the pre and post questionnaire given to the participants was the same, the order of the questions was adjusted differently. This not only ensured the consistency of the difficulties of the two tests with the objectives of the assessment but also reduced the effect of the participants' memorization of the questions.

The results from the questionnaires were presented in the format of tables and charts.

AR applications and activities
The implementation of the above activities is done using two tools, Blender and Openspace3D. Blender is a free 3D graphic design software that we chose to build our 3D models as well as to create animation. OpenSpace3D, on the other hand, is a free and open-source platform, designed to create virtual and augmented-reality applications or games. One reason we chose the above software is that no source code is required to create applications. Instead, it uses visual programming by combining functions with an easy understanding event to action system.
Both AR applications are interactive through different markers (marker-based AR) and were designed and developed for Android devices. In the case of our applications we chose to use the built-in markers of Openspace3D.
These applications require only a smart mobile device with a camera, and the markers printed on a piece of paper. The user activates the application and points the camera to the image target. The application then captures the target and recognizes it. If the recognized image matches the image target, specified animated 3D models and sound will be loaded and displayed on the screen.
The first activity was informative. Specifically, two different color bins appear. Pointing each bin shows different items that are allowed to throw accompanied by an acoustic narration. The second activity is essentially a game, in which participants are asked to place each item displayed in the appropriate bin and to fit them correctly. The items are displayed in random order. In this way, it will be shown whether the participants have achieved the goals set out from the beginning and acquired the new knowledge from the activity that preceded them.

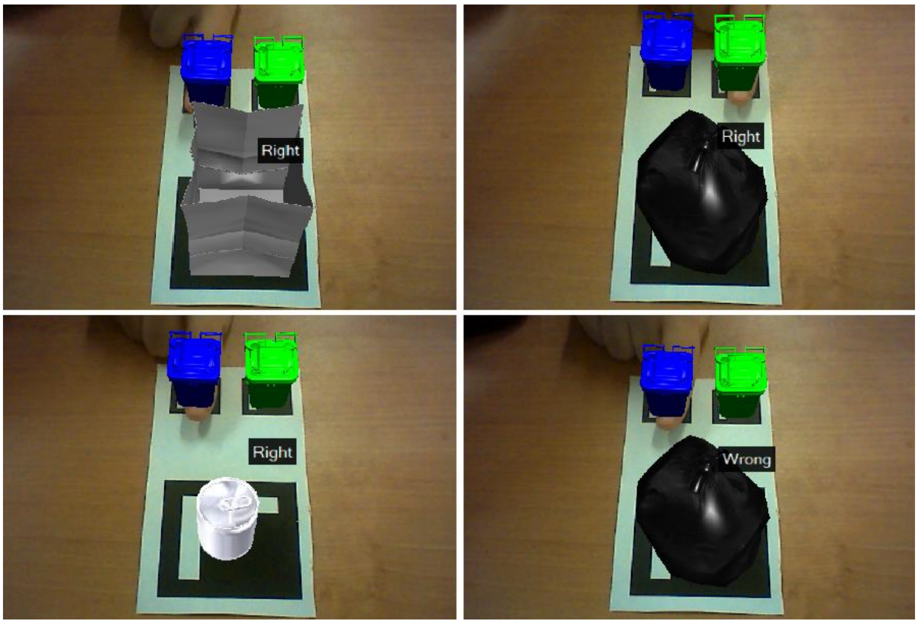

Figure 3. Second AR activity screenshots.

Both applications are tested on Android smartphone Xiaomi Redmi 4A with Qualcomm Snapdragon 425 Quad-core 1.4 GHz.

Results and discussion
The results recorded after conducting the questionnaires' analysis, are divided into two categories. The first concerns the level of change of knowledge, attitudes and willingness to change behavior on recycling and waste management by the participants. The second

concerns the participants' opinion about the learning experience with the AR application. Pre-test scores represent tourists’ outcomes before, and post-test scores represent tourists’ outcomes after using the AR applications. The following statistical analysis is conducted with the tool of Excel 2016 of Microsoft Office.

The participants’ perceptions regarding recycling and waste management were measured in three axles that included the knowledge, attitude and willingness to change behavior. The changes were smaller or larger according to the axis that was examined, the origin of the tourists and the fact that some participants were aware of recycling issues. Table 2 shows the comparison between the grade obtained by the participants when they performed the pre and post-tests.

Table 2. Results of questions about knowledge, attitudes and willingness to change behavior

	Knowledge								**Total**	**Attitudes**			**Total**	**Willing to change behavior**					**Total**
	Q_5	Q_6	Q_7	Q_8	Q_9	Q_{10}	Q_{11}	Q_{12}		Q_{13}	Q_{14}	Q_{15}		Q_{16}	Q_{17}	Q_{18}	Q_{19}	Q_{20}	
Foreign tourists																			
Pre %	83.5	76.9	76.4	44.2	50.5	60.7	59.3	70.4	**65.2**	69.6	69.7	71.3	**70.2**	62.7	58.5	72.9	78.3	77.2	**69.9**
Post %	87.8	85.3	82.8	89.5	86.4	72.2	73.9	81.8	**82.5**	75.8	72.6	76.1	**74.8**	76.4	62.9	80.3	85.7	81.9	**77.4**
Change %	4.3	8.4	6.4	45.3	35.9	11.5	14.6	11.4	**17.2**	6.2	2.9	4.8	**4.6**	13.7	4.4	7.4	7.4	4.7	**7.5**
Domestic tourists																			
Pre %	78	70.1	72.2	79.1	82.8	41.2	58.4	67.8	**68.7**	77.6	65.3	66.7	**69.9**	63.2	52.2	72.4	76.2	65.7	**65.9**
Post %	85.1	83.6	82.3	84.8	85.1	74.6	71.9	72	**79.9**	80.2	72.2	73.5	**75.3**	78.2	56.9	79.6	83.4	73.9	**74.4**
Change %	7.1	13.5	10.1	5.7	2.3	33.4	13.5	4.2	**11.2**	2.6	6.9	6.8	**5.4**	15	4.7	7.2	7.2	8.2	**8.5**
Total Results																			
Pre %	80.8	73.5	74.3	61.7	66.7	51.0	58.9	69.1	**67.0**	73.6	67.5	69.0	**70.0**	63.0	55.4	72.7	77.3	71.5	**67.9**
Post %	86.5	84.5	82.6	87.2	85.8	73.4	72.9	76.9	**81.2**	78.0	72.4	74.8	**75.1**	77.3	59.9	80.0	84.6	77.9	**75.9**
Change %	5.7	11.0	8.2	25.5	19.1	22.5	14.1	7.8	**14.2**	4.4	4.9	5.8	**5.0**	14.4	4.6	7.3	7.3	6.5	**8.0**

In total, it is estimated that from the 97 participants, 14.2% changed their knowledge, 5% their attitude and 8% the willingness to change behavior. Particularly, for foreign tourists, the knowledge change was 17.2%, the change of the attitude was 4.6% and the change in the willingness to change behavior was 7.5%. Whereas for domestic tourists the knowledge change was 11.2%, the change of attitudes was 5.4% and the change in the willingness to change behavior was 8.5%.

The total results concerning knowledge showed that there was a difference before and after the implementation. The most remarkable observations concern questions 8 and 9. Specifically, related to foreign tourists, the change was 45.3% and 35.9% respectively. This result was expected as the foreign tourists did not know the local waste collection system. Another notable question was 10, where the domestic tourists' change was only 33.4%. This may be due to the fact that the domestic tourists were not properly trained to separate their waste. Concerning the factors of attitudes and willingness to change behavior, it is observed that there is a stable total change from 4.6% to 5.4% and 7.5% to 8.5% respectively for both foreign and domestic tourists.

Regarding the factor of the learning experience, the results seem to indicate that users were able to handle the AR applications and they found the AR as a useful tool to acquire new information in a pleasant way. Table 3 shows the measurements of the participants' experience in the post-test.

Table 3. Results of questions about learning experience

Learning Experience		1 = Not at all	2 = Slightly	3 = Moderate	4 = Very	5 = Extremely
Q_{21}	How easy was it to use the application?	6%	22%	24%	26%	22%
Q_{22}	How useful was the application in helping you learn new information?	8%	12%	26%	31%	24%
Q_{23}	How much did you enjoy using the application?	9%	9%	18%	34%	30%
Q_{24}	Do you think that the graphic design of the application is visually appealing?	15%	14%	20%	20%	31%
Q_{25}	Would you like to have other environmental issues with this application?	17%	13%	20%	21%	30%

One difficulty that researchers had to face when they implemented the project was due to the fact that we used 3 markers for the AR applications which required users to have a quite stable hand to load the 3d models properly. Finally, concerning the 4th question and the graphics of the application, it is worth mentioning that we chose to use graphics with low polygons so that the application has a better response. This of course happened at the expense of visual appealing.
The difficulties that researchers had to deal with during the implementation of the project are consistent with the existing bibliography.

Conclusion

Augmented Reality (AR) is a phenomenon that over time has seen an increase in smartphone applications due to the release of powerful mobile devices and to the widespread Internet access. This new technology applied to tourism can offer many opportunities for innovation. AR systems can enhance the overall tourist experience and increase the levels of entertainment.
The current paper attempted to demonstrate that "state of the art" technologies such as Augmented Reality could be effective in educating about environmental issues with the aim of raising public awareness and possibly influencing behaviors and attitudes of the public in places where tourism is of prime importance, such as the small Greek islands.
According to, Nincarean et al. (2013), AR technology in education could be identified as the most exciting and interesting teaching method. AR has many advantages over traditional teaching methods. One of these is that it activates many senses such as touch, hearing and vision at the same time. In this way, it allows participants to overcome limitations and access inaccessible locations, and actively participate in learning and teaching. Finally, it gives users a sense of presence and immediacy with the subject of exploration.
The implementation of AR applications for environmental educational concepts has a significant supplemental learning effect as a mobile-assisted learning tool. The results of our study suggest that the cognitive performance of tourists is reinforced by the AR tool. Tourists who came into contact with the tool of AR are receptive and have a positive attitude as they enjoy the whole experience.
Our next steps should include improvements to the design of the application and to also address other environmental topics. AR tool should be compared with other learning software

methods. Future plans should involve the development of a prototype that will target people with learning disabilities.

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Using competitive intelligence to develop a comprehensive tourism development model. The North Sulawesi province case study

Fournié Pierre[1], Dou Henri[2]
[1]University of Paris Est Marne La Vallée – Research unit EA 7339 - Dicen IDF- Dispositifs d'information et de communication à l'ère numérique - Université Paris-Est Marne-la-Vallée CITÉ DESCARTES - 5 Boulevard Descartes – Champ sur Marne - 77454 Marne la Vallée Cedex 2 France
[2]CI WoldwideThink Tank 93 rue du Rouet 13008 Marseille France www.ciworldwide.org

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Tourism, Competitive Intelligence, Territorial development, Island development, Indonesia, North Sulawesi

Abstract
North Sulawesi (SULUT), one of the 34 provinces composing Indonesia, has to compete to develop trade and industry, attract Indonesian and international tourists. SULUT potentials include natural wonders both in land and at sea, cultural traditions and colonial heritage. For decades, Manado, the capital city, as a top diving destination and being home of fantastic fauna and flora, has been attracting the largest number of tourists. But such a rush resulted in negative impact on the environment. (Tangian, Djokosetiyanto, Kholil, & Munandar, 2015). Positive aspects for islanders are also not that obvious.
With Sam Ratulangi Manado's airport increased capacity and upgrade to welcome international flights, Manado's attractiveness, supported by the creation of new Asian flight routes, keeps increasing. Hotels and large shopping malls have appeared to accommodate tourists more sensitive to consumption pleasures than to environment aspects and nature wonders. A tendency than the integration of SULUT in the Chinese OBOR initiative may again accentuate.
At a time Indonesia is at the crossroads (Fournié & Dou, 2017), the current paper explores the development perspectives of SULUT tourism.
Our study advocates that to avoid traps and conflicts between communities, tourism development shall be planned and organized using a Competitive Intelligence (CI) and Territorial Development approach at provincial level. (Hadi-Kusuma, Dou, Manullang, & Dou, 2004)

Tourism: a strategic sector for Indonesia

The President Joko Widodo (Jokowi) has been expressing, when arriving into power, a new vision for tourism, immediately presented as a key field that shall benefit to all provinces across the archipelago. Such a statement has been reinforced in 2018, when, together with Processing Industry and Agriculture, Tourism was declared a priority sector. (Sekretariat Kabinet Republik Indonesia, 2017)
Such a strategy has been supported by several decisions:

- The Presidential Regulation (June 9th, 2015) on visa exemption allowing visitors from 169 countries (initially only 30) to enter Indonesia without visa except specific cases (Directorate General of Immigration, 2015)
- The development of infrastructures (tolls, railways, airports, harbors…) and power sources all over the country
- The instructions given to governors to boost all projects related to Tourism

By 2019, Tourism is due to become the largest exchange currency contributor to Indonesia's revenue. (Kementerian Parawisata Indonesia, 2015) thus bypassing rubber, coal as well as oil and gas.

At a time Indonesia has still a long road to go, being ranked 22nd in the World (2016) as regards as Total contribution of Travel and Tourism to GDP (57.9 billion USD), ahead of Malaysia and Vietnam, Sri Lanka and Cambodia but still behind China (1000.7 Bn USD), India (208.9 Bn USD), Thailand (82.5 Bn USD) and Philippines (60.1 Bn USD), the contributions of the sector to GDP, job positions, capital investments and foreign visitors arrival and exports are now strictly monitored whether in terms of direct, indirect and induced impacts. (World Travel and Tourism Council, 2017)

Domestic and international tourism have been supported by several factors:

- the development in the mid 90's of an Indonesian middle class
- the upgrade (eventually to international standards) of several airports in the late 90's
- the deregulation of air transport starting 1999
- the apparition few years after of new airlines offering relatively low fares that boosted the number of passengers thus facilitating tourism.

Between 1990 and 2014, the number of domestic passengers (depart and arrival) raised from 42.2 million to 152.5 million while for international the figure was multiplied by 3 to reach 27 millions. (APEC Support Policy Unit, 2017)

On 2015, a report from the Ministry of Tourism clearly showed that three main areas (Bali, Jakarta and Batam) were receiving 75% of foreign visitors. (Kementerian Parawisata Indonesia, 2015). The same report was particularly severe for Sulawesi that represented only 0.31% of total foreign tourists (10 406 759) entering directly through entry ports. Sam Ratulangi airport, with 19 465 entries was not either catching the target set at 30 000.

A finding that supported the decision to develop "10 new Bali" namely: Lake Toba in Sumatra, Tanjung Lesung, Banten (West Java), Seribu Islands (Jakarta), Tanjung Kelayang Beach (Bangka Belitung), Borobudur Temple (Centra Java), Mount Bromo (East Java), Mandalika (West Nusa Tenggara), Labuan Bajo (East Nusa Tenggara), Wakatobi (South Sulawesi), Moratai Island (North Maluku).

For 2020, whereas the image of the country has been damaged on many occasions by events occuring on different cities, religious or touristic places: Tsunami in Aceh (2004) ; earthquakes in Lombok and Palu (2018) , volcano erruptions (Bali 2017), terrorist attacks and bombings in Bali (2002 and 2005), Jakarta (2002, 2009,2016, 2017), Surabaya (2018) pushing visitors to consider alternative destinations, the objective of foreign visitors for the whole archipelago has been fixed at 20 million.

Assessing the obstacles to the development of tourism across North Sulawesi

A maritime frontier at risks

Sulawesi Utara lays on 13 852 km2 at the Northern frontier of Indonesia close to Philippines and more specifically to the southern province of Mindanao, a region suffering since the 60's of autonomist (MNLF: Moro National Liberation Front) or even muslim secessionist (MILF: Moro Islamic National Front created in 1984) unrest. Mindanao is also home of radical Muslim groups close to Al Qaida (Abou Sayyaf) or of the New People's Army, a revolutionary extreme left group.

The setting up of said maritime frontier of 1161 km was a long path to go, and an agreement between the two countries was ratified (by Indonesian parliament) only recently. No doubt that besides fishing control, growth of trade and economic concerns; control of terrorist risk and of illegal traffics was a key reason to ease the process.

Some of SULUT regencies, namely Sangihe, Talaud and Sitaro, are composed of few islands; the first two being at the borders with Philippines.

A province at the fringe of Indonesia

North Sulawesi is bathed by the Celebes Sea (North), the Molucca Sea (East) and the Gulf of Tomini (South). The province is composed of a mainland (part of Celebes) that includes, besides Sulawesi Utara, other provinces namely Sulawesi Selatan, Sulawesi Tenggara, Sulawesi Tengah, Sulawesi Barat and Gorontalo and their respective strings of islands.

Gorontalo province, having its capital in the city of Gorontalo, an historic muslim stronghold, appeared on 2000 as a split from the province of SULUT where Christian faith is majority. As a result, the structure of North Sulawesi population changed from that on, more particularly as regards as number, ethnic structure and religious composition.

The distance (about 2170 km) that separates Manado from Jakarta has contributed to the lack of industrial and infrastructures development in the area. And SULUT, despite having a deep sea harbour in Bitung, remained for years aside from the largest maritimes routes of the area.

Population and administrative division

SULUT is one of the least populated provinces of Indonesia ranking 25th on a total of 34, being home of 0.94% of the Indonesian total population. Gorontalo, separated from North Sulawesi in 2000 accounts for 0.45%. (BPS, 2015)

In 2017, 2 461 028 Indonesian citizens were leaving in the province. The projections for 2035 forecast a population at 2 743 700 inhabitants.

SULUT is divided into 15 regencies or kabupaten (some created only recently) leaded by a locally elected “bupati”. In 4 cases (Manado, Bitung, Tomohon, Kotamobagu), major cities are considered as kabupaten and in such a case the bupati is replaced by a mayor. Manado is the capital of the province.

With an area of 2 872 km2 kabupaten Bolaang Mongondow is the largest whereas Sitaro is the smallest (276 km2)

Sulawesi Utara is composed, besides the Sangihe, Sitaro and Talaud islands, of two territories: the Minahasa (in the eastern part) and the Bolaang Mongondow areas (at the frontier with Gorontalo).

In a country where, according to the 2010 Census, Islam faith is followed by 87.46% of the total population, North Sulawesi represents for historical reasons developed hereinafter an exception with only 31%. The picture needs, in reality, to be detailed furthermore as there are strong disparities between kabupaten..

Also if Islam is the major faith in all regencies (including Kota Mobagu) of Boolang Mongondow, Christian faith comes first in all areas that were in deep contact with representatives of the VOC[i]: Manado, Bitung, and Tomohon cities as well as the Minahasa territories.

Life level parameters show that in terms of life expectancy, human conditions index, purchasing power and years at schools urban centers (Manado, Tomohon, Bitung, Kotamobagu) offer better conditions than rural parts of SULUT and that life seems more comfortable in Minahasaan than in Boolang Mongondow territories.

The picture is less precise when looking at the poverty rate ratio (in both Territories, one kabupaten shows poor performance) or at the specific case of the kabupaten composed of Islands (Sangihe, Talaud or Sitaro).

Being a place where excellent food and specialties are offered to the tourists, SULUT may take advantage of its capacity and understanding of the type of dishes to be served to followers of the different faiths.

A heavy volcanic and earthquake activity: benefits and risks
SULUT offers, due to the presence of volcanoes, extremely fertile lands, thus favoring for centuries the development of agriculture,. If the province accounts 41 mountains covered of dense and diversified nature – the highest peak, Mount Kablat, reachs 1995 m – such a high concentration of volcanoes, actives or not, may also represent a risk for tourism.
2 179 earthquakes have been registered during 2017 of which 78 above magnitude 5.[ii]
Besides agriculture, Sulawesi Utara is also a land for geothermal energy production and mining. Mining is an activity that is highly damaging environment and source of conflicts with local communities. Consequences take the form of destruction of fertile land, pollution of beautiful sea waters, floods and land raidings.

Transport infrastructures and areas of stay
Only one international airport, Sam Ratulangi in Manado allows to reach North Sulawesi and despite government plans to build in Indonesia 10 new airports to support the development of tourism, none was concerning SULUT. (Movanita, 2018).
The geographic configuration of the province, the lack of high speed roads or highways, the absence of fast train lines do impact economic development more particularly in the field of tourism.

Table 1: Distance and time between SULUT cities

Manado-Lolak	164 km	4 hours
Manado-Kotamobagu	180 km	5 hours
Manado-Tomohon	24 km	1 hour
Manado-Bitung	44 km	1.5 hour

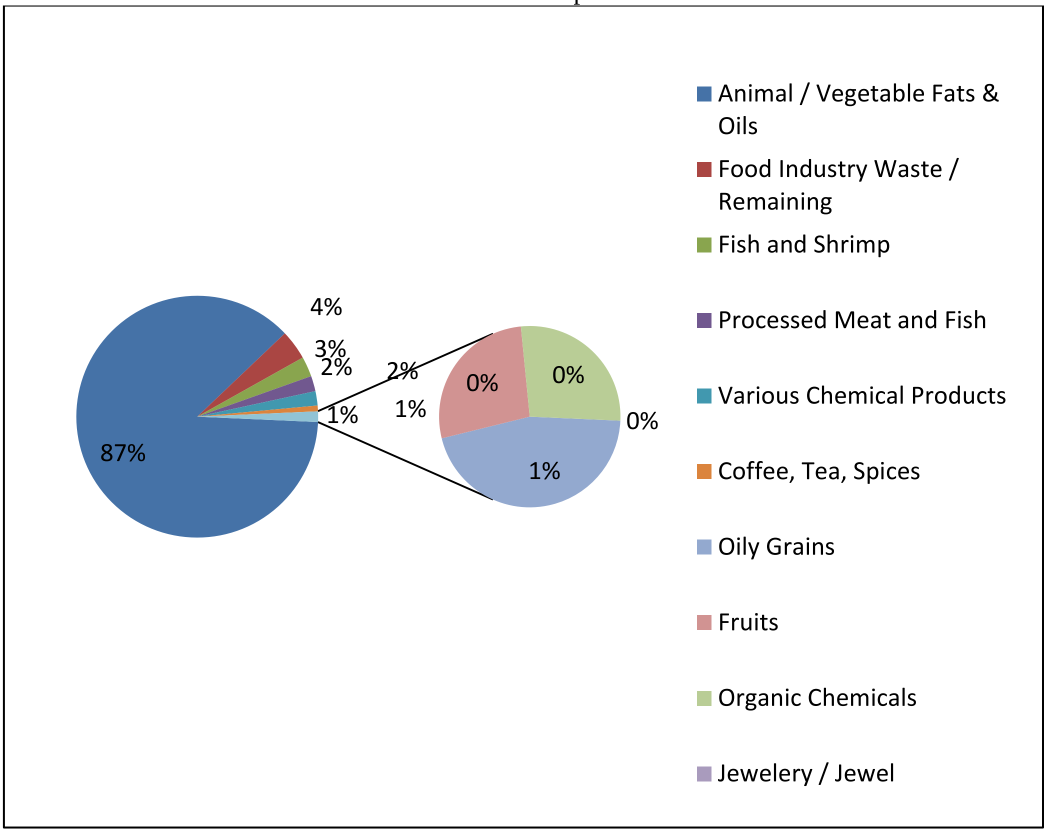
A toll road is currently being built between Manado and Bitung with, despite several severe accidents during construction, a target opening planned for early 2019 (Himawan & Hapsari, 2018) (Progress Proyek Tol Manado Bitung 21 Oktober 2017, 2017).
A trans-sulawesi road is also already operating connecting Manado to Makassar
Since his election, President Jokowi has been boosting the development of transport infrastructures all over the country. In Sulawesi, it takes the form of:

- the Bitung-Makassar or trans-sulawesi railways due to transport both passengers and merchandises. As of July 18th, 2018 the 144km segment between Makassar and Pare Pare has been partially installed. The SULUT part, a 250 km track between Bitung and Gorontalo, remains at the land reclamation phase.
- The establishment in Bitung harbour of a Special Economic Zone (SEZ) to support starting 2020 the development of Bitung as an international hub to eastern Indonesia.

Trade and Tourism: structure, length of stay, utilities supply, and impact on environment
Taking benefit of Bitung deep sea harbor, North Sulawesi is an international trading province with a yearly net positive balance for the period 2013-2017 between 692 and 1053 millions USD, reaching 757millions USD in 2017. North Sulawesi‘s trade balance is largely positive with USA, Netherlands (those two countries export rather nothing to the province) , still in favor of Sulut with China and Japan eventhough imports are growing fast, but negative with Malaysia and France in particular.

Across the period, exports were highly depending on animal/vegetable fats and oils mainly coconut and palm oils that were routine businesses to USA and Netherlands. All other main exports revenues dropped between 2015 and 2017 in particularly jewelry (possibly related to mining activities(– 156 millions USD), food industry waste (-5 millions USD), fishes and shrimps (-21 millions but – 38 millions compared to 2016) as well as processed meat and fishes (-37 millions USD)

Table 2: SULUT exports -2017

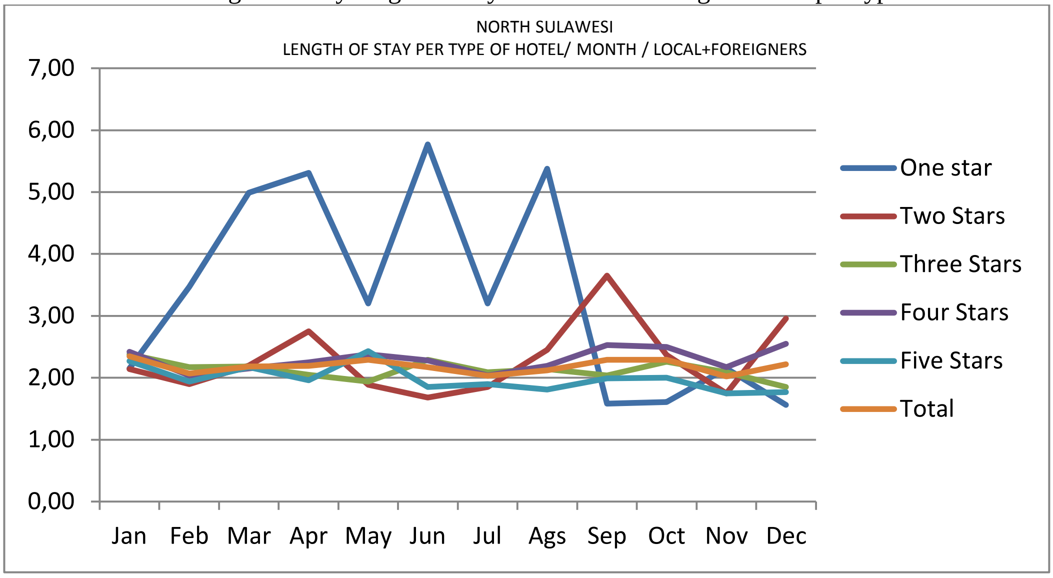


Source: BPS Sulut

Main imports are Mechanical/Aircraft machines (52%) and Mineral fuel (27%)
Such a high dependency on oil and fats stresses the need to develop alternative sources of revenues such as tourism. A sector that is caracterized by

- a deterioration of sea and islands environments due to increasing pressure of tourism on the marine national park of Bunaken (Tangian, Djokosetiyanto, Kholil, & Munandar, 2015) following the promotion of the area as a top diving spot during the last 30 years
- the apparition, during the last 5 years, of a new type of tourists more consumption oriented than environment concerned, due to the opening of new air routes in particular from China and the image of North Sulawesi as a safe and open-minded place
- a very high dependency on Chinese visitors (over 85% quickly increasing in numbers and market share)
- a limited time of stay thus limitating travel far from Manado city and nearby islands

Table 3- Average monthly length of stay for lacal and foreign visitors per type of hotel



Source: BPS Sulut- Statistik Wisatawan Mancanegara Provinsi Sulawesi Utara – Tahun 2017

Tourism sector increases the pressure on utilities (water and energy supply) as well as in waste management organization**.**

A need for territorial planning and provincial "coopetition"
On the same way that provinces in Indonesia are competing each other to develop business, attract investment and tourism; regencies appear to follow the same path across the SULUT province. For political, ethnical or historical reasons no clear vision of what the territory would be in the 20 years to come may surface.
To a positive "coopetition", kabupaten may rather prefer damaging competition and develop the same range of products or services across the province.
A strict monitoring of the energy and "drinkable" water supplies, of waste management capacity, of the impact of tourism on environment has to be pursued.
As regards as tourism, North Sulawesi offers the image of a province centered around its capital city; its deep sea harbour city Bitung; and easily accessible territories of Tomohon and Minahasaan areas. Due to the lack of transport infrastructure, touristic offer and accomodation but also consequently of their relatively short time of stay, visitors do remain in Manado or in the nearby islands.
A frame that definitely impacts the global development of the province and generates a gap between the above mentioned territories and the Boolang Mongondow areas. It may also possibly endanger communities relationships if only some social groups take full benefit of tourism related revenues and no improvement on daily life takes places or at least is felt by others.

Competitive advantages of Norht Sulawesi
An extremely rich tribal, colonial and recent history
The different tribes than since the first settlers "coming from the North", have been populating the province do offer a large combination of historical events, specific know how, incomparable traditions (clothes, food, beliefs, …). Many could be of interest for tourism, in particular:

- the notion of Mapalus, a mutual system of assistance within a community

- the Watu Pinawetengan" or "Tumotowa", a stone considered as a neutral meeting point where tribes would gather around 670 CE (Minahan, 2012) and settle territories disputes. From a place of ethnic unification, Tumotowa has become a place for pilgrimage, for offering or spiritual not to say magical search. (Stavrianopoulou, Michaels, & Ambos, 2008)
- the Waruga, or crafted sarcophagi in which Minahasaan tribes used to, all over the province and before the coming of the Dutch that forbid the practice for sanitary reasons, keep the dead bodies of family. . Most of them now being kept in Sawangan about 40 km from Manado.

Fiesta Manado, a festival introduced in 2017 at the initiative of the authorities of the capital city does present, once a year, a parade of the different tribes in traditional dress.

We advocate that by further supporting ethnographic, ethnologic and archeological researches, the province shall be in position to develop a field of tourism somehow unique.

Between the 15^{th} and 17^{th} centuries, the Spice Islands (the Moluccas and the Celebes), have been the place for major naval, legal and diplomatic disputes between the Portuguese, the Spanish and the Dutch. Initiated by the two catholic countries (other nations had to stay away to avoid excommunication of their rulers) in their will to control "the Terra Nullius", the row involved:

- several popes alternatively sensitive to the arguments of one or the other party as shown by the papal bulls "Aeterni Regis" (1481), "Inter Caetera" (May, 1493), "Dudum Siquidem" (September, 1493), "Ea quae pro bonis pacis"(January, 1506) and "Praecelsae Devotionis" (1514).
- the signatories (again here the kings of Spain and Portugal) of the Treaty of Tordesillas signed June 7^{th}, 1494 that defined the rights of the belligerents in the Atlantic Ocean but let in the shadows the Asian part of the world.
- Francisco Serrao, second of Antonio de Abreu, a captain that had been sent by Alfonso de Albuquerque, conqueror of Malacca in 1511 at the research of the Moluccas and that discovered Ternate.
- Fernao de Magalhaes (Magellan), that initiated after convincing Charles Quint (Charles I of Spain also referred as the Germanic Emperor Charles V) the first circumvolution around earth until he was killed in Philippines on April 21th, 1521
- Antonio Pigafetta, companion of Magellan that,on his way to the Moluccas, sailed through the Sangihe islands (North Sulawesi)
- The various portuguese captains (Garcia Henrique in 1521, de Abreu in 1522, Dom Jorge de Menezes) that tried to reach through the Celebes sea, the Malacca portugueses stronghold from their Ternate fortress (or on the reverse way for the latest). (Lapian, 2004).

The Treaty of Saragossa (1529) and the permanent settlement by 1565 of the Spanish in Philippines eventually solved the quarrel between the catholic nations.

From the beginning, both countries offered the spectacle to the inhabitants of North Sulawesi of kingdoms more interested by the control of the trade of spices than by the dissemination of the Catholic religion. When finally proselytism took place it was mostly for political reasons and to unsuccesfully counter the influence of the muslim Sultan of Ternate that drove by 1575 the Portuguese out of Maluku.

Even if the Spanishs conquered Ternate in 1606 and used it as base for evangelization until the jesuits withdraw from the area by 1680, there were always challenged by the protestant Dutch and muslim preachers.

Taking advantage of the "Mare Liberum" concept adequatly developed by Grotius, and defeating one after the others the Sultanate of Makassar, the Spanishs and their former ally, the Sultan of Ternate, the Dutch represented by the VOC, soon controled the Moluccas and North Sulawesi (1683). A permanent presence that will not stop until World War II.

Traces of such stays and confrontations, between the Spanishs, the Portuguese, the Dutch and the Muslims rulers can be found all over the province but still remain poorly promoted for tourism inland or underwater.
The presence of protestant and catholic faith in the province, somehow an exception in Indonesia, may also attract some tourists interested between others by the open minded cohabitation between the religions, the absence of food restriction and the existence of spiritual events or local pilgrimages.
Finally, through their religious practices, SULUT populations have developed a particular taste for chorals and singing. A mastering that the Manado cities authorities have sanctuarized by creating an international contest, the "Manado Cantat" thus promoting North Sulawesi peaceful image and cultural dimension.

A unique ecosystem
Located at the center of the coral triangle, North Sulawesi offers, in particular in the islands of Bunaken, Siladen, Manadotua, Banka and Lembeh, an incredible diversity of underwater life and was confirmed as the last known refuge of Coelacanths. (Holder, Erdmann, Wilcox, Caldwell, & Hillis, 1999) . The marine park of Bunaken (89 000 ha) in registered in the UnescoWorld Heritage tentative list since 2005.
Whereas statistiks show that the number of foreigners direct entries keep increasing (from 38 7523 in 2016 to 79 377 in 2017: +95%), it is now clear that the area supports the pressure of the different forms of tourism. (Wowiling, Bisri, Husain, & Hakim, 2013).
Environment pressure and pollution whether directly thrown by visitors, coming from main cities (Manado or Bitung), pushed by currents from Kalimantan, deriving from mining or industrial activities may conduct to the destruction of unique sites and forms of life unless strict monitoring and development of sustainable tourism are implemented. (Tangian, Djokosetiyanto, Kholil, & Munandar, 2015).
Such a finding stresses the need to consider local environment as a unique asset to be protected and requires to do so to:
- Strictly monitor fauna and flora but also environmental agressions of whatever type
- Put in place adequate waste management and water treatment systems and proper procedures able to support a progressive increase on the number of tourists
- Deconcentrate the flows of tourists and open new areas across the whole province
- Educate the visitors but also local people to the impact of pollution and how to prevent it
- Develop alternative spots for diving and snorkeling
- Develop inland activities taking into account the nature wonders offered by SULUT to do so (mountain, forests, agricultural lands, …)
- Associate, empower and train local people to do so

Those may have a positive impact, besides environmental aspects on a better repartition of the revenues of tourism across the province and allow the creation of new types of jobs. Offering new activities for tourists may also progressively impact and extend the length of stay.

Manado city: a Smart City
Besides developing new events (Manado fiesta, Manado Cantat, MICE[iii] …) and infrastructures, the capital city engaged itself in the trend of "Smart city" willing to become the "City of Happiness" with a slogan "We are all brothers".
Based on two pillars "Smart government" and "Smart environment", Manado intends to offer to tourists of all origins a place where: (Lumentut, 2014) religious harmony is edicted as a principle and technology supports both security and well being.

Introducing a comprehensive model for tourism development

Taking benefit of local available competences

To develop tourism, SULUT shall take benefit of the competences available in universities across the province and in their related research laboratories. Transversal and multi-disciplinary approaches shall be privileged as besides developing tourism, the objective pursued shall be the creation of related services and industries.

Local know how and traditions shall be carefully scrutinized.

Establishing Competitive Intelligence Units (CIU)

A unique CIU can be created at provincial level. Alternatively, CIU can be created in each kabupaten thus requiring the creation of a Coordination Intelligence Board (CIB). CIUs shall welcome interdisciplinary experts and university members but also people representing the local communities.

CIU composition shall allow a global, transversal and knowledgeable vision of the province, of tourism development and of its positive and negative implications

The role of the CIU is to support the province and regency governments in preparing a comprehensive tourism development model. Such an instrument shall:

- Be able to assess all threats related to tourism and offer proper answers
- Be innovative and imaginative
- Accommodate the interests and economic, social, cultural particularities of all groups of people and regencies
- Be able to consolidate the options selected to offer a vision at regional level
- Be transversal as it shall include, between others, utilities (water, energy), logistical, environmental, social, economic and political aspects.
- Create to support the sector for all dimensions including education, training, financial instruments the corresponding roadmaps and monitor their implementations.

Conclusion

The specificities of North Sulawesi reside in its past and recent history, its demographic and religious structure, its geography and unique fauna and flora thus making SULUT an ideal place for tourism, now a priority sector for Indonesia. Its strategic location also designates the province to become a hub to East Indonesia, Kalimantan and South Sulawesi.

Being centered since the 70’s on Manado, Bunaken Marine Park, Minhasa and Tomohon, tourism, now starting to boom, currently suffers from a lack of logistic infrastructures and a relatively low length of stay. The pressure exerted on the visited areas already started to negatively impact environment and local authorities may not underestimate the speed of degradation.

Highly dependent for trade on the export of vegetal oil and mining products as well as relationship with USA, China and eventually Holland; North Sulawesi may consider with extreme attention the fact that in the field of tourism China, represents more than 85% of foreign visitors.

Serious doubt may exist on the “environment consciousness” of such a booming market.

At a time the Indonesian government decided to promote “10 new Bali”, the province shall develop to compete those destinations a careful, innovative and comprehensive model for tourism, assessing and answering to potential threats; considering and consolidating strengths and interests of all regencies and social groups. If fair and balanced, such a model may also comfortize on the long term peace, stability and mutual understanding between communities.

Using a Competitive Intelligence and Territorial Development approach could be a way to achieve it.

Indonesia is now at the crossroads (Fournié & Dou, 2017) and North Sulawesi might be as well.

Given that North Sulawesi:

- is a Christian stronghold in Indonesia also close to Southern Philippines
- has a direct access to Guam and the Pacific Ocean (through the Davao gulf)
- is an alternative (difficult) access to the South China Sea from the Pacific
- has a a deep sea harbour in Bitung
- has with Lembeh an island in capacity to become a military airfield

the province feats all conditions to become in a very near future a master piece in the chess game that China and the United States have been initiating in the area with their “OBOR” and “Pivot to Asia” strategies . No doubt that in the coming years,China may propose to invest largely in local infrastructures and that US forces may organize again joint military exercices as it happened on March, 2018. (US Embassy Jakarta, 2018).

[1] VOC: Vereenigde Oostindische Compagnie – Dutch East India Company

[1] Source : Geophysics station Winangun in Manado cited in “Provinsi Sulawesi Utara dalam angka 2018, Badan Pusat Statistik Provinsi Sulawesi Utara, Katalog : 1102001.71”

[1] MICE : Meetings, Incentives, Conferences, Exhibitions

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Skyros project: a paradigmatic ecovillage

C. Skanavis, K. Antonopoulos, V. Plaka, F. Zouridaki, M. Ganiaris
Research Center of Environmental Education and Communication, Dept. of Environment, University of the Aegean, 81100 Mytilene, Lesvos, Greece

Keywords
Circular economy; creative tourism; ecovillage; environmentally responsible behavior

Abstract
The search for sustainable lifestyle, combined with, the promotion of environmental protection, provide research interest on the concept of creative tourism (Andriopoulos et al, 2017). This tourism type offers visitors the opportunity to develop their creative potential through active participation in learning experiences, characteristic of their chosen holiday destination (Richards & Raymond, 2000).
Skyros Island has been chosen for this study, due to its profile and port infrastructure. In 2015, the University of the Aegean collaborated with Skyros Port Authority on an environmental campaign, named "SKYROS Project". The enthusiastic researchers through their daily environmental investment led the way to a permanently established remote training site (Antonopoulos et al, 2017). The purpose of this study is to present as a paradigmatic way a proposed Skyros Ecovillage Project.The residents of the ecovillage will be provided the essentials for their needs. In order to assess their needs a questionnaire will be distributed to the ones who have served the Skyros Project since its initiation. The results would guide us on sketching the proposed Skyros Ecovillage.

Introduction
Members of Global Ecovillage Network (GEN) have recently coined the phrase, "ecovillage tourism" to denote "a new type of green travel, whereby people visit ecological communities around the world to experience low-impact living and community". GEN has formally designated some sites devoted to these activities as "living and learning centers" (GEN, 2015). The search for a sustainable lifestyle, combined with the reduction and the solution of environmental problems is a tempting field of research of the scientific community. The adoption of responsible environmental behavior of all stakeholders (society, individuals, organizations, governments, etc.) is one of the key solutions (Andriopoulos et al, 2017). At the core of an ecovillage lies the intention of its inhabitants to design their own pathway into the future (GEN, 2015).
Ecovillages aim at "helping our society to get closer to nature again and to develop new ways of living together on the land in a genuinely more sustainable way" (Kovasna, 2012). Furthermore they are known for aspects as "ecological sustainability through such practices as generating solar energy, raising animals, and growing their own food" (Meijering, 2012). Besides ecological sustainability, the communities also strive for communal sustainability, which refers to sharing one's life with other people and practicing a common ideology together (Meijering, 2012).
Ecotourism emphasizes sustainable development of the environment. Environmentally responsible behavior is an environmental conservation mechanism. Environmentally responsible behavior of tourists helps limit or avoid damage to the ecological environment. In academic research, exploration of the tourists' perceptions of a specific site on how they correlate with environmentally responsible behavior is limited (Yen-Ting, et al 2014). The successful relationship with nature is not just a pleasant task, but it is an essential component of the most important goal of humanity, which is our wellbeing (Plaka&Skanavis, 2016).

Literature review

Circular economy

Developed nations' current ways of living have not only put a huge pressure on the available finite resources, but have also contributed to the acceleration of social breakdown and the deteriorationof life quality (Eckersley, 2005). At present, the perceived high 'standards of living' in advanced nations are attributed to an unsustainable resource use (Moser, 2009). Due to globalization, unsustainable resource usage at any one place has the potential to alter environmental quality of any location (DoERM, 2007).

Small, self-sufficient, intentional ecological communities are examples of sustainable communities, which are strongly motivated to preserve the natural capital of the environment by creating strong social networks and alternative lifestyles (Barton, 2000). Sustainable communities aim to provide physical infrastructures necessary for realistic living standards, and well-developed relationships with the environment along with supporting neighbors. All the above mentioned, promote personal satisfaction and wellbeing (Barton, 2000). This approach focuses on the level of satisfaction derived from an individual's evaluation of their perception of attributes against a self-defined, personal standard or a value system which is derived from environmental attitude (Moser, 2009).

More recently, Mathews and Tan (2011) suggested that "the goal of the eco-initiatives is to eventually establish a so-called circular economy, or what is otherwise known as a 'closed-loop' economy", while Yang and Feng (2008) called the Circular Economy an "abbreviation of Closed Materials Cycle Economy or Resources Circulated Economy".The Circular Economy represents the most recent attempt to conceptualize the integration of economic activity and environmental wellbeing in a sustainable way. These include an absence of the social dimension inherent in sustainable development that limits its ethical dimensions, and some unintended consequences(Murray et al, 2015).A revised therefore definition was proposed, which describes Circular Economy as "an economic model wherein planning, resourcing, procurement, production and reprocessing are designed and managed, as both process and output, to maximize ecosystem functioning and human well-being".

Creative tourism

The tourism sector will remain as one of the most substantial economic activities in the world, with above-average increases in arrivals at around 4% per year predicted for seven straight years (UNWTO, 2016; 2107). However, the growth of tourism has not only caused environmental destruction (e.g., through pollution, land clearing, etc.) but has also subjected destinations to the threat of environmental damage, such as through local biodiversity changes, coastal erosion increases, decreases in wildlife, tourism infrastructure damage, etc. (Agnew & Viner, 2001).

Creative tourism involves activities that provide tourists with the opportunity to learn local skills and traditions (Richards & Wilson, 2006).In the experience economy, consumers are offered opportunities to participate actively, to interact with the environment, thus giving them first-hand experience with creative activities (Ali, Hussain, &Ragavan, 2014; Hung et al., 2014). When consumers participate in activities using simple materials and imagination, they develop unique experiences known as "creative experience" (Richards & Wilson, 2006), which would progress in a different kind of tourism experience, namely creative tourism.

Creativity activities can inspire tourists to become actively involved at a destination and thus is the base for creative tourism (Runco, 2004). In an extensive study, Quinlan- Cutler and Quinlan-Cutler & Carmichael (2010) identified various components of tourist experience: type of tour, place, emotional satisfaction, memories, knowledge and self-identity, and development, each of which is also integral to creativity. Moreover, Richards (2011) postulated that service providers must use creativity to add value to tourist experience.

Environmental responsible behavior

Academic research on nature-based tourism has investigated different aspects of eco-tourist travel behavior and intention (Kerstetter, Hou, & Lin, 2004; Trangeland, 2011). Hedlund, Marell, and Garling (2012) found that "tourists' environmental concern is influenced by sex, age education and income in vacation choices". According to Larsen (2007), what tourists experience is related to their expectations concerning the sites they visit, their psychological cognition and affection. After traveling, they will retain certain memories. The general travel experience influences the cognition and emotion of travelers, which leads to positive environmental behavior (Curtin, 2009; Zeppel, 2008).

In the context of ecotourism, environmentally responsible behavior stands out, when tourists understand the impact of their behavior on the environment and abide by the norms in the ecosite (Puhakka, 2011). For Thapa (2010), environmentally responsible behavior manifests itself in political action, recycling, education, green consumption and community activism. Kang and Moscardo (2006) see environmentally responsible behavior as a consequence of environmental attitudes, and measure it in terms of behavioral norms in ecotourism regions, such as collecting information on destinations before travel and following behavioral norms. Researchers have also explored the relationship of place attachment, defined as the traveler's experience with the travel site, on individual travel behavior (Kyle, Graefe, & Manning, 2005; Smith, Siderelis, & Moore, 2010). Furthermore, environmental sensitivity was found to mediate the association between environmental knowledge and environmentally responsible behavior (Marcinkowski, 2005).

According to Yen-Ting, et al. (2014) when tourists are satisfied with their experience, they can also sense the importance of the environment and have a greater understanding of the environment, which promotes their environmentally responsible behavior. So when tourists participate in ecotourism activities and their needs are met, they would develop a stronger involvement in ecotourism, which indirectly influences their environmentally responsible behavior. With perceived value a key determinant, managerial attention must focus on the tangible and intangible benefits that are to be provided to the traveler (Yen-Ting, et al., 2014).

Skyros Project

In Greece, Skyros Island is an island in the heart of Aegean Sea. Linaria Port, the island's small harbor, has distinguished itself in environmental infrastructures and influences. The Research Center of Environmental Education and Communication of University of the Aegean has set a remote research spot there, enforcing environmental campaign activities. The enthusiastic students through their daily environmental investments led the way to a permanently established training site that invests in environmental research and education practices (Antonopoulos et al, 2017). Worthwhile accomplishments include the establishment of the tourist observatory and a maritime one, both located at Linaria Port of Skyros Island. Also, a free dayenvironmental kid s camp has been operating at the same port during the summer months.

In this campaign project, since 2015, a number of 96 students and volunteers have been participating while being trained as environmental educators. Near the port, have to establish an area to host the participants. Skyros Port Authority and University of the Aegean set up anEcovillage, in which all the principles of an Ecovillage had be adhered to the concepts of circular economy and creative tourism. In this way, the residents who happen to be the Skyros Project participants are accommodated in relaxing and up to lateststandards of confortable tents, in a specially designed area, Acherounes Village (Ganiaris et al., 2018), near Linaria Port. This Ecovillage Project serves as a meeting point for local families, members of scientific groups and visitors of the island interested in getting involved in environmental protection activities in real time conditions (Ganiaris et al., 2018). The local community, which until a few years ago lived in perfect harmony with the natural environment, can provide in a great impulse in the preservation of the uniqueness of the natural environment of Skyros Island (Andriopoulos et al, 2017) through the route of this participatory experience. This proves to be especially important for small and distant destinations with poor tourism resources, because when applying creative thinking, an interesting tourism product can be developed in any environment (OECD, 2014). The Skyros Ecovillage Project is a proposal for establishing a vacationing site for those interested to actively participate in the environmental protection and sustainable living (Ganiaris et al., 2018) while upgrading their skills as environmental educators..

This Ecovillage Project attempts to assess all activities, educational and empirical, which will be offered to participants on SKYROS Project in Skyros Island (Ganiaris et al., 2018). In detail the participants would be active operators of the sustainable living structure and their needs will be based on the concepts of environmental conservation and protection in order to minimize the consequences that affect irreversibly nature and human life. Through their daily involvement at this chosen vacation format, environmental awareness will be reached in a successful manner (Ganiaris et al., 2018). Outdoor environments can enhance mental health of participating students, contribute to students' intellectual and emotional development, support their environmental awareness and can give them opportunities to play and get involved in creative activities as well as connect directly with nature (Plaka&Skanavis, 2016). Children who participate in the Ecovillage Project have the opportunity to join the experience of the Day Environmental Camp at Linaria Port (Ganiaris et al., 2018).

On the other hand, adults can become active players in a variety of environmental activities. These include but are not limited to, in collecting trash, growing organic food, recycling and reusing materials, conservation of energy choices (Ganiaris et al., 2018) as well as enrolling in the Summer Academy of Environmental Educators. This Academy trains the ones joining it, through a rigorous and innovative program, providing them environmental activities participation while exposing them to the state of art theory. Without any doubt, the road to sustainable development goes through environmental protection and sustainable management of local natural resources (Skanavis et al, 2018). The successful relationship with nature is not just a pleasant task, but it is an essential component of the human wellbeing general goal (Plaka&Skanavis, 2016). As Ganiaris et al. (2018) mentioned, the Skyros Ecovillage Project is a way to promote a new sustainable lifestyle.

Methodology

In an effort to promoting environmentally responsible behavior of citizens through eco-communities and ecovillage, this study attempts to assess the following objectives:

1) How successful is the Skyros Ecovillage Project, as a new Ecovillage approach?

2) Can Skyros Project be a creative way of tourism?

3) Can members of Skyros Project empower their environmentally responsible behavior through learning, fun and active participation?

In order to investigate the above set of objectives, this quantitative research is focusing onthe participants of Skyros Project, over its 4 years of existence. Questionnaires were designed and were administered to a total of 96 participants of Skyros Project.The ones who responded were sixty-three. The questionnaires were divided into two parts. The first one was collecting data related to their demographic profile. The second one was composed of three categories: scientific knowledge, sociable and professional aspects.

Results

Skyros Project: members' average profile

In first part of questionnaire (demographic part), members were asked about their age range. So, a 70.3% belongs to the18-25 years of age group, 26.6% to 25-40 years of age group and 3.1% to over 40 years old age group. The second question was about their education level. In this question 56.3% of the participants were undergraduate students, 21.9% of them had a Bachelor of Science in Environmental Studies, 10.9% were postgraduate students, 6.3% were PhD students and 4.7% had a Master of Science in Environmental Studies. The question on the source of income showed that a 53.1% was supported by family means, a 28.1%had a part-time job, an 18.8 was employed on a full-time job. The question on how long they have participated in the Project, 34.4% were first time participants, 23.4% for about two years,17.2% for about one year and 25% for about 3 years. When the participants were asked about the duration of their stay at Skyros Island, 39.1% of them answered for 1-3 weeks, a 35.9% of participants stayed for two months and a 25% for one month.

When they were asked ¨how did you learn about Skyros Project?¨, a 62.5% answered that they learned from the University of the Aegean, a 29.7% from friends and a 7.8% from media. In question ¨what led you to participate in Skyros Project?¨, a 70.1% answered that the reputation of the Research Center of Environmental Education and Communication and Professor Constantina Skanavis led them to wish to participated in the program. Also, a 20.3% answered the reputation of Skyros Project itself, a 1.6% the subject of Skyros Project attracted their attention, a 3.2% the topics of environmental education and communication science and environmental awareness, a 1.6% responded that their friends persuaded them, a 1.6% their passion to learn, 1.6% the reputation of Skyros Port Authority and its President, Mr. Kyriakos Antonopoulos. At the end of this part, in asking if they had been involved in other similar projects, a 95.3% answered ¨No¨ and a 4.7% responded ¨Yes¨. The percentage of 4.7%, who are given a positive answer had already participated in other university summer programs and an 85.9% of them were receptive to participate in another similar project.

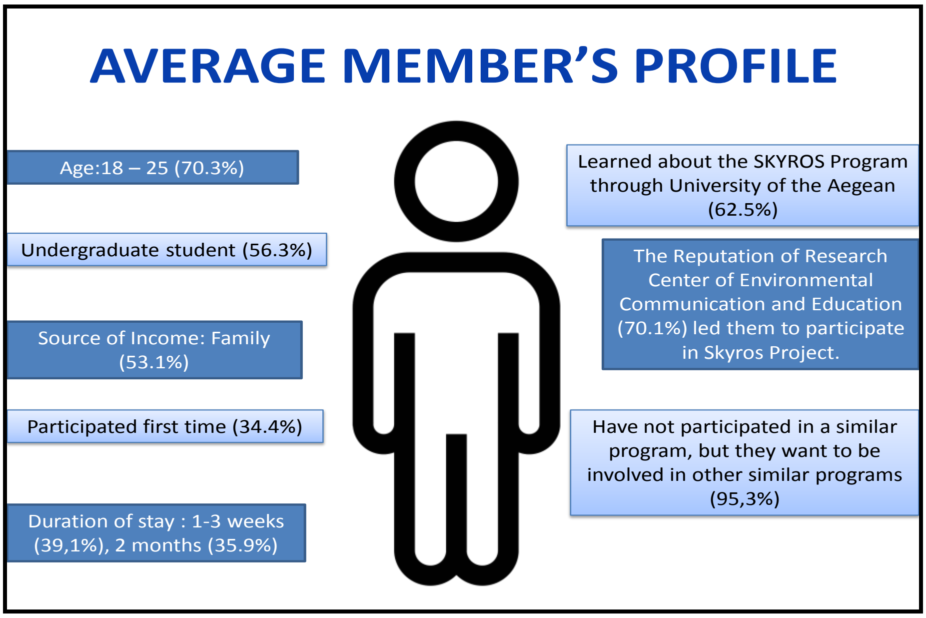

Figure 1: Average Members' Profile

Skyros Project: members' satisfaction

In this part the members of Skyros Project had the freedom to choose more than one answers. So,in the first question of this part, participants had to describe Skyros Project. An 82.3%

described it as an educational innovation program, a 43.8% described it as a lifelong learning program and a 35.9% as an internship program combined with holidays.

Scientific Part

In this part, the questions following had to be answered in a scale from one to five (one was Absolutely Disagree, five was Absolutely Agree).

First, the participants were asked about their conception of their potential involvement in environmentalist profession in the years to come (question 1). A51.6% of them responded positively,39.1% absolutely agreed and neither agree nor disagree was seen in the 9.4%. As far as their stay at Skyros Island, it helped them to come closer to the environmental protection fight(question 2). The 42.2% of them agreed, the 39.1% absolutely agreed, the 15.6% neither agreed nor disagreed and the 3.1% disagreed on the abov ementioned question.

Also, a 51.6% absolutely agree, a 31.3% agree, a 14.1% nor agree or disagree and a 3.1% disagree, on the question that their participation in the program has helped them to proceed scientifically with their involvement in many research projects (question 3). Thereinafter, a 51.6% of participants absolutely agreed that their participation in the program has prompted them to continue their studies (question 4). Moreover a 28.1% agreed, a 12.5% nor agreed or disagreed, a small percentage of 6.3% disagreed and a 1.6% absolutely disagreed. Furthermore, their participation in the program has prompted them on an individual basis to become more professional (question 5). In answering this question a 43.8% absolutely agreed, a 37.5% agreed, a 14.1% nor agreed or disagreed and a 4.7% disagreed.

The scientific papers they got involved with, have taught them to follow a timely schedule and to be consistent(question 6). On this fact a 45.3% absolutely agreed, a 37.5% agreed, a 15.6% nor agreed or disagreed and a 1.6% absolutely disagreed. The majority of 51.6% absolutely agreed that they began to love the science of environmental communication (question 7) once they became participants of the program. The other 35.9% of them agreed with this, the 10.9% nor agree or disagree and the 1.6% disagree. Finally, a 56.3% absolutely agree, a 32.8% agreed, a 7.8% nor agreed or disagreed and a 3.1% absolutely disagreed with the fact that the success of the program has encouraged them to continue their active participation in Skyros Project (question 8).

Table 1: Scientific Part

Question	Absolutely Agree	Agree	Nor Agree or Disagree	Disagree	Absolutely Disagree
1	39.1%	51.6%	9.4%	0%	0%
2	39.1%	42.2%	15.6%	3.1%	0%
3	51.6%	31.3%	14.1%	3.1%	0%
4	51.6%	28.1%	12.5%	6.3%	1.6%
5	43.8%	37.5%	14.1%	4.7%	0%
6	45.3%	37.5%	15.6%	0%	1.6%
7	51.6%	35.9%	10.9%	1.6%	0%
8	56.3%	32.8%	7.8%	0%	3.1%

Sociable Part

In the following part, questions are relatedto the social section of Skyros Project.In the first question the participants have been asked if SKYROS Project offers a kind of alternative living, as different people get to live together (question 9). So, a57.8% absolutely agreed with this question, a 32.8% agreed, a 6.3% nor agreed or disagreed and 3.1% disagreed.

Another question asked if during they stay in the program they have an adverse impact on the environment in relation to alternative ways of living. A 34.4% of respondents nor agreed or disagreed, a 31.3% disagreed, a 17.2% absolutely disagreed, a 9.4% agreed and a 7.8% absolutely agreed. Also, a 39.1% answered that they absolutely agreed that they are pleased with being in a group where all have a common everyday routine, like living together (question 11), a 34.4% agreed, a 21.9% noragreed or disagreed and a 4.7% disagreed.

Moreover, a 46.9% of participants absolutely agreed that the variety of program activities has increased their communication skills (question 12), a 43.8% agreed with this, a 6.3% noragreed or disagreed and a 3.1% disagreed. A 51.6% of them absolutely agreed that they have been managed to socialize and meet new friends and colleagues (question 13), a 45.3% agreed with this and a 3.1% nor agreed or disagreed. Only a 1.6% of them disagreed that they have been able to keep these friendships until today (question 14), but a 42.2% absolutely agreed, a 37.5% agreed and a 18.8% nor agreed or disagreed with this fact.

All the participants have participated in activities, in which they have learned to follow a program and obeyed the rules set by the team (question 15). From them, a 53.1% absolutely agreed with this, a 32.8% agreed and 14.1% nor agreed or disagreed. Futhermore, Skyros Project increased their interest in new experiences/ activities and also strengthened their ability to cooperate (question 16). A 57.8% absolutely agreed, a 39.1% agreed and a 3.1% nor agreed or disagreed.

A 57.8% absolutely agreed that SKYROS Project has created a progressive community, in where members share and care for the other members (question 17). A 32.8% agreed with this statement, a 7.8% nor agreed or disagreed and only a 1.6% disagreed. Finally, a 48.4% absolutely agreed that participating in Skyros Project was worth their time, even at cost of spending it with their families and friends (question 18), with a 37.5% agreeing, a 10.9% nor agreeing or disagreeing, a 1.6% disagreeing and another 1.6% absolutely disagreeing.

Table 2: Sociable Part

Question	**Absolutely Agree**	**Agree**	**Nor Agree or Disagree**	**Disagree**	**Absolutely Disagree**
9	57.8%	32.8%	6.3%	3.1%	0%
10	7.8%	9.4%	34.4%	31.3%	17.2%
11	39.1%	34.4%	21.9%	4.7%	0%
12	46.9%	43.8%	6.3%	3.1%	0%
13	51.6%	45.3%	3.1%	0%	0%
14	42.2%	37.5%	18.8%	1.6%	0%
15	53.1%	32.8%	14.1%	0%	0%
16	57.8%	39.1%	3.1%	0%	0%
17	57.8%	32.8%	7.8%	1.6%	0%
18	48.4%	37.5%	10.9%	1.6%	1.6%

Professional Part

In the final part, all the participants were asked about their satisfacion on the duties assigned during their stay at the port (question 19). A 37.5% absolutely agreed, a 35.9% agreed, a 18.8% nor agreed or disagreed, a 4.7% disagreed and 3.1% absolutely disagreed. Being asked if the division of labor in the port was fairly administered (question 20), the 34.4% agreed with this, a 29.7% absolutely agreed, a 21.9% nor agreed or disagreed, a 10.9% disagreed and 3.1% absolutely disagreed. The majority of the participants (43.8%) absolutely agreed that they are pleased with their duties and their involvement in research/ academic work and another 43.8% agreed, a 10.9% nor agreed or disagreed and 1.6% absolutely disagreed (question 21).

The rules set in the program were on a professional level, training them to act in a scientific manner (question 22). A 42.2% absolutely agreed, a 40.6% agreed, a 14.1% nor agreed or disagreed, a 1.6% disagreed and another 1.6% absolutely disagreed. In the next question (question 23) a 31.3% agreed that their everyday life in Skyros taught them to manage their money properly. Another 26.6% absolutely agreed, a 21.9% nor agreed or disagreed, a18.8% disagreed and 1.6% absolutely disagreed. Also, a 37.5% absolutely agreed that their everyday life in Skyros gave them the experience of studying and working at the same time (question 24), a 28.1% nor agreed or disagreed, a 15.6% agreed, a 12.5% disagreed and a 6.3% absolutely disagreed.

The experience of traveling to conferences, award ceremonies and participating in media interviews taught them how to choose effectively the appropriate dress code (question 25). A 48.4% absolutely agreed, a 23.4% agreed, a 20.3% nor agreed or disagreed, a 4.7% disagreed and a 1.6% absolutely disagreed. Furthermore, the experience of traveling to conferences, awards ceremonies, media and media interviews taught them how to communicate environmental science effectively (question 26). About this, a 54% absolutely agreed, a 32.8% agreed,a 9.4% nor agreed or disagreed, a 1.6% disagreed andanother 1.6% absolutely disagreed. A 60.9% absolutely agreed that their experience has taught them how to work to empower themselves and the team (question 27). Moreover,a 31.3% agreed, a 6.3% nor agreed or disagreed and a 1.6% disagreed.

Table 3: Professional Part

Question	Absolutely Agree	Agree	Nor Agree or Disagree	Disagree	Absolutely Disagree
19	37.5%	35.9%	18.8%	4.7%	3.1%
20	29.7%	34.4%	21.9%	10.9%	3.1%
21	43.8%	43.8%	10.9%	0%	1.6%
22	42.2%	40.6%	14.1%	1.6%	1.6%
23	26.6%	31.3%	21.9%	18.8%	1.6%
24	37.5%	15.6%	28.1%	12.5%	6.3%
25	48.4%	23.4%	20.3%	4.7%	1.6%
26	54%	32.8%	9.4%	1.6%	1.6%
27	60.9%	31.3%	6.3%	1.6%	0%

Discussion

Today, there is a serviceable ground for establishment of a sustainable life (Zappel, 2006). In fact, in the past the Ecovillage concept was only a marginal dream for a happy minority; however, now it has gained wider acceptance and has been adopted by a considerable number of people over the world (Zappel, 2006). This research aims to show that a community of people, and in particular, the Skyros Project community can promote responsible environmental behavior through creative tourism and the circular economy. In many cases, the differences between the ideas and the real facts make it difficult to realize the authentic plans (Zappel, 2006). It is however important to make use of the experiences of the others, so that it would be possible to create a process as sustainable as possible. The Skyros Ecovillage Project, is a way of promoting a new sustainable lifestyle, based on learning, fun and active participation.

In this study it has been attempted to sketch a behavioral profile in order to explain the development of an environmentally responsible behavior by assessing the values of the tourists-members, engaging them in active activities, and marking their eco-travel experience. In summary, the average member's profile is 18 – 25 years old (70.3%), undergraduate students (56.3%). Main source of income is based on family (53.1%). They are first time participants in Skyros program (34.4%) and have stayed at Skyros island between a week to two months (39.1%/35.9%). They had learned about the SKYROS Program through the University of the Aegean (70.1%). The reputation of the Research Center of Environmental Communication and Education (95.3%) and their interest in environmental communication science led them to participate in this Environmental Campaign. They had not participated in a similar program, but now the success of Skyros Project they experienced has lured them to want to be involved in other similar programs. The results of this study suggest that environmentally responsible behavior unfolds during and after the delivery of such an environmentally stimulating travel experience. The participation in Skyros Project strengthens environmentally responsible behavior while training participants through a revolutionary set up.

Researchers Richards & Raymond (2000) have shown that creative tourism is "tourism which offers visitors the opportunity to develop their creative potential through active participation in learning experiences". Skyros Project meets the above mentioned, definition of creative tourism, promoting all trainees develop their educational, scientific, communications and professional skills through active participation.

Students discover how they impact and develop innovative environmentally sound solutions. Most members agreed strongly on the fact that the program helped them to proceed in research, continue their studies, follow timely schedule and it has also prompted them to become more professional. It is obvious that, members believe that they have increased their communication skills, they have managed to socialize and the friendships initiated at this program stay alive until today.

In addition, the satisfaction and the participation can promote environmentally responsible behavior through environmental awareness. This study considers membership to be indispensable in the activity of linking attitudes and environmentally responsible behavior, and this confirms that the participation of tourists-members tends to be influenced by the perceived value of the place of travel. The way labor tasks were divided among participants was at complete agreement with participants. Also, research experience and workload found them in total content.

In conclusion, the emphasis of the proposed program lies on understanding environmental degradation in order to create a responsible behavior towards the promotion of a healthy environment and lifestyle. Participation in environmental activities, brings out satisfaction and empowerment while an environmentally responsible behavior is being built.

Conclusions

This study explored creative-tourism experiences and their impact on the memories, satisfaction, and behavioral intentions of Skyros Project members, who serve as potential ecovillage residents. Skyros Project has created an innovative community in Greece and globally, while it points towards environmental protection and empowerment of small islands in a sustainable way, based on an ecovillage experience.

Ecovillages aim at "helping our society to get closer to nature and to develop new ways of living together in a genuinely more sustainable way" (Kovasna, 2012). Skyros Project identified with this task. Furthermore, in Ecovillages, re-use of resources is one of the basic principles for waste reduction, which means that Ecovillages are also linked to the circular economy. Skyros Project philosophy is based on training college students, who serve as mentors the following year to the newly comers.

The active members of Skyros Project, through creative tourism in Skyros Island, acquire skills and strengthen environmental actions on a local level. Art and science become tools to explore and connect with nature. Activities take place in real time conditions and along with research and specialized summer courses and workshop, which run at Linaria Port (Ganiaris et al., 2018), the participants develop an environmental educator profile. The aim is to support and give to the ones educated, the opportunity to explore their creativity in environmentally friendly ways, which become their daily routine. Finally, the program aims to support sustainable tourism and to make use of its existing infrastructure and active membership in the most effective way.Promoting responsible environmental behavior to locals and visitors of the Port has become the ultimate goal of Skyros Project and the proposed ecovillage can serve as a model for replication to other similar set ups.

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Linking the impact to visit to the visual aesthetic factors of the homepage of websites: An experimental study on Brittany islands

Leïla Damak, PhD. Profedsor
LEGO, UBS (South Brittany University, France)

Keywords
Aesthetics homepage website; Place branding, Tourism in Brittany islands, Visitor attitude and behavior

Abstract
This research explores the influence of visual aesthetics in the homepage of websites of local municipalities on visitor attitudes and behaviours. Four research questions structure the theoretical framework: the importance of the first impression given by the homepage of the website of a local community, reflect of its identity; the design factors that express this identity; the influence of the aesthetics of the home page on the affective and behavioural responses of the visitor; the individual characteristics influence. First results of an exploratory study of eight presented and Brittany islands websites homepages are discussed.

Introduction
Academic work on territorial marketing as a strategic development tool for a nation, region, department, municipality, city was developed in the late 1990s (Kotler and al., 1993) and led researchers to consider the territory as a tourism destination, as a brand (*place branding).* The image of a tourist destination is a global assessment that is crucial for the formation of preferences and the choice of tourist destination (Jenkins, 1999; Echtner & Ritche, 2003; Bartikowsky & al., 2008). In an environment of global competition, being able to create a good image has become a survival challenge for tourist destinations (Chevrier, 2007), such as small size islands destinations (Croes, 2011). It plays a crucial role in the decision-making of the future traveller in terms of perception, preference and choice of a destination (Milman & Pizam, 1995; Jenkins, 1999; Tasci & Gartner, 2007).
From a strategic perspective, among the many communication tools for this image, the website is nowadays a key strategic lever from both the local municipality and the visitor's point of views. *For the local municipality,* the purpose of a website is to express and enhance the identity of the place through the cultural and tourism offer, increase its visibility and its attractiveness (Kotler & al., 1993; Braun & al., 2014). *From a visitor's point of view,* the web becomes **an essential information tool for preparing vacations,** contributing to the choice of a tourist destination (Oueld Oubey & Zaiem, 2009); it is a travel booking tool for almost two thirds of the French[1] population.
Morover, the web is also a source of satisfaction, of pleasure (Lavie & Tractinsky, 2004). In addition to its utilitarian value, visiting a site can be considered as a true emotional experience of pleasure and emotion. Visitors who are satisfied with their overall experience when visiting a brand site are more likely to visit again and recommend the site and more willing to develop a positive attitude towards the brand and express future purchasing intentions (Florès & al, 2008). However, one bad experience can create a break in the relationship and the consumer can permanently give up the site (Chang & al., 2002). Therefore, a better understanding of the visitor's navigation experience becomes essential (Peterson & al. 1997).

[1]Published by the Ministry of Culture and Communication on the Cultural Practices of the French in 2010.

Each of the components of a site - content, structure (ergonomy-clarity), navigation (display speed) and representation (aesthetics) - contributes to brand identity development and site satisfaction. However, we have focused our research on the visual aesthetics of the home page for two main reasons:
1) Visual elements are particularly important for the site as most of the content and interactivities are offered through visual stimuli. The aesthetics of the site contribute to the convenience and legibility of the content (Tractinsky & al., 2000; Kim & al., 2003). Professionals estimate a 20% increase in visits after the redesign of a site's aesthetics;
2) Visual factors have a more direct and immediate impact on visitor's impressions than structural or navigational factors (Tractinsky & al., 2006; Norman, 2002, 2004; Kim & al., 2003). The first user's impression comes from the visual factors seen on the home page and determines the image (Schenkamn & Jonsson, 2000). It can have a very significant impact on how visitors perceive the site and how it will be connected back to their memory.
Although the term aesthetic has been understood by many disciplines (philosophical, artistic, epistemological, psychological, etc.), we will assume a broad approach in which aesthetics defined as "the science of the beauty". It refers to judgements, senses, emotions, linked to the beauty of the human's external physical appearance, nature, environment, architecture, objects. In marketing, it is widely accepted that aesthetics – including design – play an important and even essential strategic role in the development of a product (Bloch, 1995), a brand, a distribution sign and influence consumer behaviour. The study of aesthetics, especially in the context of internet sites, is a neglected area, as there is little research on this topic, despite a recent regain of interest (Lavie & Tractinsky, 2004; Allagui & Lemoine, 2008; Bauerly & Liu, 2008; Wang, 2010; Cai & Xu, 2011; Djamasbi & al., 2011; Wang & al., 2011). Work in aesthetics in the field of human-machine interaction according to the SOR paradigm - Stimuli-Organism-Response - (Merhabian & Russel, 1973; Vieira, 2013) opens further research in the field of territorial governance in France.
The purpose of this communication is to explore the extent to which the aesthetics of a local cmunicipality's homepage, a place where one expresses one's identity to a broad audience of potential visitors, can have an impact on attitudes, including affective and behavioural responses. Very little research has been conducted which examines the concept of persuasion and web site design (Kim and Fesenmaier, 2008). Generally, persuasion refers to human communication that is designed to influence people's beliefs, values, or attitudes (Simon 1976). In this study, we focus on aesthetic persuasion. It could be operationally defined as a destination Web site's ability to produce favorable attitudes (affective and behavioral dimensions) toward the site and the destination itself.
The application field of the web sites of the Brittany Isles is justified by the strategic challenge that those one represent in terms of the region's tourist attractiveness[2]. There is a lack of academic research despite the international development of interest about the island litterature, particularly small island destinations (Croes, 2011). From a managerial point of view, web designers and conceptors need to improuve in professionalism as expected by internet visitors. More investigations should help municipality directors too to improve their website presentation and practices of the web.
Such is the theoretical framework and our research hypotheses, and then the methodology for an exploratory survey. We studied the aesthetics of the home pages of websites related to eight islands in Brittany and its relationships with the visitor's emotional and behavioral responses. Following the presentation of the results, we conclude on the theoretical and managerial implications, limitations and future research.

[2] Brittany is France's fourth tourist region.

Theoretical Framework

The theoretical framework justifies our research hypotheses, which relate to four research questions (Figure 1):

1) the visual aesthetics of the homepage of the website as an expression of the identity of a local municipality; 2) the perception of the physical design features of a home page that reflect the identity of the place; 3) the visitor's emotional and behavioral responses to the home page; 4) the influence of the variables related to individual characteristics [3].

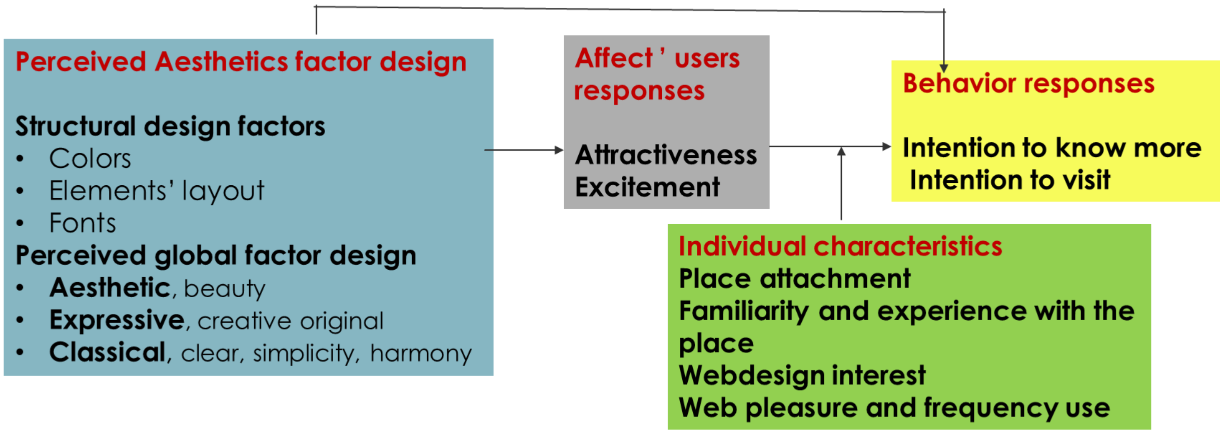

Figure 1. Theoretical research framework

1.1. The visual aesthetics of the homepage of the website as an expression of the identity of a local municipality

Territorial identity is a very broad field, with practitioners and researchers in geography, sociology, asking what constitutes "the essence of a territory". We can consider that the identity of a local municipality, as a brand, delineates an area of competence, potential, and enduring legitimacy over time (Kapferer, 1998). A website interacts with its users through the visual components that are essential to personality expression (Breakenrige, 2001). Schmitt (1999) notes that "style" is a key factor in user perception. Images can be crucial for memory and recall mechanisms (Kleinbard & Erdelyi, 1978). They represent the important inspirational aspect

The first visual impression of the home page is crucial because it instantly displays the identity of the place (Kim & Fensenmaier, 2008). The results of the Lindgaard and his colleagues (2005) study reveal that Internet users judge the value of a page in 50 milliseconds. Tractinsky and his colleagues (2006) show that users form an immediate, stable aesthetic impression of web pages. Some cosmetic responses are immediate and precede the cognitive process (Tractinsky & al., 2006). Also, the best predictor of global judgement is beauty, as shown by the results of the Schenkman and Jonsson (2000) study on the first impressions of 13 website home pages. For example, the homepage of a local municipality, the first gateway, the "showcase" of the place, a visual object of place identity, should create a relationship of empathy and an attractive interface with the visitor (Nielsen, 2000). Visual and aesthetic attributes should create fun, appeal, envy and contribute to future choice. Analysing how aesthetics affect the appeal or unattractive nature of the local destination homepage involves identifying dimensions or design factors.

[3]The influence of variables related to individual characteristics is not studied in this paper.

Visual and aesthetic attributes of a home page
Visual attributes are defined from the most concrete level (buttons, icons, shape, typography, colour, layout, presence or absence of text and images and their organization in space) to a more abstract level such as balance, contrast, harmony. The concept of visual attributes comes from the Gestalt theory, which states that the whole is more than the sum of its parts (Koffka, 1935; Kohler, 1929). In the Internet field (Park & al., 2004; Pearson & al., 2000; Kim & al. 2003; Lindgaard & al., 2006), users perceive a screen page as a whole and not as a group of separate elements. (Lavie & Tractinsky, 2004; Pearson & Schail, 2003). Individuals tend to perceive the entire home page as a whole. Park, Choi & Kim (2005) summarize the studies that explored the subject around 11 visual attributes from design theories, such as balance, harmony, symmetry, movement, rhythm, contrast, proportion, unity, simplicity, density, regularity.
Studies have focused on the characteristics of various visual elements - form, typography, colour, layout, presence or absence of text and images and their organization in space – as welle as personality factors for e-brands (Ansari & Mela, 2004; Dayal & al. 2000, Kim, 2000). The combination of these can reflect the personality traits of the place and contribute to its identity. However, the study of the contribution of each design factor to the overall evaluation of the attractiveness of web pages seems insufficient and difficult from an experimental point of view. Integrated management of these visual elements is essential to effectively identify and manage the identity of the local community as a brand.
Lavie and Tractinsky (2004) and Tractinsky and al. (2006) develop a two-dimensional scale – classical aesthetic expressive aesthetics – to measure the overall aesthetic quality of web pages based on individual visual attributes. Classic aesthetics correspond to order and clarity, a classic notion of what constitutes aesthetic design; expressive aesthetics are manifested in originality, creativity and the ability to break conventions[4]. In addition tan assessment of the aesthetic characteristics based on an overall vision but based on major aesthetic concepts, the literature proposes an evaluation that breaks down the structure of the object in detail as Mayé proposes (2013). A score accurately identifies what is not working on a site or, on the contrary, what triggers a positive attitude.

Effects of Aesthetics on Visitor Responses to the Home Page
The explanation of emotional and behavioural responses to the aesthetic elements of design has resulted in a variety of approaches (behaviorism, Gestalt theory, psychanalysis, information theory, cognitive psychology, experimental aesthetics). The distinct contributions of these approaches reflect the complexity of the aesthetic phenomenon. Kim and Fensenmaier, (2008) have demontrated that within the context of destination Web sites, the emphasis on scenic beauty (using visual, auditory, and/or imagery oriented features) reflects the underlying aim of destination marketing to build a strong and positive associative link or image about the destination and to create seductive experiences so that the positive images encourage potential tourists to visit the destination.

Emotional responses to the aesthetic of the home page
Emotional responses to aesthetic of the home page can be feelings as satisfaction (Liu & al., 2014), emotions, moods, preferences. The emotional state is expressed through degrees of pleasure (*versus* displeasure) and excitement; it precedes cognitive response to design (Bloch & al., 2003). One of the criteria for choosing a destination (in addition to accessibility and

[4] These two dimensions are similar to Nasar's (1999) notions of visual clarity and visual richness.

perceived risk) is emotional intensity. In addition, one of the predictors of tourist consumption behaviour is sensory stimulation research. The choice of design factors and their combination will influence the level of attention, pleasure, stimulation and preference for web design. Verizer (1993) offers the theory of non-scientific, automatic aesthetic responses; design responses function as unconscious algorithms acquired through internal processes. The theories of motivation and optimal excitation (Berlyne, 1971) consider that characteristics such as specificity, novelty and complexity of design influence excitement and motivation to explore a stimulus. Despite the probable existence of an innate preference for order and unified designs, Berlyne (1974) shows that novelty, complexity and variety of form produce stimulation. These factors interact to determine pleasure. Moderate familiarity is preferred to extreme familiarity and novelty. Therefore, it is hypothesized:

H1a: The more positive the expressive aesthetics on the home page is, the more stimulative the page is, compared to the classical aesthetic.

Cognitive theories (Martindale & Moore, 1988) state that prototypical stimuli (or stereotypes) are often more appreciated and meaningful than atypical stimuli. A prototype is defined as the central trend of the category, a concept highlighted by Reed (1972) and Rosch (1973). The prototype may be fictitious (Ladwein 1995), mental (Reed 1972) or real (Rosch 1973). Because the prototypical is close to a classic aesthetic (Heckert, 2006), we propose:

H1b. The more the classic aesthetics of the homepage is positively estimated, the more the page arouses attractiveness and pleasure.

The perception theories or Gestalt theory generally conclude on a tendency to prefer symmetric, balanced, simple forms to a unified design with a certain sense of right proportions (Verizer, 1993). The Muzeyyen & Knight (2006) study of 12 sites confirms that individuals prefer simple and moderately complex sites. However, the forms that follow the laws of the Gestalt are expected to produce a low level of excitement (Holbrook & Zirlins, 1985). Preference of shapes would move towards a moderate degree of irregularity and disorder. Thus, very conventional designs would not seem stimulating enough and too innovative designs would be too disruptive (Bloch, 1995). Let us be clear that the concepts of pleasure and stimulation are not mutually exclusive. The notion of pleasure is opposed to displeasure, the notion of stimulation is opposed to calm.

Behavioral responses

Research has focused on the consequences of satisfaction with the overall experience of visiting a brand site on the intention of revisiting the site, the willingness to recommend it to friends (Forsythe & Shi, 2003; Yen & Gwinner, 2003) or the intention to visit the store (Loureiro & Roschk, 2014). Satisfaction of the web design influences the positive attitude towards the brand and the intent to purchase (Florès, 2007). The aesthetic of the homepage, its design through the classical and expressive aesthetic dimensions or through some elements (graphics, colors, images, texts, typography characters, disposition, …), an element of satisfaction or dissatisfaction, can thus generate positive reactions, criticism and a propensity for the visitor to be attracted by the object or to avoid it (Liu & al., 2016).

Depending on the attitude the potential visitor will develop when discovering the home page, he will decide to learn more and/or visit the site. Therefore, it is hypothesized:

H2a. The more the attitude to the aesthetic of the homepage of the site is positive, the more the intention of to know more about it is strong.

H2b: The more the attitude to the aesthetic of the homepage of the site is positive, the more the intention to visit the destination is strong.

Holbrook and Hirschman (1982) have shown that the motivations of consumers of tourism services are essentially hedonic, focused on pleasure, amusement, distraction, disorientation.

Therefore, the discovery of a homepage that aesthetic is expressive will be more in line with the visitor's expectations in search of something unexpected, of creativity or originality.
H3: The more the aesthetic of a homepage is strong, the more the intentions to know more about the destination and to go there will be strong.

Methodology

The area of application chosen for the study is the Brittany Islands. Eight home pages of websites were selected based on the existence of a website specifically dedicated to these islands: Belle Île en Mer, Île aux Moines, Hoëdic, Groix, Bréhat, Ouessant, Molène, Batz (Appendix 1). The visual part above the fold was used for the study.
The questionnaire was self-administered via Sphinxonline from a convenience sample of 307 individuals; 46% men, 54% women; Average age: 40 years; 94% of the respondents are living in Brittany. Each respondent was asked to give his/her opinion on 2 static randomized websites home pages.
Perceptions of aesthetic factors and affective responses have been measured on scales based on key concepts proposed in the literature : global design or aesthetic design (Nasar, 1999, Tractinsky, & al., 2000; 2006; Lavie & Tractinsky, 2004; Kim & al., 2003; Schenkamn & Jonsson, 2000); structural design based on the decomposition of web page elements (Mayé, 2013); and design evaluation (Verizer, 1993, Bloch, 1995). Then, we selected items and constructed 5-point Likert-type scales. Several iterations of Varimax rotation factorial analyses with Cronbach's alpha calculations were used to reduce the measure scales and select the final scale version that respect internal and external validity. We identified the following dimensions that named : *Classic aesthetic design* (5 items: clear, balanced net, simple, harmonious); *Expressive aesthetic design* (3 items: original, creative, not classic); *Aesthetic design* (aesthetic, beautiful, sophisticated). A *Global design* score has been calculated. The *Structural design* is measured by 3 factors: *Color* (harmonious, ugly, judicious); *Disposition of elements* (well placed headings, titles and illustrations); *Characteristics of texts (small, easy to read).* Emotional responses are evaluated on 2 dimensions: Affect *attractive* (pleasant, attractive, enjoy); *Affect excitement* (exciting, fascinating). Behavioural responses are measured by two specific items (This homepage makes me want to know more about the destination; This homepage makes me want to go there). The results were processed using SPSS software.

Main results

An analysis of the average of the factorial scores for overall design perception and the estimate varies by home pages (Table 1).

	Affect	Global Design	Color	Layout	Characters
Molene	**-0,80**	**-1,04**	**0,24**	**-0,93**	**-0,91**
Bréhat	**-0,79**	**-0,70**	**-0,55**	**0,30**	**0,21**
Ile aux Moines	**-0,09**	**-0,14**	**-0,65**	**0,38**	**-0,27**
Total	0,00	0,00	**0,00**	**0,00**	**0,00**
Groix	**0,55**	0,13	**0,43**	**-0,07**	**0,00**
Ouessant	0,39	0,23	**0,20**	**-0,12**	**0,87**
Hoedic	**0,42**	**0,48**	**0,78**	**-0,31**	**-0,47**
Batz	0,37	**0,75**	**0,59**	**0,15**	**0,37**
Belle Ile	**0,58**	**0,87**	**-0,07**	**0,25**	**0,37**

Table 1: Average dimensions scores Global Design, Affect, Color, Layout, Characters

The pages that have a negative score on all the factorial scores are “Molene”, “Bréhat “and to a lesser extent “Ile aux Moines”. The pages with positive overall design scores are “Belle-Ile”, “Batz”, “Hoedic”. The latter are appreciated for their colors. The evaluation of “Ouessant”,“Groix” web pages is close to average. Affect scores are high for “Belle Ile”, “Groix” and “Hoedic” pages. Generally, the pages are perceived to be rather simple, pleasant, harmonious, balanced, aesthetic, clean, clear and rather beautiful, but not very original, not very creative, not very fascinating and not very exciting, and paradoxically provide rather little pleasure. The correlation coefficients shown in Table 2 indicate that the design aesthetics on the expressive design dimension (originality, creativity, ability to break conventions) are correlated only with the emotional dimension of excitement stimulation (R= 0.43; p<0,001).

	Global Design			Structural Design		
	Classic Design	Aesthetic design	Expressive design	Color	Elements layout	Characteristics of texts (Fonts)
Attractive affect	**,547****	**,567****	0,071	**,447****	**,423****	0,06
Excitement affect	,069	,316	**,430****	,291	,137	-,044

** p<0,001 ; * p< 0,01

Table 2: Attractive and exciting affect variables correlate with global design and structural design dimensions

Correlations between the aesthetic dimensions of the classical design (order, clarity) are positively and significantly correlated with the attraction-pleasure effect (R= 0.54; p<0.001). **H1a** states that “the more positive the expressive aesthetic on the home page, the more stimulative the page is compared to the classic aesthetic” is validated. H1b states that “the more positive the classical aesthetics of the home page, the more fun and attraction it arouses” is also validated and is consistent with Martindale and Moore (1988) research. Conventional design that respect the law of balance is appreciated but is not very stimulating (Holbrook & Zirlins, 1985; Bloch, 1995; Verizer, 1993). We can notice that the attraction effect is significantly correlated with aesthetic design as confirmed by the literature (Trackinsky & al., 2006). It is linked to the simple, balanced, harmonious and beautiful evaluated design.We note in Table 3 that the intent to learn more is strongly correlated with the pleasure and attractive feeling induced by observing the page (R = 59; p<0,001) and excitement affect (R = 0,41 ; p<0,001).

			Global Design			Structural Design		
	Attractive affect	Excitement affect	Classic Design	Design Esthetic	Expressive design	Color	Layout of elements	Characteristics of texts
Desire to learn more	,599**	,413**	**,473****	,449**	,310**	**,498****	,432**	-0,069
Desire to go there	**,568****	**,355****	,395**	**,473****	,189**	**,544****	,336**	-0,045

** p<0,001 ; * p< 0,01

Table 3: Correlations between behavioral variables and the dimensions of affect, global design and structural design

The correlations are substantially the same between the intent to go to the site and the attractive (R= 0.56; p<0.001) and stimulation (R= 0.35; p<.001) dimensions. H2a “the more

positive the attitude towards the aesthetic of the site's home page, the stronger the intention to learn more about the destination" and H2b "the more positive the attitude towards the aesthetic of the site's home page, the stronger the intention to visit the destination" are validated.
Intentions to learn more and to go are more strongly related to classical design ($R = .47$; $p<.001$; $R= .39$; $p<.001$) compared to expressive design ($R = .31$; $p<.001$ and $R = .18$; $p<.001$). They are also related to the aesthetics of the page ($R = .44$; $p<.001$ and $R = .47$; $p<.001$). Note that these variables are also particularly related to colour appreciation ($R = .49$; $p<.001$ and $R = .54$; $p<.001$) and to a lesser extent available to the elements of the page ($R = .43$; $p<.001$ and $R = .33$; $p<.001$). This is contrary to our H3 hypothesis that "the stronger the expressive aesthetics of a homepage is, the stronger are the intentions to learn more and to visit the site". **H3** is not validated. The expressive character is not a trigger for behaviour compared to the classical character of design. Behaviour variables, however, are related to the page's attraction effect as well as the stimulation effect. This result confirms the findings on the impact of satisfaction with the page on behaviours (Lu & al., 2014).
An ANOVA confirm the relationships and the impacts of the studied variables.
The impact of the homepage to want <u>to know more</u> about the island is explained by the fact that the page tend to provoke : an attractive affect (Test t = 11,928, ddl = 307, p = 0,000), and excitement (Test t = 5,290, ddl = 307, p = 0,000). The homepage design is classical (Test t = 8,55 ddl = 307, p = 0,000), aesthetic (Test t = 7,567, ddl = 307, p = 0,000), original (Test t = 8,857, ddl = 307, p = 0,000). The colors are judicious (Test t = 7,441, ddl = 307, p = 0,000), either the layout of elements (Test t = 6,535, ddl = 307, p = 0,000).
The impact of the homepage to want <u>to visit the place</u> is explained by the fact that the page provokes : an attractive affect (Test t = 10,08, ddl = 307, p = 0,000), and excitement (Test t = 4,039, ddl = 307, p = 0,000). The design is classical (Test t = 6,724 ddl = 307, p = 0,000), aesthetic (Test t = 6,876, ddl = 307, p = 0,000), **but not original, expressive design**. The colors are judicious (Test t = 8,814, ddl = 307, p = 0,000), either the layout of elements (Test t = 4,907, ddl = 307, p = 0,000).

Discussion and conclusion
Previous research in other contexts has shown the impact of the first impression of a home page and aesthetics on emotional and behavioural responses to the site. The main objective of this research was to focus on the islands in Brittany.
The experiment showed that visual aesthetics has an important role to play in the assessments of web page users and the interactions that result from them in general. Classic aesthetics – clear, balanced, simple, harmonious page – have an impact on the pleasure that comes with the page pleasant and attractive; the expressive dimension – creative, original – has an effect on the "exciting" and challenging appreciation. It seems, however, that the characteristic most strongly linked to the intention to learn more and to go to the place is the classic aesthetic dimension rather than the expressive dimension. In the case of tourist trips, consumer motivations are essentially hedonic with objectives such as pleasure, amusement, distraction, originality (Holbrook & Hirschman, 1982). This could be explained by the fact that despite a search for emotional intensity through pleasure, decision-making is probably guided by a need for clarity. This reassures visitors rather than responds to a need for originality, the unexpected which can increase the perceived risk. Thus, very conventional designs – classical aesthetics – are familiar and therefore pleasant but do not seem to be stimulating enough. And too innovative designs - expressive aesthetics - would be too disruptive (Bloch, 1995). Tractinsky and al. (2006) showed that immediate positive impressions are associated with high levels in both dimensions. However, the least attractive pages are associated with low

levels of expressive aesthetics. This initial explorative work could lead decision-makers, local government officials and web designers to further explore the impact of their website's aesthetic choices and their determinants.

This research is a first step in exploring the issue of aesthetic web site for Brittany islands. Some limitations and extensions should be underlined. Other statistical analysis should be done to explore casual effects of the independent variables – the aesthetic factors design factors - on affective and behavioral responses. A multitude of moderating and/or mediating variables influence cognitive, emotional and behavioral responses to design (Crilly & al., 2004). The study of other age-differentiated populations, culture, romantic/classical personality, tendency to seek stimulation, sensory innovation, fashion effect, web expertise, resident profile, visitor tourist, professional (Kotsi and al., 2018), as well as a study at other sites, is expected to enrich the issue. This would provide a better understanding of how individuals perceive and appreciate the aesthetic of a web page and its impact on behaviour to local municipalities, particularly islands' tourist destination. The present study opens new directions for futur research on travel islands web site design by focusing on the role of homepage first impressions. Related to this research subject, social media practices (Instagram, Facebook, Pinterest, blogs, …) could be explored too.

For the end, we can question : Which visual expression design for which place identity, for which users ?

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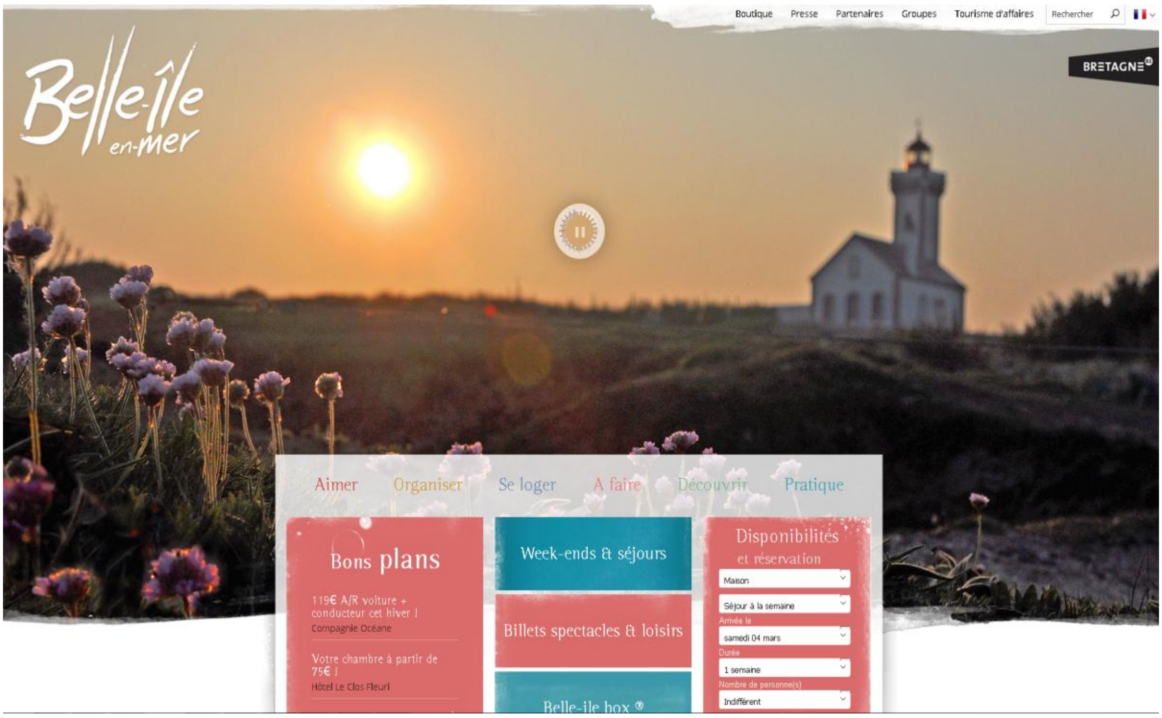
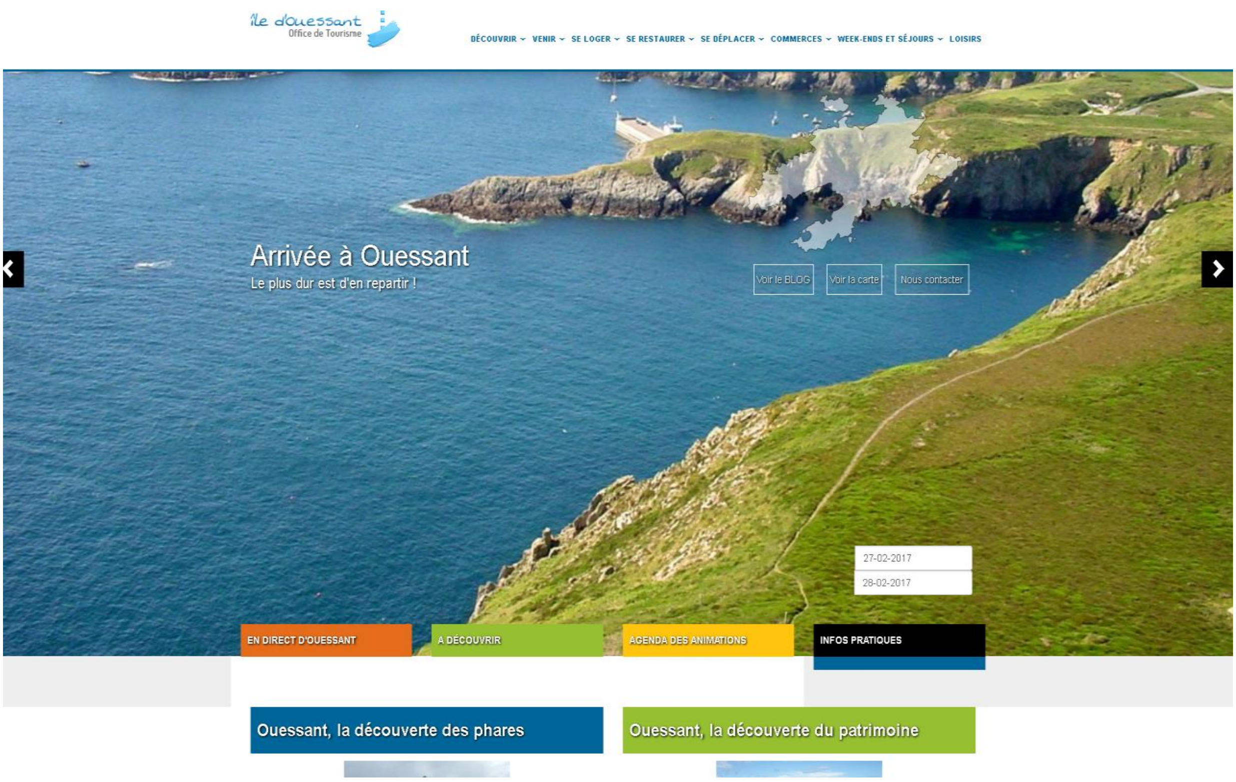
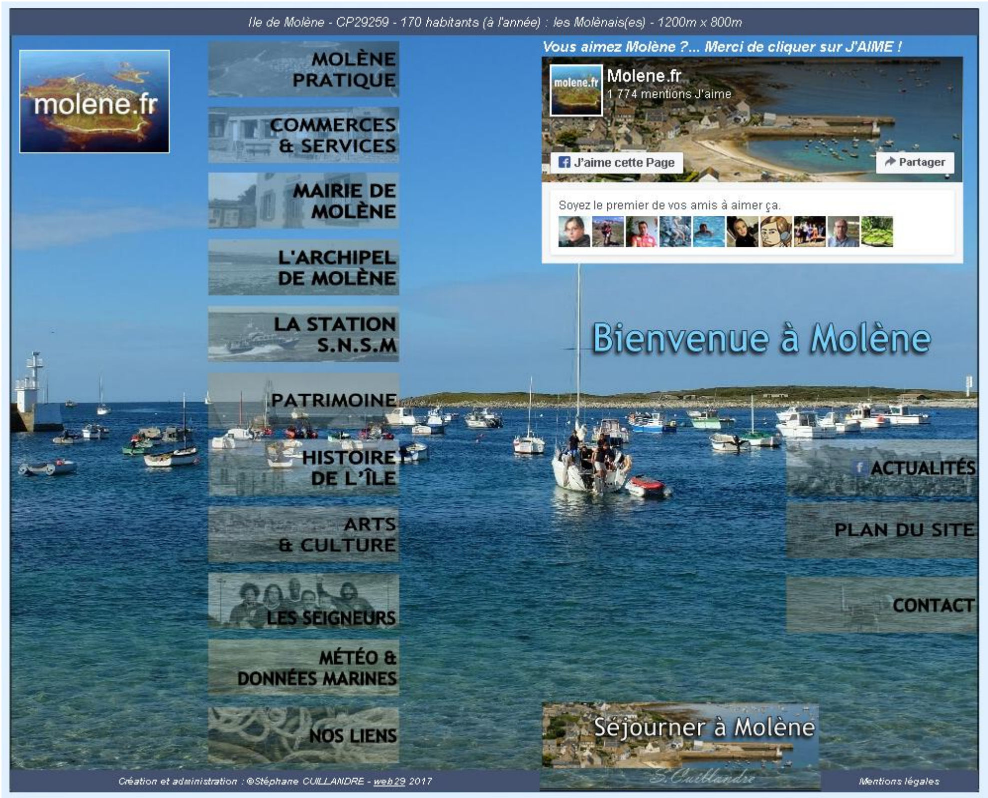
Appendix 1. Homepages studied in the research



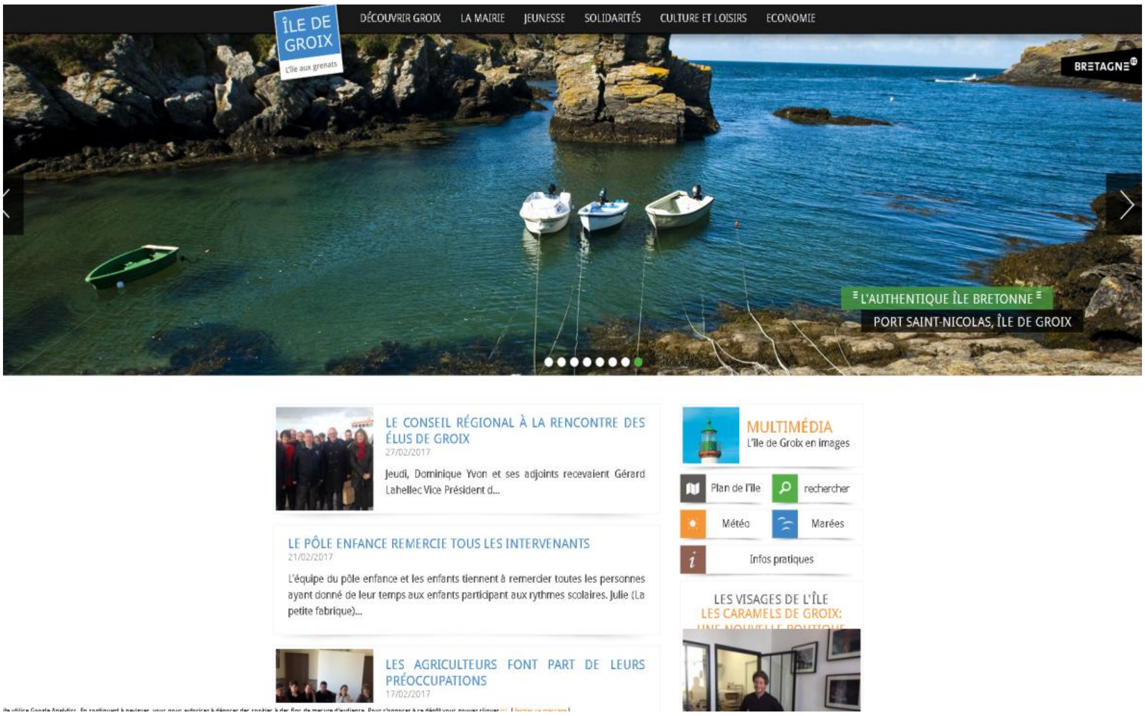
Belle-île-en-mer homepage



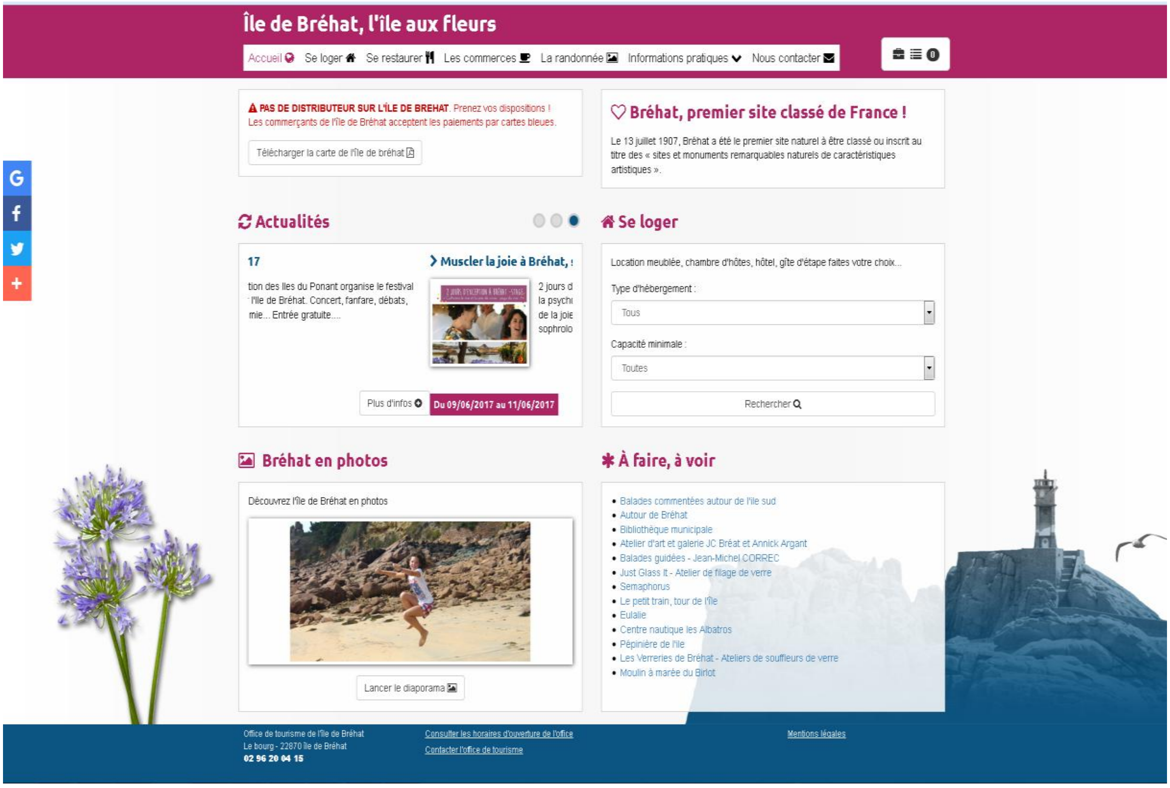
Ouessant homepage



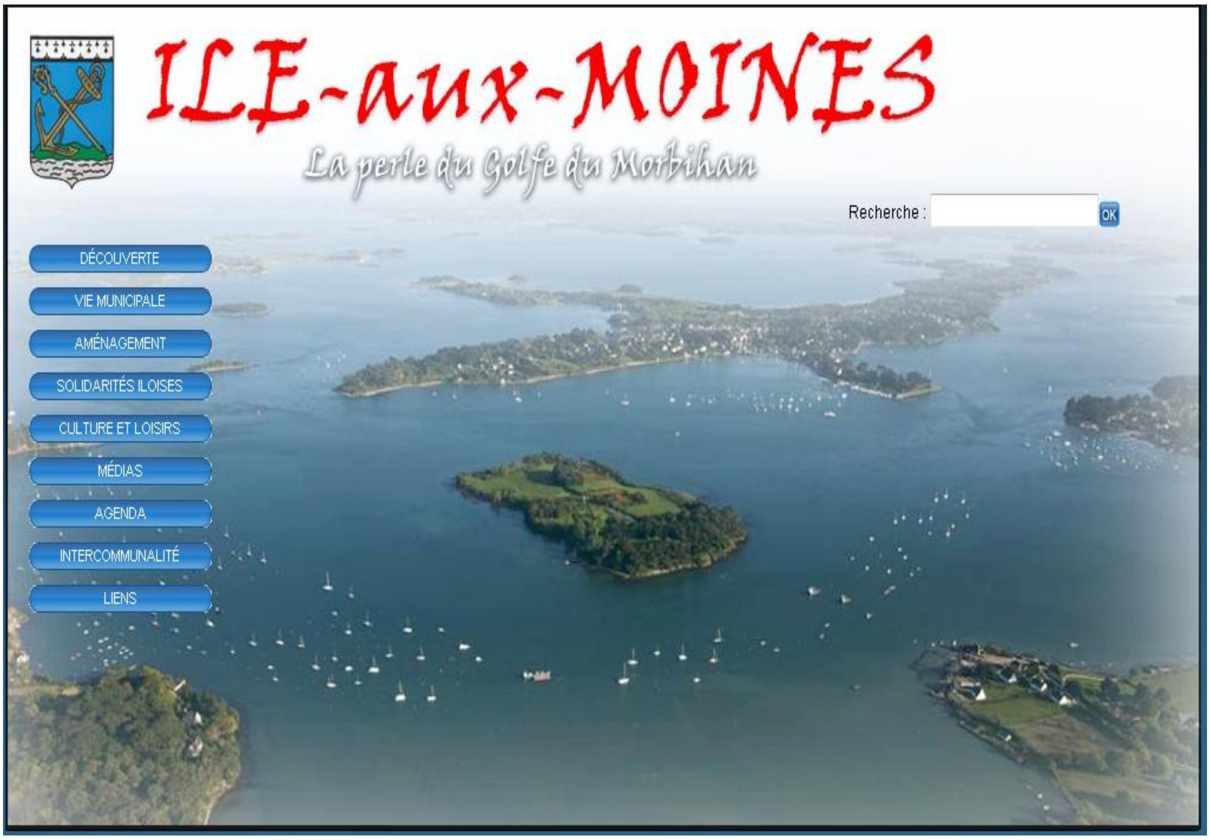
Molène homepage



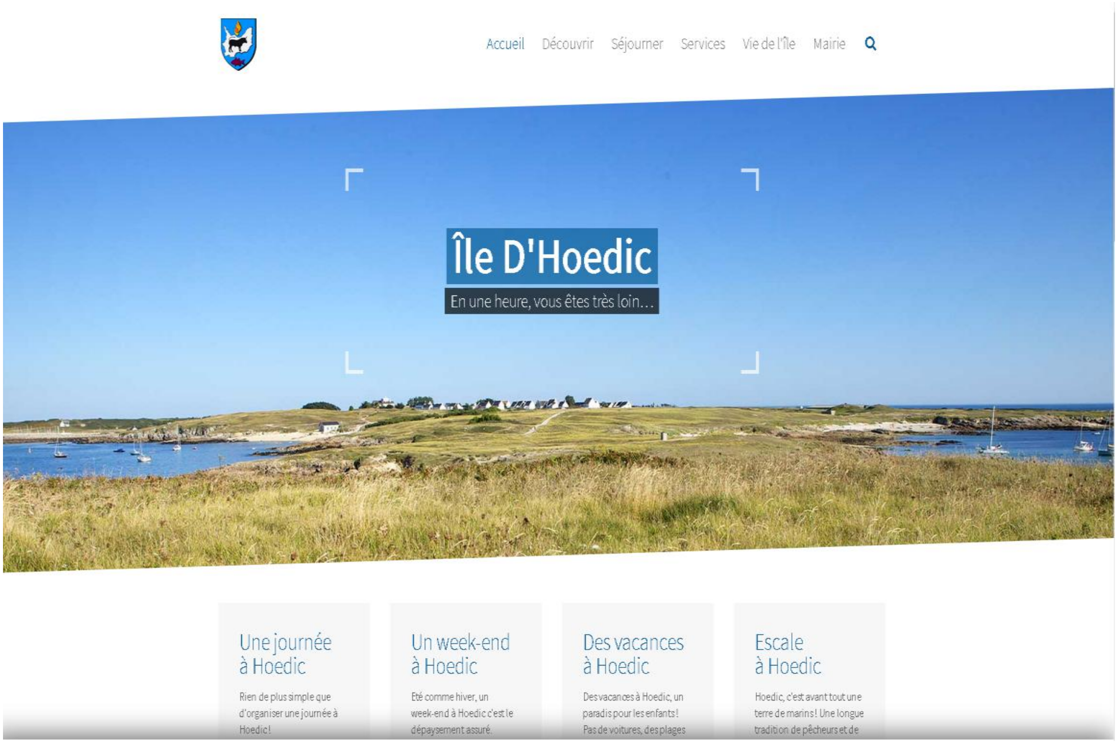
Groix homepage



Bréhat homepage



Ile-aux-Moines homepage



Hoedic homepage

Batz homepage

The Chafarinas Islands: Borders, Environmental Protection and Sustainable Tourism

F.J. Calderon[1], Elena Cruz[2], G. Ruggeri[3]
[1] University of Málaga- Department of Applied Economics
[2] University of Málaga – Department of Economics and Business Administration
[3] University of Palermo – Department of Economics, Business and Statistics

Keywords
Small Islands, Borderlands, Natura 2000 Net, Sustainable Tourism

Abstract
Within the set of Spanish enclaves which constitute the only one border of the European Union on North African soil, the archipelagos of small border islands territories located on the North African coast are of particular interest. These insular enclaves have a very suggestive profile, combining their character of historical maritime border with a rich biodiversity as in the case of the Chafarinas Islands, true ecological treasures little anthropized, where the access and the presence is very restricted given the existing protection (Special Conservation Area of Natura 2000 Net).
Despite the Mediterranean area presents a negative outlook in terms of natural environment preservation , the Chafarinas Islands are a striking exception given the good state of conservation of the ecological environment and its original terrestrial and underwater communities. This zero contamination depends from the current situation of border isolation which, however, represents a limit and could be overpassed through a tourist development. The present work describes the essential milestones of the past and present of Chafarinas Islands and explores its future lines, in particular the potential opening to the sustainable tourist use of the archipelago, hypothesis understood as a way to overcome the current situation of border impasse.

Introduction
When we currently think of the Mediterranean area, images of warm places, more or less exotic holidays and sun, sand and sea tourism appear immediately. The Mediterranean appears inextricably associated with warm vacations, relaxation and fun. In fact, one of the places where mass tourism emerges in the 50s and 60s is the Mediterranean basin, always associated with coastal areas and islands (Bramwel, 2004,Obrador Pons et al., 2009), generating a huge impact on these coastal and insular environments (Bardolet and Sheldon, 2008). But in the past, the Mediterranean and in particular the Mauritanian-Tingitana area has been a space of conflict, where, using a geological simile, the great tectonic plates, in this case economic and cultural, have clashed with two worlds, traditionally opposed, such as East and West, North and South (Braudel, 2001).
This conflictual profile of the Gibraltar Strait area continues in force today and nothing seems to risk that it will cease to be in the future (Calderon, 2013). Currently, we can observe in the Strait of Gibraltar area a whole melting pot of conflicts is combined and overlapping, albeit in a latent mode: from the North-South confrontation or wealth-poverty (Carling, 2007; Gold, 1999; Velasco, 2007) given the tremendous inequalities in terms of income, wealth and living standards which generate a tremendous migratory pressure over the borders area, such as the African and Maghreb demographic bomb as the clash between politico-territorial areas very

different in religious, ethnic, cultural and lifestyle terms (Calderon, 2014). All this without forgetting the problems of drug trafficking, illegal immigration, etc.
In fact, the Mediterranean basin has presented in the last centuries a very marked frontier character, constituting a borderland (or at least no man's land) between the European-Western world versus the Arab-African world, understood as ethnic-cultural blocks of conflictual and excluding sign. This character has permeated the life and activities of such Mediterranean territories, conditioning their way of life and their actions.
This is particularly true in the case of the Spanish territories of North Africa, also known as *Plazas de Soberania (Places of Sovereignty[5])* considered for many "*scars of history"* and *"time written in space"* (Calderon, 2014). The set of Spanish territories located in the North African coast is composed of the so-called "Larger Places"[6] and the so-called "Minor Places" including three archipelagos: Chafarinas Islands, Alhucemas Islands[7] and the Velez de la Gomera's Rock [8]. As a part of Spain, the Minor Places are integrated in the European Union acting as the unique European frontier in Africa.
In the present paper we analyse the quite suggestive case of the Chafarinas Islands, an insular space rich in biodiversity, constituting a striking exception in the current Mediterranean area, characterized by high levels of pollutions, destruction of coastal marine ecosystems and wetlands and difficulties in preserving the existing natural heritage. Thanks to the good state of conservation of the ecological environment and its original terrestrial and underwater communities the Chafarinas Islands could be considered as a true ecological Mediterranean treasure. It also represents one of the last refuges for many endangered species of the Mediterranean sea, one of the last places where genuinely to contemplate (and feel) the Mediterranean landscape.
The reason for this almost perfect state of conservation derives from its border isolation which guaranteed by a very restricted access to the islands, given the military control of the territoryand the high level of existing protection (Special Conservation Area of Natura 2000 Net). Paradoxically, the changes in the border functionality[9] of the Spanish enclaves on the North African coast (Calderon, 2013), have made possible, on the one hand, the depopulation of these islands and their conversion into natural reserves. Hence, the debate about the potential sustainable touristic uses of the territory that could constitute an instrument to overcome the current situation of border isolation and depopulation. In other words, a way to revitalize the economic activities and subsequently the human life in Chafarinas.
The Chafarinas islands have a complex geographical condition where two fundamental geographical typologies coincide (and overlap): the insularity and the border. Two problematic typologies for the socio-economic development of any territory, since both entail both physical isolation and territorial discontinuity (Brigand, 2005; 2006; Reitel, 2009).

[5] "Places of sovereignty" is the historical term with which it is called since the nineteenth century the Spanish territories located in North Africa, as opposed to the areas that constituted the Spanish protectorate of Morocco. At present, this nomenclature continues being used for the identification of islands, islets and rocks located in front of the Mediterranean coast of Morocco.

[6] The coastal bordering cities of Ceuta (19.4 km²) and Melilla (13.4 km²).

[7] The Alhucemas Islands constitute a group of three islets located in the bay of Alhucemas (in front of the Mediterranean coast of Morocco). It is *the Rock of Alhucemas* and the *islet of Tierra* (0.017 km²) and the *islet of Mar* (0.014 km²).

[8] The Rock of Vélez de la Gomera (35°10′21.29″N 4°18′2.89″W) 2.2 km²) was originally an "island" but after a strong earthquake in 1934, it became a sort of peninsula, being currently joined to the coast by a small sandy isthmus

[9] This is in the set of functions performed by the border at a specific historical moment

In the case of Chafarinas, being a very peculiar borderland, on the border between Europe and Africa, it is necessary to explain and delimit both geographical aspects which have conditioned the life of the islands: first their physiological or biological-natural dimension, to what we dedicate epigraph N.1, and then a deepening in their purely border-political aspects (N.2), to complete with a brief historical description (N.3) which allows a panoramic view of the complex problems presented by these small islands. Finally, we proceed to the conclusions and reflections (N. 4)

Natural, ecological and environmental aspects of Chafarinas islands

Table N ° 1 Geophysical characteristics of Chafarinas Archipelago

	WEATHER	Area	Maximum height	Geographic Coordinates	Distance	Ubication
Archipielago Chafarinas	Temperatura media : 19,5 °C Temperatura máxima: 41,1 °C Temperatura mínima: 5,2 °C Humedad relativa 76,9% Presión atmosférica 1.017,8 hPa. Pluviosidad: 297,2 mm/añ	0,525 km² 52,5 ha	137 m	35°11'N 2°26'W	3.3km costa africana 45 km al E de Melilla	Mar Alboran, desembocadura Rio Muluya

Source: Dates from MAPAMA, 2018

Table N ° 2 Geophysical characteristics of Chafarinas Islands

ISLAND	AREA	HEIGHT	COORDINATES	PERIMETER	POPULATION	Length / Width
Isla Isabel II	0,153 km² 15,3 ha	31 m	35°10'56"N 2°25'47"O	2 km	60	500/400
Isla Congreso	0,256 km² 25,6 ha	137 m	35°10'51"N 2°25'23"O	3,4 km	-	950/500
Isla Rey Francisco	0,116 km² 11,6 ha	95 m	35°10'44"N 2°26'28"O	2,3 km	-	300/200

Source: Dates from MAPAMA, 2018

As we can see in the tables N. 1 and N. 2, Chafarinas Islands are a small archipelago of volcanic origin, consisting of three islands named “Congreso”, “Isabel II” (the only inhabited) and “King Francisco”. *Congreso* is the westernmost island, the largest one and the highest. *Isabel II* is located between the other two, separated 1 km from the previous one and about 175 m from *King Francisco*, the easternmost island, small one and lowest. They are located south of the Iberian Peninsula, in the southern area of the Alboran Sea, about 27 nautical miles east of Melilla and 1.73 miles from the Moroccan coast (MAPAMA, 2018).

The Chafarinas archipelago has a dry Mediterranean climate strongly influenced by the prevailing winds (east or west). Its coastal profile is of abrupt morphology abounding the cliffs of difficult access. The orography of the land in Chafarinas is complicated, the islands are characterized by their steep surface. Due to the total lack of drinking water, human life in them became very complicated. Currently the supply is guaranteed by the ships of the Spanish Navy, while the electricity comes from diesel generators. But the idea of the Spanish Army is to make a short transition to self-sufficiency: until now, supplies such as gasoline, construction material and others arrived by sea. For this purpose, it has been providing the islands with photovoltaic plants, condensers and desalination plants capable of converting 7,000 liters of salt water into fresh water in ten hours (Esquembri, 2013).

The islands are cited in numerous *portulans*[10] (Gamez, 2013; MAPAMA, 2018), proving their importance as the only sheltered port in the area in case of bad weather or rough seas. Due to its isolation (reinforced by its border condition) and its rocky nature, it is one of the favorite places for certain species of birds considered in danger of extinction, such as the gray shearwater (Calonectris diomedea), the osprey (Pandion haliaetus) and Audouin's gull or red-billed gull (Larus audouinii). Since the islands constitute an important site for breeding seabirds, including the world's second largest Larus audouinii colony (BIRDLIFE, 2018), the Chafarinas Island have been protected since 1982 with more and more important conservation typologies, as we can see in Table n.3. The legal regulation assigns to the *Autonomous Organism National Parks* (Ministry of Environment) the responsibility[11] for the protection and conservation of the values that motivated its declaration (MAPAMA, 2018).

Table N ° 3 Typology of environmental protection in Chafarinas Islands (1982-2018)

TYPE	YEAR	RULES	ITEMS
REFUGIO NACIONAL DE CAZA (NATIONAL GAME RESERVE)	1982	Real Decreto 1115/1982, de 17 de abril B:O.E. nº 130 de 1 de junio 259,86 ha marinas/ 54,6 ha terrestres	-Largest colony of Audouin's gull of its entire world distribution area, -Presence of Monk Seal (Monachus monachus), -Existence of certain interesting species of reptiles (Skinks of Chafarinas, etc) - endemic species of flora -Seabed in magnificent state of conservation.
ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	1989	Directiva de Aves 79/409/CEE Special Protection Area for Birds	Special Areas for the Conservation of Birds (ZEPA)
LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	2006	LIC ES6300001 Islas Chafarinas 511 ha + marine perimeter strip 500 meters wide. Sites of Community Importance (LIC)	The LIC included new habitats and species of community interest (meadows of Posidonia oceanica or the giant limpet (Patella ferruginea), Mediterranean mollusk in danger of extinction.
ZONA DE ESPECIAL (ZEC) CONSERVACIÓN DE RED NATURA 2000	2018	Real Decreto 190/2018, de 6 de abril	Special Areas of Conservation (SACs)

Source: Dates from MAPAMA, 2018

But not only birds. The current vegetation is dominated by a shrub adapted to salinity and drought, where the presence of 7 North African and 8 Iberian African endemics stands out, highlighting the shrub species of the genera Atriplex, Suaeda and Salsola. As far as the fauna is concerned, the reptiles stand out, with typical African species such as the blind snake and the ocellar Skink, highlighting the presence of the Skink of Chafarinas, one of the rarest saurians of the Mediterranean basin (MAPAMA, 2018).

The islands seabed are of great ecological relevance since unique taxa[12] can be observed finding one of the highest densities and abundance of fish species of the entire Mediterranean

[10] According to Gámez (2013) the Chafarinas appear in the oldest portulan maps, such as those of Pietro Visconti de Geres (1314), the Catalan Charter of de Tastu and Buchon (1375), the portulan of Andrea Bianco (1436) and the one of Juan de la Cosa (1493).

[11] An Agency attached to the Spanish Ministry of Agriculture, Fisheries, Food and Environment (MAPAMA), in coordination with the Ministry of Defense and Development and other bodies of Mapama.

[12] It is estimated the existence of more than 64 taxa (species) of algal flora, 26 of echinoderms, 150 of annelids and more than 60 species of fish, of which half are associated with Posidonia oceanica. Among all the species we can highlight the Patella ferruginea, a Mediterranean mollusk practically extinguished by the regression that has suffered in all its distribution area;

(MAPAMA, 2018). As for the cetaceans, almost all the Mediterranean species can be seen in the surrounding waters, especially the common dolphin and the striped dolphin.
Other aspect of great interest of the Chafarinas (although until now little contemplated) is its geology, since the islands are the result of a very particular geological evolution, which tells us of a volcanic past associated with North Africa (Barrera y Pineda, 2006).

Borders and Political Aspects
The Chafarinas Islands as part of the *Plazas de Soberania* are a physical part of the maritime-land Spanish-Moroccan frontier. This is a very peculiar frontier where several factors of conflict and cooperation coincide and overlap. From the conflictive side, the Spanish-Moroccan border presents the following factors of conflict:

- the anthropological factor: Europe versus Africa and the Maghreb (Vives, 2011)
- the cultural factor: Christian-Western versus Islamic-Arabic (Vives, 2011),
- the colonization factor: Ex-colonizer Spain versus ex-colonized Morocco (Ferrer, 2008)
- the economic factor: North-South (Gold, 1999, Lois & Cairo, 2011). As such North-South border, it shows great similarities with the USA-Mexico border (Carling, 2007), with tremendous inequalities in terms of income, wealth and living standards (Gold, 1999; Velasco, 2007) between the two sides of the border. The difference in wealth between the Kingdom of Spain and the Kingdom of Morocco is from one to six and. also, the divergence between Spain and any country in sub-Saharan Africa is fifteen to one.
- the migratory pressure factor: socio-economic inequalities attract large illegal migratory flows, either from the Maghreb, sub-Saharan Africa or from other parts of the world, generating enormous migratory pressure in the autonomous cities of Ceuta and Melilla, in the islands and in the rest of enclaves.
- f) the drug trafficking

This superposition of conflicts makes the Spanish-Moroccan border as a very complex border area of quite complicated management. In terms of bibliography, the Spanish-Moroccan border is anything but neutral. Having been labeled as "colonialist and anachronistic" (Carabaza & Santos, 1993; Rézette, 1976; Lazrak, 1974: Ouzzine, 1987; Aziza, 2009). From "historical" (Planet Contreras, 1997; Lopez Garcia, 1979, 1986, 1991) either of "euro frontier" as such status quo (Gold, 2000: Zurlo, 2005: Bon and Cambot, 1996). In this conflictual framework, the no less peculiar Spanish-Moroccan cross-border relations are generated (Driessen, 1992). Marked historically by a very clear conflictual bias: endemic border hostilities[13], border violence[14] and constant demands about the moroccan sovereignty[15] of the Spanish territories. In its territorial claims Morocco invokes Geography (and its logical territorial continuity) but seems to ignore History.
Following the incorporation of the Kingdom of Spain into the European Union (EU) all Spanish territories on the North African coast become the external UE borders (Driessen, 1996, Ferrer-Gallardo, 2007), the only in Africa. After the incorporation of Spain into the Schengen Community Space (1991), the closure and securitization of the land border perimeter justified by the control of immigration and illegal traffic is carried out (Lois and

[13] With all kinds of clashes and border frictions that lead to the mutual withdrawal of Ambassadors, a common resource in the 2000-2011 period.
[14] Thus the military occupation of the islet of the Perejil (2002) carried out by Moroccan soldiers that resulted in the Spanish military reaction capturing the Moroccan military by force of arms. A warlike confrontation that led to the practice of diplomatic (but not economic) rupture between Spain and Morocco
[15] Example: the vindication of the authentic borders of the "Great *Morocco"* inserted in the Moroccan Constitution of 2011. Approach leading to a permanent attitude of territorial claims directed towards Spain.

Cairo, 2011, Ferrer Gallardo, 2008), appearing the mediatic "border fences"[16]. These border fences have been constituted as "first image" of both cities in many international media, reinforcing the consideration of "European fortress", increasingly widespread (Geddes, 2000, Castan Pinos, 2008) appearing both cities as southern end of the "European wall" which has generated a rarefied climate around (Zurlo, 2011).

In the case of the maritime frontier, its shielding has been carried out in a technological way through the gradual implantation in the coast of the so-called "Integrated System of External Surveillance" (SIVE) (Carling, 2007, Ferrer Gallardo, 2008, Clochard and Dupeiron, 2007). The implementation is not without controversy because of its high costs (Carling, 2007), as well as the deviation of the traffic of small vessels (boats) observed towards alternative uncontrolled routes (Ferrer, 2008).

The appearance of the EU in the confusing and changing Spanish-Moroccan border scenario has contributed, quite a lot, to relaxing existing tensions and open confrontations in various conflictual areas (fishing, drug trafficking, illegal immigration, etc.), but not to inhibit or end the existing conflictuality around the *Plazas de Soberania* (Del Valle Galvez, 2011).

For Chafarinas islands the arrival of the new global world has brought a growing (and dramatic) migratory pressure on the islands with a constant of smaller vessels to Chafarinas (Europa Press, 20/06/2018; El Pais 15/4/21014; El Pais,12/07/12; 25/08/2012) loaded with dozens of people. Flows of quite complicated management in such a small space and so complicated orography.

Historical and Demographical Aspects

Although the Chafarinas Islands were functionally linked to Melilla[17] from the Spanish occupation of this North African enclave in 1497 (Calderon, 2014), the official takeover of the islands occurred in 1848. Given the strategic nature of their position, their official possession by Spain aroused the animosity of France and many misgivings in other European powers with territorial ambitions in the area (Mir, 1980).

At first the archipelago of the Chafarinas will be an insular extension of the enclave of Melilla, developing functions of military place and place of confinement, installing both the garrison and the criminal detachment on the island of Isabel II (Mir, 1980). Likewise, in addition to the military and prisoners, the various public works carried out in Chafarinas, especially the construction of the port (Narvaez, 1983), attracted workers, civilians, fishermen and merchants (Mariñas,1998).

Likewise, the border functionality of Chafarinas will be expanded as a reception and quarantine station for crews coming from Spanish America, as well as a convalescent hospital for the wounded and sick from the African campaigns of the Eastern Rif, taking pressure off the crowded hospitals of Melilla.

After the Spanish victory of Wad Ras (1859) and its aftermath: the Treaty of Peace of Tetouan (1860) and the Commercial Treaty of Madrid (1861)[18], a regime of free ports will be

[16] A double metal fence (triple in the Melilla's case border perimeter), between 3.5 to 6 meters high equipped with high technology surveillance equipment (infrared cameras, thermal sensors, etc.) and the everlasting barbed wire.

[17] the Spaniards of Melilla used the islands as recreational space to marinate and for leisure. Chafarinas were also used as a quarry for materials (extraction of stone for construction works) or as a port of refuge when, in the event of a storm, berthing became difficult in the port of Melilla.

[18] Asymmetric treaties of enormous significance, since their stipulations will set, on the one hand, the current delimitation of the Spanish-Moroccan border and, on the other, they will establish a commercial regime of "open door", by which Spanish products they will be able to freely access the Moroccan market, thanks to very low or no tariffs

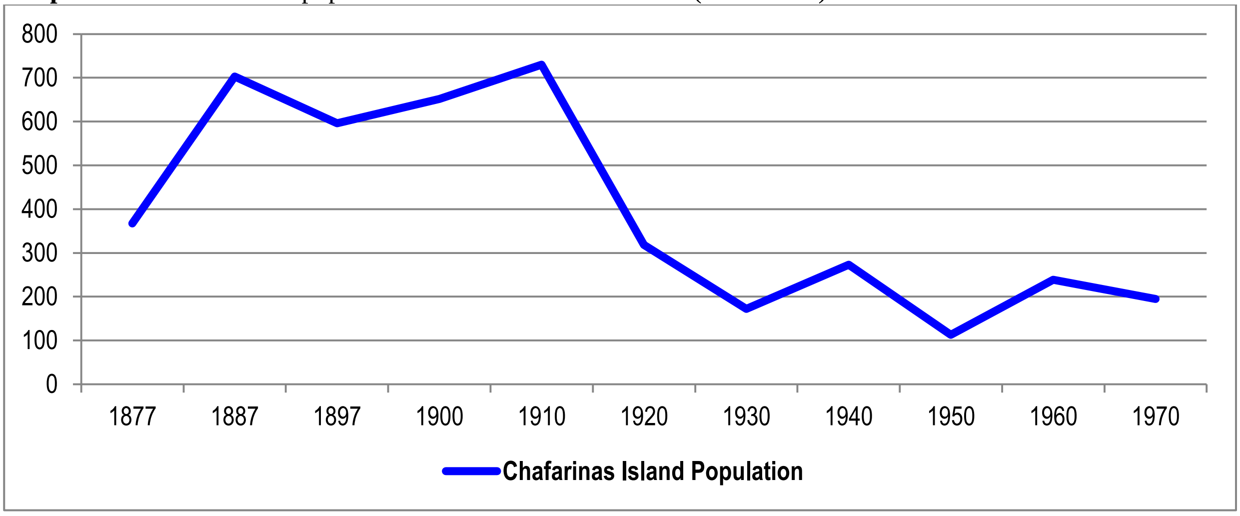
established in the North African territories of Spain. With this, a colonial bias is introduced in the catalog of border functions of these enclaves that will serve, from 1863, as platforms for the expansion of the mercantile activities and the Spanish presence in Maghrebian soil, in order to deploy in the case of Chafarinas mercantile activities with the bordering coasts, that will be gradually opened to the activity and Spanish influence (Calderon, 2014). This new role will be, certainly different, to the traditional border function assigned to the Spanish enclaves as *"African frontier"* of Spain. Now the old *presidios* will no longer be seen as mere palisades, destined to "stop, contain and control" Berber and Turks. From now on, his mission will be to open the Maghrebi market to Hispanic exports (Calderon, 2014).

this new frontier functionality is so important for the Spanish government at that time, that it will proceed to the closing of criminal jails established in all the North African possessions. The gradual disappearance of the criminal detachments will have a very positive impact on the appreciable improvement of living conditions in these places. In addition, the increase in the frequencies-destinations of maritime transport and the improvement of communications (connecting by cables and telegraph to Melilla), break the almost total isolation that characterized life in such insular peripheries. In turn, the increase of services to the population (housing, educational, health and administrative) and a flowering of commercial activities in all enclaves, especially in the period 1900-1920, will favor population increase For Chafarinas islands, the deployment of economic activities will bring an "explosion" of urban life and a beautiful "white town" in the island of “Isabel II” emerges almost from nowhere (with a fine church, shops, a theater, casino, telegraph, mail services, school..). A beautiful white town full of life, where a peculiar military-civilian community lived as shown by the data of tables N.4 and N.5 that accurately reflect the stage (1910-1920) of greater population and urban vitality of the Chafarinas Island. Numerous testimonies speak of an integrated community (in spite of the existing differences), a true spanish-catholic society in which plays were performed every week and people lived with real enthusiasm the football matches, celebrated among the local team the "Spaniard of Chafarinas" and the crews of the boats that took refuge in their roadstead, some of them French (Lechado, 2013:89).

This living community reflects the economic prosperity resulting from the increase in construction activities, fishing and trade with the ports of French Algeria (Nemours and Kis, mainly) and the bordering maghrebian coasts of Quebdana. With regard to smuggling, "irregular" trade appears very settled in the zone of influence of the enclaves (Pastor, 2006). It was a commercial flow tolerated (if not encouraged) by the Spanish authorities. In the case of Chafarinas, the main products trafficked (as in the enclaves of Alhucemas and Vélez), were the firearms, the famous *wínchester* and *rémington* rifles,, using the uninhabited island of Congreso to hide the shipments until they are sold to the moroccans (Esquembri, 2013).

The establishment of the Franco-Spanish Protectorate (1912-1957), in Morocco, will change structurally the situation and condition of the Spanish North African enclaves since the continental spots (Melilla and Ceuta), will begin a stage of vertiginous socioeconomic expansion. This was due to its condition as coastal urban center, endowed with the only relevant port infrastructures of the North African coast at that time. On the other hand, for the insular enclaves, the arrival of the Protectorate would mean its gradual abandonment and depopulation, given the best vital prospects that were projected for the inhabitants of the islands on the continent.

Graph No. 1: Evolution of population in the Chafarinas Islands (1877-1970)



Source: (Calderon, 2014): Data from INE (2012) Official Census of the Population of 1877-1970. Documentary Fund of INE.

This process of depopulation is reinforced by the loss of military and border significance of the islands (Calderon, 2014). In Chafarinas, the mercantile activity will move to Cabo de Agua (Ras el Ma), where the mercantile exchanges will take place. This "physical" depopulation, combined with the disinterest of the successive Spanish governments of the first half of the 20th century, produced a situation of practical "dismantling" of the insular enclaves settings in the 1950s (Calderon, 2014).

According to the available data (Graph.N.1), the inflection point in the presence of civilians in the Chafarinas occurs during the period 1910-1930, when once the War of the Rif (1927) ended, its depopulation will begin to accelerate, going from 730 inhabitants (1910) to 173 (1930), losing 77% of its population. In the islands they will only remain military, civil officials and some relatives of these. The loss of population reaches its pike in the fifties, when the population of the Chafarinas as a whole, counts one hundred of individuals.

Between 1952 and 1953, some attempts were made by the Spanish authorities in Africa to stop the economic and demographic decline of the Chafarinas. A mediatic campaign called "*vivificacion de las islas"* was launched, aimed at the socio-economic revitalization of Chafarinas, with a series of projects and works[19] to be carried out (Esquembri, 2013). Although supported by the most important authorities of all promised works, only a few were carried out.

With the end of the protectorate and the Independence of Morocco (1957), the Spanish island enclaves recover their full border condition, reinforcing the garrison detachments (sometimes accompanied by the families of officers and non-commissioned officers) and the presence of some civilians (and their families), usually public employees (lighthouse keepers, telegraph operators, postmen, teachers, bakers, mechanics, etc.). The maritime communications between the islands, the cities of Ceuta and Melilla and the Peninsula will be made through a maritime line, with supply and passage boats linking Ceuta and Melilla with islands and rocks. Line that will persist until half of the 80, when, with the entry into force of the *Plan*

[19] Among these works and projects highlighted the restoration of the church and various buildings, reforms in the port to enable the entry of large boats and tuna vessels, a fisherman's home, facilities to promote the fishing industry. It also proposed the realization of a tourism hostel and restore the weekly transport service with Melilla for "the many tourists" who were expected to visit the islands (Esquembri, 1983:31).

Meta (1985), the supply is made weekly by military helicopters, supplemented in case of need by sea.

With the technological advance, the automation of the lighthouses and communications in the last decades of the 20th century, islands will gradually lose their last civilians, now unnecessary (Calderon, 2014). In the case of Chafarinas, the last civil servants left the islands during the 1980s and their jobs were either amortized or replaced by the military. In 1986, with the retirement of the lighthouse keeper, the last of the civil servants left and the maritime line linking Melilla and Chafarinas was closed (Esquembri, 2013:37). But Chafarinas not only lost their civilian population, but also the garrison[20] has been losing components, reducing considerably humans and equipment[21]. In this sense in the islands (as in the other enclaves) the effects of the professionalization and modernization of the Spanish Army have been felt strongly[22] (Esquembri, 2013:38).

Currently the population of the islands is integrated by the military detachment in charge[23] of the surveillance and guard of the territory, as well as by small groups of scientists[24], anti-trafficking police and other authorized personnel[25] sometimes increase the population to around 60-70 individuals.

Table N ° 4 Characteristics of the resident population in Chafarinas

CHAFARINAS	Population		Alphabets		Illiterate		Singles		Married		Widows	
	Men	Women	M	W	M	W	M	W	M	W	Men	Women
CENSUS 1910	567	169	370	85	188	78	458	110	102	53	7	6
CENSUS 1920	187	131	124	85	39	38	115	72	44	41	4	8

Source: (Calderon Vazquez, 2013). Data from INE, Official Census 1910, Vol. 4 & Official Census 1920, Vol. V Documentary Fund of INE
,

20 The reduction of military personnel in Chafarinas mainly affected the "Company of the Sea", also reducing the vessels available in Chafarinas when in the mid-nineties the last of the so-called "mixed boats" that served the islands retired from service.

21 But noy only men, the vessel "Captain Mayoral" a freighter belonging to the logistic support unit of Melilla, crewed by civilian personnel assigned to the Ministry of Defense who served the Chafarinas was discharged. For this reason, maritime communications with Chafarinas remained limited to the reservoirs of the Navy, which transported materials and supplies to the islands on trips to supply them with drinking water.

22 Even the monthly shifts carried out on the islands by bakers and naval defense mechanics were suppressed preventing, in practice, offering the minimum services to a hypothetical population.

23 The Chafarinas garrison is composed by an infantry section (between 25 and 30 soldiers) under the orders of a lieutenant and also a platoon of marine services of the Army (Compania del Mar) under the orders of a sergeant with a Zodiac or other type of small vessel. Normally it is possible to find some militaries of communications and logistic support services.

24 Biologists from the Higher Council for Scientific Research, a state agency. There is also a permanent installation of the public body “Parques Nacionales”, with a small number of environmental technicians (Narvaez, 2018:85).

25 There is also a group of archaeologists who are doing important research in the Zafarin Neolithic site. Occasionally there is presence of the operators of the Port Authority and the temporary presence in the esthetic time of work camps that combine archaeological research with the cleaning and repair of old roads (Narvaez, 2018:85).

Table No. 5 Labor and Employment Market in Chafarinas

	CHAFARINAS ISLANDS 1910		CHAFARINAS ISLANDS 1920	
ECONOMIC ACTIVITIES	MEN	WOMEN	MEN	WOMEN
PRIMARY ACTIVITIES				
Agriculture, Livestock, Fishing	4		1	
INDUSTRIES Manufactures				
Food Industries	3		2	
Clothing (dress and headdress)	2		1	2
Construction - Building	15		5	
Energy *	1			
TERTIARY AND SERVICES				
COMMERCE			4	
Brokerage, Commissioners, export				
Chemicals trade, drugstores			1	
HOSTELERIA-TOURISM **				
Other shops	4		3	
Post, telegraph and telephone	3		3	
TRANSPORTATION				
Maritime transport	10			
Streets, Roads and Bridges	1			
PUBLIC POWER				
Army	319		43	
Navy	81		17	
PUBLIC ADMINISTRATION	3		10	
CULTS				
Secular Catholic Clergy I	1		1	
Servants of worship	1		1	
LIBERAL PROFESSIONS				
Medical Professions			3	
Professions of the Teaching	2	***1***	1	2
Copyists and translators	4			
Architects and Engineers	1		1	
RENTISTS			1	*2*
DOMESTIC WORK				
Members of the family		***122***		*70*
Domestic servants	1	***6***	1	*1*
GENERIC DESIGNATIONS				
Traders	1			
Trade Dependents	1			
Cashiers and bookkeepers	1			
Employees	2			
Warehouse dependents				
Mechanics	2			
Day laborers, braceros, pawns.	33			
UNPRODUCTIVE				
Children	19	***29***	31	*27*
First teaching students	43	***30***	11	*15*
Students	8		6	
Beggars, passersby prostitutes	1		18	
Unknown profession (not stated)			22	*12*
TOTAL	**567**	***192***	**187**	**131**

Source: (Calderon Vazquez, 2013). Data from INE, Official Census 1910, Vol. 4. Documentary Fund of the National Institute of Statistics & INE, Official Census of 1920, Volume V

Discussion and conclusion:: Conservation versus Depopulation or maybe Sustainable Tourism?

The fact of population depletion (if we exclude military, biologists and archeologists), derived from the absence of economic activities or value generation in the islands, is particularly disconcerting, since it leaves the islands in an impasse that seems to last too long. Overcoming this impasse means addressing its main (but not only) cause: the socio-economic gap. Since without relevant economic activities and a significant civilian population that carries them out (and benefits from them), it seems difficult for Chafarinas to return to life, appearing again on maps. In this sense, the function of environmental protection could be the way out of economic stagnation.

At least the installation of the biological station (with its corresponding staff of scientific and administrative staff), administered by the Autonomous Organization of National Parks, has meant the arrival of new and promising blood to the islands. Also the successive archaeological discoveries, made in the Neolithic site of the *Zafrin* (Bellver et Al. 2013), are bringing to light a remote and fascinating past of the islands. This could have effects on the future improving the environmental and conservationist dimension (already settled) and extending the interest to the archaeological and historical side with obvious museum possibilities. All these roads lead us to the search for a sustainable development of the islands that goes beyond conservationism.

It seems clear that one should bet on the enhancement of a unique territory, marked by history, where existing environmental, archaeological and heritage values give it a remarkable "exceptionality" in relation to other territories. It lies, precisely, in the "unique" of its location, history and its border condition, the ability to configure a range of activities and products of inevitable tertiary and tourist bias that can act as a secure support for other subsequent developments (Calderon, 2014).

But tourism in islands is not an easygoing and peaceful question: the islands, especially small ones, tend to have a limited natural resource stock, so the increase in visitor arrivals can determine pressure on the use of these to their viability limit or, even, beyond sustainable levels. In fact, studies on the impact of tourism on island destinations around the world have shown both positive and negative externalities generated by tourism on insular territories (Baldacchino & Milne, 2000, Briguglio, Archer, Jafari & Wall, 1996; Baum, 1995; Lockhart & Drakakis-Smith, 1996; Gossling, 2003). In the Mediterranean case, tourism (especially mass tourism) has had an enormous impact on the islands and coastal areas of the *Mediterrania* (Bramwel, 2004, Obrador Pons et al., 2009). Therefore, everything related to the environmental impact of tourism, the elimination of waste and the conservation of biodiversity can be much more sensitive on the islands than in other tourist destinations.

That's the reason why we talk about the paradox of tourism in the islands (Hall, 2010): the environmental and cultural images of the islands can serve to attract tourists, but the arrival of important tourist flows could alter the fragile insular ecological equilibrium, affecting negatively those natural and cultural resources that have precisely aroused the interest of tourists for the knowledge of the place in question and that ultimately have caused the displacement of tourists to the islands.

But Tourism, for many island territories around the world, appears as an essential part of the local economy (Gossling, 2003) and it is perceived as one of the few economic development opportunities available in the insular context. In fact, although for the UNWTO Sustainable Tourism is one more component of generic sustainable development (UNWTO, 2005) and considered a sustainable alternative especially in natural areas, compared to other activities such as intensive agriculture, livestock, mining and oil extraction (Epler Wood, 2007), the implementation of such an ambitious concept is quite limited (Munoz, 2015; Bramwell &

Lane, 2012). In fact, the current of critical thinking (Weaver & Oppermann, 2000; Hunter, 2002; Higham, 2007; Honey, 2008; Sharpley, 2010; Hall, 2012) rejects the use of the term "sustainable tourism", suggesting that its use can be instrumented by political actors whose real objective is somehow to "green" what is simply economic growth.

For a significant stream of authors (Diedrich & García Buades, 2009; Cole, 2012; Kim et al., 2013; Tosun, 2000) an adequate implementation of sustainable tourism must put the emphasis on the systematically manage of the following aspects such as: environmental degradation, generation of economic benefits for the receiving communities and the perception of the residents.

As we can see, Chafarinas Islands embody the classic dilemma between Development (through tourism) and Conservation, dilemma that does not seem to have an easy solution. In our opinion, a possible way out to the current situation of border, economic, social and political stagnation would be their declaration as a National Park[26]. On the one side this would allow the arrival of important economic resources to the island that would favor their protection and conservation. On the other hand its declaration as a National Park would also allows the area to be accessible to a limited number of visitors, whose arrival would be controlled by local administration (Autonomous City of Melilla) and the central Spanish government. Although it would not be so much "tourism" but to make the archipelago accessible to the public for scientific, social, educational and research purposes in the most standard line of sustainability.

In addition, considering the islands as a National Park could represent an opportunity for cooperation with the Kingdom of Morocco, which would participate in the projection of economic, social and cultural wealth from the Chafarinas. In this sense, collaboration with Moroccan universities could be encouraged and coordination between both countries could be improved for the environmental maintenance of the islands. But the empirical evidence seems to show the opposite: usually the Moroccan position has been the constant blocking of all these crossborder cooperation initiatives. It would not be the first time that Morocco renounces cross-border cooperation with Spain and the EU due to border frictions. In fact, the Kingdom of Morocco, within the framework of the ENPI, did not accept to collaborate in the cross-border programs proposed by Spain (Projects Andalusia-Strait Area-North Morocco and Atlantic Coast-Canary Islands-South Morocco) 2007-2013 (Del Valle, 2011).

It seems clear that all these proposals still loaded with tons of good will, however blessed they may be, belong to the field of voluntarism, but what is truly important is that designation of Chafarinas as "National Hunting Refuge" (1982), marks a point of no return in the life of the islands. A new cycle of activities related to the environment and sustainable development that we hope will serve not only for its conservation but also for its human and economic revitalization should begin, because without people a development does not seem credible nor acceptable (no matter how sustainable could be).

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[26] In fact, this seems to be the key idea for Chafarinas from the autonomous city of Melilla. Broadly speaking, what the local Executive intends is to create a space under a legal regime similar to the archipelago of Cabrera, a National Park dependent on the Balearic Islands, but managed by the Autonomous City in this case (ISM, 2011).

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Assessment of port infrastructure in the islands of Lesvos, Chios and Samos

C. N. Sardi[1],
[1]Environmental Scientist specialized in Port Management
Department of Civil Engineer, IPPS in Water Resourses Science And Technology division of Port Management, National Technical University of Athens (N.T.U.A.) - e-mail: xrisasrd@gmail.com

Keywords
North Aegean Region Islands, database for ports, port infrastructure, port management, decision model

Abstract
The geographical location of Greece is considered to be of the utmost importance, with its ports playing a decisive role as centres of economic activity. A key feature of the effective performance of port activities is the existing state of port infrastructure. For this reason its continuous improvement becomes imperative. Given that each port responds to different types of activities with a similar scale of hierarchy of improvement interventions, the need for each port to be studied separately and the creation of a database, which provides a complete record of the current situation, is highlighted.
For this reason, the present thesis has created a data bank for the harbour port facilities of three islands of the North Aegean Region; the island of Lesbos, the island of Chios and the island of Samos. Initially, all the identified ports were recorded by completing censuses, mainly through on-site visits per island and per port-port facility.
The listed ports - port facilities located per island are: 66 for the island of Lesbos, 26 for the island of Chios and 15 for the island of Samos. Following the collection of the data, a description of their general characteristics (port type, distance from the capital, port density located on the individual shores, etc.) was presented per island. Subsequently, statistical analysis and processing was carried out through x2 affinity and analysis tables for the ports of local significance for the deficiencies of the port infrastructures per island and then a comparative analysis of all three islands together.
Significant statistical parameters regarding the level of deficiencies of the port infrastructure as a whole have been identified: the distance of the ports from the capital, the existence of a designated land area and the existence of tourist infrastructure in the area of the port. Finally, tree analysis presents the classification of
port benefits as to their degree of correlation with deficiencies in port infrastructures.
According to the resulting hierarchy, appropriate benefits could potentially be used as indicators in a decision model for hierarchy of future improvements, successfully integrating ports of local importance into a possible investment model.

Introduction
In order to achieve an integrated approach to the affective organization and management of ports, a comprehensive representation of port infrastructures and their services is imperative. The creation of a data bank with a common framework for providing information is considered necessary for the further development of a modern port system, integrated into the general framework of transport policy. The parameters determining the success of such a system focus on issues of sustainable development, competitiveness but also of territorial cohesion.

In this inventory as a port was defined any man-made port construction that can serve vessels and humans, other than wooden constructions. This is because the importance of bigger and smaller ports-port facilities is considered to be of vital importance depending on the reference scale.
The objective of this paper is the complete listing and analysis of the existing port infrastructures that are located on the islands of Lesvos, Chios and Samos.
Thus, initially, a database of ports-port facilities was separately created for each island, followed subsequently by the presentation of the analysis of the collected data. Finally, an overall statistical analysis of the data of the 3 islands was carried out with the ultimate objective the prioritization of the importance of deficiencies in the port infrastructure of ports of local importance, in terms of specific port amenities included in the model tree analysis.

Bibliographical review

Since ancient times, maritime transport has been the activity which is par excellence associated with maritime space. By sea, around 80% of international trade is being transported. According to a reference of Vaszenhoven L., (2017), in Sambrako (2005), the transport of liquid and gaseous fuels, raw materials, food and generally “dry and liquid bulk cargoes”, primarily takes place through maritime routes while an important place in maritime transport occupies the passenger transport mainly through shipping.
As a result, maritime transport is linked to a wide range of economic activities and it is a sector enormously important for modern economies. At the same time, ports as centers of economic activity play a key role in the quality of the urban and natural environment. According to K. Moraitis (2010), ports are typical examples of usually extensive port projects, where the natural receptor is being transformed under the influence of social and cultural interventions.
“Port is the gateway through which cargoes and passengers move between ships and land” (Goss R., 1990, vol.17 (3):207-219).
“Ports are defined as places interconnecting different modes of transport and therefore as intermodal transport centers, which need to be integrated within the logistic chains in order to effectively fulfill their functions” (UNCTAD, 2002).
“Ports are commercial enterprises located next to water, which is deep enough to allow the movement of floating vessels. In these areas, port businesses operate, harnessing the port infrastructure and superstructure, as well as providing conventional road and rail infrastructure. The port market is regulated or managed by an Authority”. (European Commission 2001).

Classification of ports in categories

In Greek territory, according to Yantsi Th., (2016), there is a remarkably big number of ports-port facilities, which according to Papoutsakis M., (2016), their registered number is 1068. The Greek State classifies the ports in 4 categories based on their role and their importance in the Greek Port System, JMD/ Joint Ministerial Decision Number 8315.2/02/07 Ports Ranking (Government Gazette B/202/16.02.2007):

1. Ports of National Interest: (Category K1: 16 ports in):

Piraeus, Thessaloniki, Volos, Patras, Igoumenitsa, Kavala, Alexandroupolis, Heraklion, Corfu, Elefsina, Lavrio, Rafina, Mykonos, Mytilene, Rhodes and Souda in Chania

2. Ports of National Importance (Κατηγορία K2: 16 ports in):

Argostoli, Zakynthos, Thira, Kalamata, Katakolo, Corinth, Kyllini, Kos, Lagos, Paros, Preveza, Rethymno, Vathy in Samos, Syros, Chalkida and Chios

3. Ports of Major Interest Κατηγορία K3: 25 ports in):

Ag. Kirykos in Ikaria, Ag. Konstantinos in Fthiotida, Ag, Nikolaos in Lasithi, Aegina, Aigio, Gytheio, Thasos, Itea, Kymi, Lefkada, Messolongi, Myrina in Lemnos, Nafplio, N. Moudania, Patmos, Samothrace, Poros, Kefallinia, Skiathos, Skopelos, Sitia, Spetses, Stylida, Tinos and Hydra

4. Ports of Local Importance (all other ports included)

Ports: types of use

The basic function of ports is the provision of port services depending on the category of vessels. The essential types of the use of ports are the following:

i. General Cargoes
ii. Dry and Liquid Bulk Cargoes
iii. Containers
iv. Domestic – International Shipping
v. Leisure – Marinas
vi. Fishing

Management and operation Authorities are divided into 4 categories:

- Port Organizations
- State Port Funds
- Municipal Port Funds
- Port Offices

According to Yantsi Th., (2016) the State Port Funds have state administration, the municipal port authorities have administrations appointed by the Municipalities while the Port Offices are small state port funds that manage small port facilities. The largest number of fishing ports concerns fishing shelters, which were mainly constructed with Community resources, particularly in the context of the 3rd CSF, not only for fishing purposes. Most of these facilities are abandoned with all sorts of problems and sometimes extensive damages, which administratively fall into Municipalities that don't have Municipal Port Facility to manage them and ultimately the responsible Authority is the Ministry of Interior.

Area of study - Basic geographical and administrative features

The study area of the research paper is located on three islands of the Region of North Aegean. The island of Lesvos, the island of Chios and the island of Samos. All three islands have a geostrategic position, as they are located in the eastern parts of Greece while at the same time they have ports of all kinds and categories.

Lesvos Island

Picture 2.1. Geographical location of Lesvos island

The island of Lesvos (39^{O} 15΄N – 026^{O} 15΄E), is located in the eastern part of the North Aegean Sea, at the entrance of Edremit Gulf of the Asian Minor coasts, from which is separated by the Mytilene strait to the east and the Lamna strait (Muzelim) to the north (Ploigos H.S.H.N., 2015). The island of Lesvos with 1.636,7 sq. km is the third biggest island in Greece after Crete and Evia.

According to the Hydrographic Service of the Hellenic Navy, the most southern part of Lesvos is approximately 25 nautical miles from Chios island and about 35 nautical miles south-southwest from the island of Psara. Northwesterly is the island of Agios Efstratios at a distance of about 26 nautical miles and a bit more to the north is the island of Lemnos. In addition, it is 188 nautical miles from Piraeus, 218 nautical miles from Thessaloniki. (S.& O.P.M.L., 2015-2019).
Due to its shape, the island of Lesvos exhibits an extremely long coastline with respect to its extent (Livaditis G., Alexouli-Livaditi A., 2004). The stretch of coast based on the bibliography is 370 km, and according to Stratigiou A., (2014), accounts for 2,3% of the total coastline of Greece.

Chios Island

Picture 2.2. Geographical location of Chios island

The islsnd of chios (38^{o} 23’N-026^{o} 04’E) belongs to the islands of the East Aegean. It is divided by the strait of the same name from the coast of Asia Minor, which at their center, form the gulf of Ildir Korfezi (Eritrea) and in its most southern part they form the gulf of Cesme Korfezi (Ploigos, H.N.H.S., 2015). Its largest width is approximately 44 km in center.
The island of Chios with 842.54 sq. km. is ranked as the fifth biggest island in Greece (Region of North Aegean, 2009). Chios has a coastline of 210,9 km, where the lie of the land isn’t very uneven, On the west coastline there is a big gulf which gives the island the form of the crescent.

Samos Island

Picture 2.3. Geographical location of Samos island

The island of Samos (37°45΄N-026°50 E) is located in the most southeastern part of the central Aegean Sea (Ploigos, H.N.H.S., 2015).The largest width of the island is 20 km to the north to south and the longest length is 56 km from east to west (Landros, Ch., 2005). The island of Samos, with an area of 77,942 sq.km is the eighth biggest island of Greece.

To the east it is separated from the Asian coast through the Mycale strait, know in antiquity as "Eptastadios Porthmos" which is 12 km long, while the closest distance is 1,302 m (Landros Ch., 2005).

To the north lies the peninsula of Eritrea, northwest the island of Chios, west and southwest is Ikaria in 10 nautical miles and the complex of Fourni and further to the south the Dodecanese (the nearest are Agathonisi and Arki) (Triantaphyllidis, L., Mandylas, Ch., 2013).

Samos has a coastline of 163 km and four large gulfs as follows: Marathkampos (SW), Tigani (SE), Myrtia (E) and Vathy (NE).

Marathokampos and Tigani gulfs are each 18,5 km wide, while the gulf of Myrtia is 6,5 km and the gulf of Vathy is 4,5 km (Triantaphyllidis, L., Mandylas, Ch., 2013).

Methodology

Drawing up inventories

The first stage regarding the inventory methodology was to locate ports and port facilities through Google Earth, in parallel correlation with the already existing documenting of sources. Subsequently, the main part of recording information and photo overview of the current situation has been carried out with on-site visits to each port-port facility. The inventory sheet for each port-port facility includes data for the following 11 categories:

1. GENERAL DATA
2. TYPE, CATEGORY OF PORT BASED ON THE CURRENT USE
3. DISTANCES-TRANSPORT
4. CHARACTERISTICS – INFRASTRUCTURE OF THE WIDER AREA OF THE PORT
5. TYPES OF USE OF PORT
6. EXISTING PORT DEVELOPMENT

If they exist, they are described:

A) External port projects

B) Inland port projects

C) Sheltered port basin

D) Port projects under construction

E) Existence of light signaling devices

F) Port capacity: size and number of vessels that can be served by each port

7. INFRASTRUCTURE – INSTALLATION OF TERRESTRIAL PORT ZONE
8. ANEMOLOGICAL DATA FROM THE CLOSEST HELLENIC NATIONAL METEOROLOGICAL STATION / H.N.M.S.
9. PHOTO OVERVIEW OF THE EXISTING PORT INFRASTRUCTURE
10. REMARKS-RECOMMENDATIONS OF LOCAL AUTHORITIES
11. PLANS OF PORT

Data Processing

After collecting the data, they were indexed and encoded in order to be imported in the software system JMP 14 of SAS (www.jmp.com).

Further processing of the data prior to their import into the JMP system was deemed necessary in category 9. REMARKS-RECOMMENDATIONS OF LOCAL AUTHORITIES, where an approach to assess the current status of ports was attempted in relation to the deficiencies of the port infrastructure and in addition to the detailed data included in the inventory sheets of ports. In this analysis the assessment of the current situation was focused only on ports belonging to the local importance category, according to the JMD/Joint Ministerial Decision (No. 8315. 2/02/07). In particular, the data on problems and proposed projects for improvement were initially gathered. See Annex 1.a of APPENDIX I, II and III respectively. Subsequently, the aggregation of the above records identified deficiencies in existing infrastructures that they ultimately focus on three categories according to prioritization resulting from the National Ports Strategy (2013-2018). Obviously, the classification was adapted to the scale of study of ports of local importance based on their needs.

The categories of deficiencies based on the adequacy of projects focus on three categories:

A) Deficiencies in external port projects (piers, breakwaters): to ensure a safe and secure mooring (protection against waves).

B) Deficiencies in inland port projects (current state of platforms - lengths, usable depths, et al.): necessary for the mooring of vessels, for any kind of loading and unloading cargo and as well as for embarking-disembarking of passengers.

C) Lack of a modern transport network (road) to access the port.

The ports identified by the respective number YES regarding the 3 categories of deficiencies listed above, were categorized into one of the following levels:

0	(YES) = Not Significant,
1	(YES) = Significant,
2	(YES) = Very Significant,
3	(YES) = In need of total reconstruction

[Similarly to the methodology followed in the National Ports Strategy (2013-2018) for classifying ports in categories.]

The classification of deficiencies per port is presented in see Annex 1.b of APPENDIX I, II, and III respectively. The above processing for the present data category was followed by an approach of statistical and analysis processing regarding the level of deficiencies in port infrastructure through contingency and analysis tables x^2.

Drawing conclusions – correlation indicators of port infrastructure deficiencies regarding amenities

The analysis with contingency tables has shown a significant change in the percentage of deficiencies in some specific port amenities (variables). At the next stage, we studied further the variables that showed a statistically significant change in the levels of deficiencies compared to those with less statistically significant changes. Subsequently, it was considered necessary to categorize the less powerful statistical variables with regard to those that were strongest. In the end, through tree analysis, the classification of port amenities is presented as to their degree of correlation with deficiencies in port infrastructure. It is obvious from the prioritization that the amenities could potentially be used as indicators in a decision-making model in relation to the prioritization of future improvements, successfully integrating ports of local importance into a possible investment model.

For this research paper, the Decision Tree method was used.
“A Decision Tree model allows to examine the relation between a variable response and multiple possible predictors. The potential predictors are evaluated by using statistical methods appropriate to their type and the evaluation concerns their predictive value for the response variable. Afterwards, the data are divided in two groups based on the figure of the predictor. Given the fact that the tree is built with recursive partitioning, the predictive indicators are reassessed at each stage.” There are many available resources to understand the underlying statistical techniques and algorithms that are used in the decision tree modeling process. Such a debate isn’t within the scope of this paper.
More information on decision trees can be found at: Data Mining Techniques :For Marketing, Sales, and Customer Relationship Management, Third Edition, by Michael Berry and Gordon Linoff, John Wiley Sons, Inc., April 2011.

Results

Establishment of a database of ports

4.1.1.PORTSCOPE OF LESVOS ISLAND

As shown in the map 4.4.1., 66 ports were recorded in Lesvos island.

S/N	PORT NAME
L.1	MYTILINI (Central Port)
L.2	MYTILINI MARINA
L.3	VARIA
L.4.	NEAPOLI
L.5	MYTILINI AIRPORT (Ag. Paraskevi)
L.6	KRATIGOS
L.7	CHARAMIDA (Port infrastructure)
L.8	SKALA LOUTRON
L.9	EKO
L.10	KOUNTOUROUDIA
L.11	PIRGI
L.12	KEDRO
L.13	DIPI (SKALA SYKOUNTAS)
L.14	AGIOS GEORGIOS
L.15	PIGADAKIA
L.16	EVRIAKI
L.17	PERAMA
L.18	MILITARY P.F. OF PERAMA (Port Facility)
L.19	MARMARO
L.20	PYRGOI MESAGROU
L.21	LIGONARI
L.22	TSAFI
L.23	AVLAKI PLAGIA
L.24	AGIA VARVARA
L.25	PLOMARI
L.26	AGIOS FOKAS
L.27	NIFIDA
L.28	SKALA POLICHNITOS
L.29	SKAMNIOUDI
L.30	AGIOS PAVLOS (SKALA VASSILIKA)
L.31	MISITZIKI (or MIRSITZIKI)
L.32	ALIKES KALLONI
L.33	SKALA KALLONI (Port Facility)
L.34	SKALA PARAKILA
L.35	APOTHIKA
L.36	TAVARI
L.37	SKALA ERESSOS
L.38	SIGRI
L.39	LAPSARNA
L.40	GAVATHAS
L.41	KALO LIMANI (TSAMOUR LIMANI)
L.42	TSICHRADA (KECHRADA)
L.43	AVLAKI PETRA
L.44	ANAXOS
L.45	KAVAKI PETRA
L.46	MITHYMNA (MOLIVOS)
L.47	SKALA SIKAMINIA
L.48	TSONIA
L.49	KAPI (GENI LIMANI)
L.50	PALIOS
L.51	AGIOS STEFANOS
L.52	TROUPIA
L.53	ASPROPOTAMOS A
L.54	ASRPOPOTAMOS B
L.55	PEDI
L.56	XAMBELIA
L.57	SKALA NEES KIDONIES (BALTZIKI)
L.58	SKALA MISTEGNA
L.59	THERMI
L.60	NISSELIA
L.61	PAMFILA
L.62	BP SA PETROGAZ SA
L.63	KALAMIARIS PANAGIOUDA
L.64	PANAGIOUDA
L.65	PPC SA (Epano Skala)-Port Facility
L.66	EPANO SKALA

Picture 4.4.1. Ports of Lesvos island

<u>4.1.2. PORTSCOPE OF CHIOS ISLAND</u>

As shown in the map 4.1.2., 26 ports were recorded in Chios island.

S/N	PORT NAME
X.1.	CHIOS (Central Port)
X.2	NAUTICAL CLUB OF CHIOS (N.C.C.)
X.3	CHIOS MARINA
X.4	CHIOS IHTHYOSKALA
X.5	FAKRAINA
X.6	REVOIL (Port Facility)
X.7	AGIA ERMIONI
X.8	AGIOS IOANNIS KALIMASSIA
X.9	KATARRAKTIS
X.10	VOKARIA
X.11	GRIDIA
X.12	KOMI
X.13	EBORIOS
X.14	APOTHIKA
X.15	MESTA
X.16	AGIA EIRINI ELATA
X.17	LITHI
X.18	LIMNIA VOLISSOS
X.19	KARDAMYLA (Port Facility)
X.20	DELFINI
X.21	LAGADA
X.22	PANDOUKIOS
X.23	DASKALOPETRA
X.24	GOUVI VRONTADOS
X.25	TREIS MYLOI VRONTADOS
X.26	CASTELO

Picture 4.4.2. Ports of Chios island

<u>4.1.3. PORTSCOPE OF SAMOS ISLAND</u>

As shown in the map 4.1.3., 15 ports were recorded in Samos island.

S/N	PORT NAME
S.1	SAMOS (VATHY)
S.2	AGIA PARASKEVI
S.3	POSIDONIO
S.4	PYTHAGORIO MARINA
S.5	PYTHAGORIO
S.6	IREON
S.7	KOUMEIKA
S.8	MARATHOKAMPOS
S.9	AGIOS ISIDOROS
S.10	KARLOVASI
S.11	ORMOS
S.12	AGIOS KONSTANTINOS
S.13	KOKKARI
S.14	PPC SA
S.15	SILK OIL

Picture 4.4.3. Ports of Samos island

Presentation of data processing and analysis collected for each island

The types of ports

1.PORTSCOPE OF LESVOS ISLAND

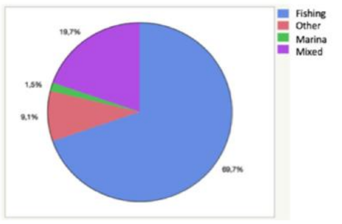


Figure 2.1.1. Types of Ports

Type of Port	Number of Ports	Percentage of Total
fishing	46	69,7%
other	6	9,1%
marina	1	1,5%
mixed	13	19,7%
TOTAL	66	100,0%

Table 2.1.1. Number of Ports classified by type of port and percentage of total

2. PORTSCOPE OF CHIOS ISLAND

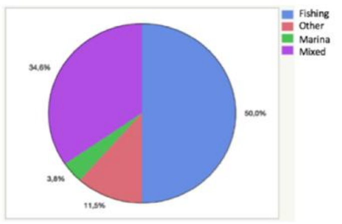


Figure 2.1.2. Types of Ports

Type of Port	Number of Ports	Percentage of Total
fishing	46	69,7%
other	6	9,1%
marina	1	1,5%
mixed	13	19,7%
TOTAL	66	100,0%

Table 2.1.2. Number of Ports classified by type of port and percentage of total

3. PORTSCOPE OF SAMOS ISLAND

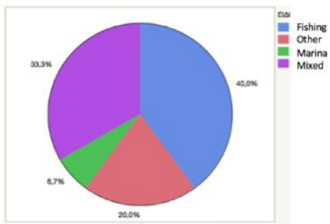


Figure 2.1.3. Types of Ports

Type of Port	Number of Ports	Percentage of Total
fishing	6	40,0%
other	3	20,0%
marina	1	6,7%
mixed	5	33,3%
TOTAL	15	100,0%

Table 2.1.3. Number of Ports classified by type of port and percentage of total

In Portscope of Lesvos island, according to the figure 2.1.1., 69, 7% of the ports are for fishing purposes, 19,7% are for mixed purposes , 9,1% are for other purposes and 1,5% of the total represents a marina.

In Portscope of Chios island, according to the figure 2.1.2., 50% of the ports are for fishing purposes, 34,6% are for mixed purposes, 11,5% are for other purposes and 3,8% of the total represents a marina.

In Portscope of Samos island, according to the figure 2.1.3., 40% of the ports are for fishing purposes, 33, 3% are for mixed purposes, το 20% are for other purposes and 6,7% of the total represents a marina.

The analytical number of ports per island based on their type is shown in tables 2.1.1., 2.1.2., 2.1.3., respectively. In the category “for other purposes”, belong military port facilities, unloading of petroleum products and nautical clubs.

Distance of ports from the capital

1.PORTSCOPE OF LESVOS ISLAND

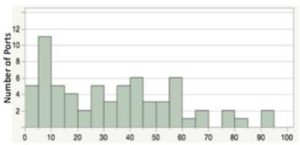


Figure 2.2.1.a. Classification of ports in relation to their distance from the capital per 10Km

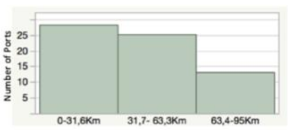


Figure 2.2.1.b. Classification of ports in relation to their distance from the capital altogether

Distance from the capital (Km)	Number of Ports	Percentage of Total
0-31,6	28	42,4%
31,7-63,3	25	37,9%
63,4-95	13	19,7%
TOTAL	66	100,0%

Table 2.2.1. Classification of ports in relation to their distance from the capital and the respective percentages of total

2. PORTSCOPE OF CHIOS ISLAND

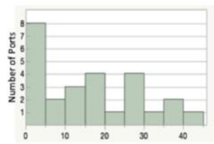


Figure 2.2.2.a. Classification of ports in relation to their distance from the capital per 10Kmτ

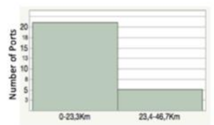


Figure 2.2.2.b. Classification of ports in relation to their distance from the capital altogether

Distance from the capital (Km)	Number of Ports	Percentage of Total
0-23,3	21	80,8%
23,4-46,7	5	19,2%
TOTAL	26	100,0%

Table 2.2.2. Classification of ports in relation to their distance from the capital and the respective percentages of total

3. PORTSCOPE OF SAMOS ISLAND

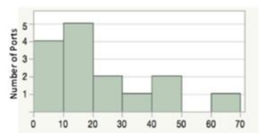


Figure 2.2.3.a. Classification of ports in relation to their distance from the capital per 10Km

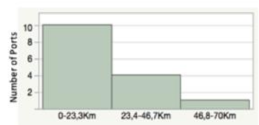


Figure 2.2.3.b. Classification of ports in relation to their distance from the capital altogether

Distance from the capital (Km)	Number of Ports	Percentage of Total (%)
0-23,3	10	66,7%
23,4-46,7	4	26,7%
46,8-70	1	6,7%
TOTAL	15	100,0%

Table 2.2.3. Classification of ports in relation to their distance from the capital and the respective percentages of total

In Portscope of Lesvos island, according to the figures 2.2.1.a., it is observed that the largest distribution of ports is located around the capital of the island at a distance of 0-10 km. At distances from 11 to 60 km the number of ports is between 7 to 9 per 10 km and at distances longer than 60 km, this number is reduced.
In Portscope of Chios island, according to the figure 2.2.2.a., it is noted that most of the ports, 21 of the recorded 26, i.e. 80,8%, are located at a smaller or equal distance of 23,3Km from the capital of Chios island. The remaining 5 ports are located at a distance of more than 23,4 Km. More specifically, by distributing the ports at distances of 10 km, it can be seen that 8 of the 26 ports are located at a distance of 5 km from the capital of Chios.
In Portscope of Samos island, according to the figures 2.2.3.a.,2.2.3.b., it is obvious that most ports, 10 of 15 that are recorded, are located at a distance of less than or equal to 23,3 Km from the capital. At distances between 23,4 Km to 46,7km, 4 ports are located. In the distribution of ports at distances per 10 km, it was observed that only one port is more than 60 km away and at a relative distance of about 10 km from its nearest port.

Ports facilities management and operations Authority

1.PORTSCOPE OF LESVOS ISLAND

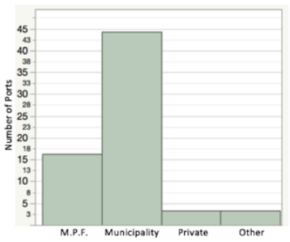


Figure 2.3.1. Number of ports per administration authority

Management and Operation Authority	Number of Ports	Percentage of Total
M.P.F.	16	24,2%
Municipality	44	66,7%
Private	3	4,5%
Other	3	4,5%
TOTAL	66	100,0%

Figure 2.3.1. Number of ports per administration authority and the respective percentages of total

2. PORTSCOPE OF CHIOS ISLAND

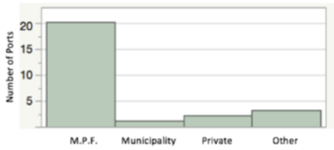


Figure 2.3.2. Number of ports per administration authority

Management and Operation Authority	Number of Ports	Percentage of Total
M.P.F.	20	76,9%
Municipality	1	3,8%
Private	2	7,7%
Other	3	11,5%
TOTAL	26	100,0%

Figure 2.3.2. Number of ports per administration authority and the respective percentages of total

3. PORTSCOPE OF SAMOS ISLAND

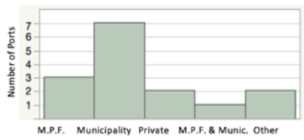


Figure 2.3.3. Number of ports per administration authority

Management and Operation Authority	Number of Ports	Percentage of Total
M.P.F.	3	20,0%
Municipality	7	46,7%
Private individual	2	13,3%
M.P.F. & Municipality	1	6,7%
Other	2	13,3%
TOTAL	15	100,0%

Figure 2.3.3. Number of ports per administration authority and the respective percentages of total

In Portscope of Lesvos island as seen in the figure 2.3.1., the largest number of ports, 44 out of 66 in total, have as management and operations Authority, the municipality of Lesvos.
In Portscope of Chios island as seen in the figure 2.3.2., 20 ports of the total recorded 26 have as management and operations Authority the Intermunicipal Port Office of Chios.
In Portscope of Samos island as seen in the figure 2.3.3., the management and operations Authority of most of the ports of the island of Samos is the Municipality. (7 ports out of 15 in total). Joint management between the Municipality and the Municipal Port Fund concerns one port (for mixed purposes, fishing and touristic use, where the management is accordingly divided in 2 departments and 2 Authorities that cooperate).
The exact number of ports in each island, per management and operation Authority is shown in tables 2.3.1., 2.3.2., 2.3.3., as well as the respective percentages of the total.

Statistical processing of deficiencies in port infrastructure of local scale ports
Number of ports

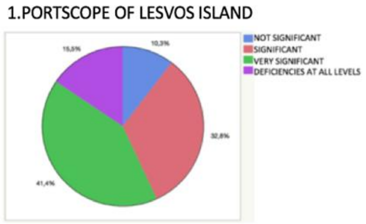


Figure 3.1.1. Number of ports per level of deficiencies in port infrastructure

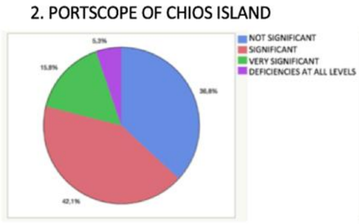


Figure 3.1.2. Number of ports per level of deficiencies in port infrastructure

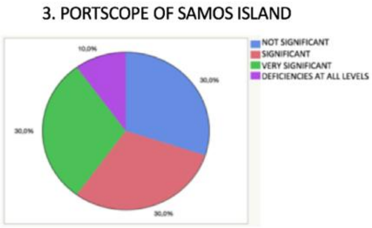


Figure 3.1.3. Number of ports per level of deficiencies in port infrastructure

Level of deficiencies	Number of Ports	Percentage of Total
NOT SIGNIFICANT	6	10,3%
SIGNIFICANT	19	32,8%
VERY SIGNIFICANT	24	41,4%
DEFICIEN. AT ALL LEVELS	9	15,5%
TOTAL	58	100,0%

Figure 3.1.1. Number of ports per level and the respective percentages of total

Level of deficiencies	Number of Ports	Percentage of Total
NOT SIGNIFICANT	7	36,8%
SIGNIFICANT	8	42,1%
VERY SIGNIFICANT	3	15,8%
DEFICIEN. AT ALL LEVELS	1	5,3%
TOTAL	19	100,0%

Figure 3.1.2. Number of ports per level and the respective percentages of total

Level of deficiencies	Number of Ports	Percentage of Total
NOT SIGNIFICANT	3	30,0%
SIGNIFICANT	3	30,0%
VERY SIGNIFICANT	3	30,0%
DEFICIEN. AT ALL LEVELS	1	10,3%
TOTAL	10	100,0%

Figure 3.1.3. Number of ports per level and the respective percentages of total

In Portscope of Lesvos island as seen in the figure 3.1.1., that 41,4% of ports have significant deficiencies in port infrastructure, 32,8% have significant deficiencies, 15,5% have deficiencies at all levels and 10,3% do not have significant deficiencies in port infrastructure.
In Portscope of Chios island as seen in the figure 3.1.2., it is observed that 42,1% of the ports have significant deficiencies, followed by 36,6% , where ports do not have significant deficiencies. 15,8% of the ports have very significant deficiencies and 5,3% of the total, have deficiencies at all levels.
In Portscope of Samos island according to the figure 3.1.3., there is an equal distribution of 30% of ports with no significant deficiencies, of ports with significant deficiencies and those with very significant deficiencies. Deficiencies at all levels correspond to 10% of the total.
The exact number of ports in each island, per level of deficiencies is shown in tables 3.1.1., 3.1.2., 3.1.3., respectively.

Types of ports

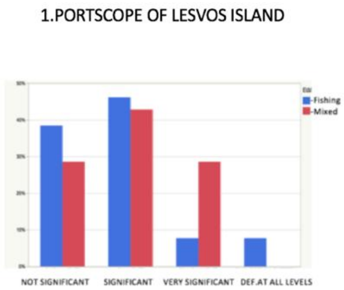


Figure 3.2.1. Percentage of level of deficiencies per type of port

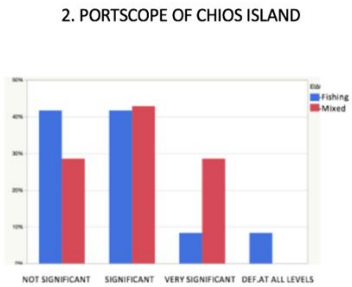


Figure 3.2.2. Percentage of level of deficiencies per type of port

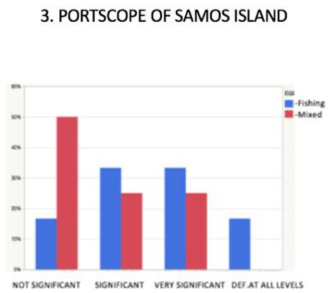


Figure 3.2.3. Percentage of level of deficiencies per type of port

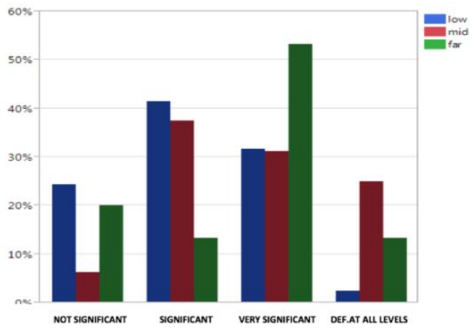
In Portscope of Lesvos island, according to the figure 3.2.1., it is observed that there is no port belonging to the category "mixed" with deficiencies at all levels. 43% are "mixed" ports with significant deficiencies. "Mixed" ports with no significant deficiencies are 28%, and the percentage is exactly the same for those with very significant deficiencies .As far as the fishing ports are concerned, 45% have significant deficiencies while 38% do not have significant deficiencies. Fishing ports with very significant deficiencies and deficiencies at all levels are both at 7%.

In Portscope of Chios island, according to the figure 3.2.2., it is observed that there is no port belonging to the category "mixed" with deficiencies at all levels. "Mixed" ports with significant deficiencies are 28%, exactly the same percentage for those that don't have significant deficiencies. 44% are "mixed" ports with significant deficiencies. As far as the fishing ports are concerned, 42% don't have significant deficiencies, and the percentage is exactly the same for those that have significant deficiencies. Below 10% are ports with very significant deficiencies as well as with deficiencies at all levels.
In Portscope of Samos island, according to the figure 3.2.3., it is noted that no port belonging to the category "mixed" has deficiencies at all levels. From the figure…it appears that 50% of "mixed" ports don't have significant deficiencies. "Mixed" ports with significant and very significant deficiencies appear at the same percentage of 25% respectively. Regarding the fishing ports, 17% do not show significant deficiencies and the same percentage have deficiencies at all levels. Respectively, both categories of deficiencies- with significant and very significant deficiencies- have the percentage of 33%.

Results of overall statistical analysis of the 3 islands correlation of deficiencies in port infrastructure of local scale ports

Distance from the capital

Figure 4.1.1. shows the deficiencies in port infrastructures compared to their distance from the capital. The measurement of distances were categorized into 3 low, mid and far variables for low, middle, and far distance, accordingly, low < 25 Km, mid <60 Km και far > 60 Km



Picture 4.1.1. Categories of deficiencies in ports with regard to the distance from the capital

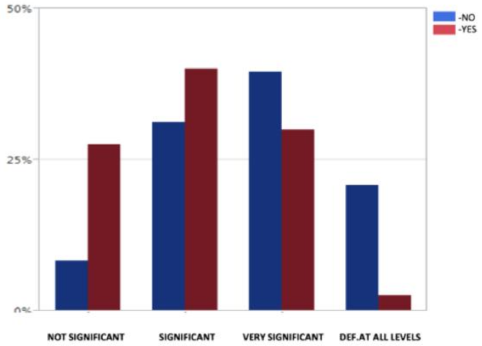
Number of ports Percentage of Total (%)	NOT SIGNIFICANT	SIGNIFICANT	VERY SIGNIFICANT	DEFICIENCIES AT ALL LEVELS	Number of Ports/distance from the capital
low < 25 km	10 24.39	17 41.46	13 31.71	1 2.44	41
mid <60 km	2 6.25	12 37.50	10 31.25	8 25.00	32
Far >60 km	3 20.00	2 13.33	8 53.33	2 13.33	15
Number of ports/Category of Deficiencies	15	31	31	11	88

Table 4..1.1 Categories of deficiencies in ports with regard to the distance from the capital

Comprehensive data showed a statistically significant change in the significant deficiencies in port infrastructure in relation to the distances of port from the capital of the island. It was observed that 33% of the ports of all ports at low distances categories with very significant deficiencies or deficiencies at all levels, had an increase in these ports at mid and far distances of 22% and 32% respectively. Thus, the deficiencies in the middle and far distances of ports from the capital is a trend that was observed as statistically significant.

Existence of defined land area

Figure 4.2.1., shows the correlation of the existence of a defined land area with the level of deficiencies in port infrastructure.
It is clear that when there is a defined land area, many significant deficiencies as well as deficiencies at all levels are at 30%, while when there is no defined land area, the respective categories are at 62% and the increase is statistically significant.



Picture 4.2.1. Categories of deficiencies in ports with regard to the existence of land area

Number of ports Percentage of Total (%)	NOT SIGNIFICANT	SIGNIFICANT	VERY SIGNIFICANT	DEFICIENCIES AT ALL LEVELS	Number of Ports/defined L.A.
NO	4 8.33	15 31.25	19 39.58	10 20.83	48
YES	11 27.50	16 40.00	12 30.00	1 2.50	40
Number of ports/Category of Deficiencies	15	31	31	11	88

Table 4.2.1. Categories of deficiencies in ports with regard to the existence of land area

Existence of tourism infrastructure

Figure 4.3.1., shows the correlation of the existence of tourist infrastructure with the level of deficiencies in port infrastructure. It can be seen that where there are many tourist infrastructures, the deficiencies at a not significant and significant level reach 75%, while the respective percentage is reduced to 50% and 30% when there is fewer tourist infrastructure and at the same time deficiencies at all levels increase respectively. The increase is statistically significant.

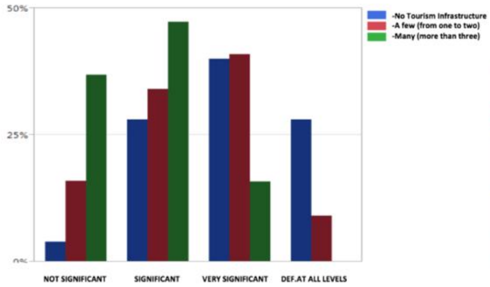


Figure 4.3.1. Categories of deficiencies in ports with regard to the distance from the capital

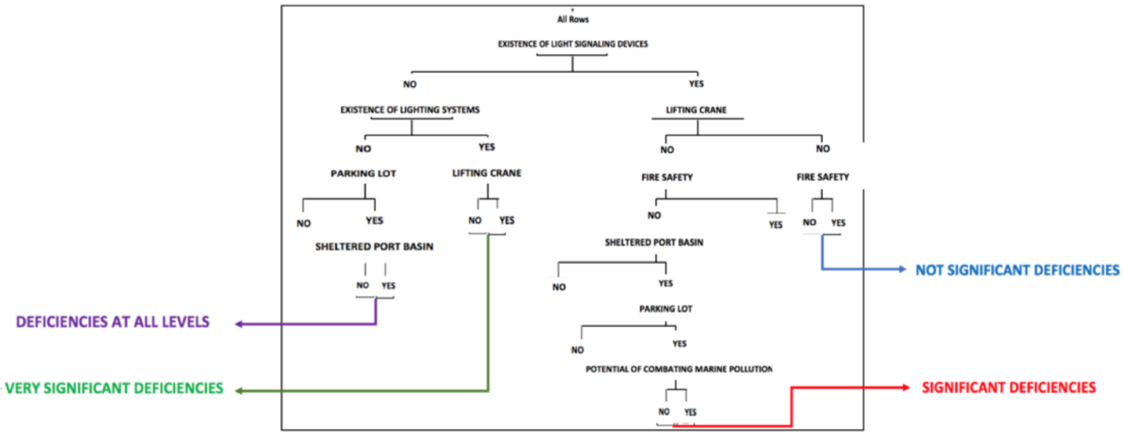
Number of ports Percentage of Total (%)	NOT SIGNIFICANT	SIGNIFICANT	VERY SIGNIFICANT	DEFICIENCIES AT ALL LEVELS	Number of Ports/Existence of Tourism Infrastructure
No Tourism Infrastructure	1 4.00	7 28.00	10 40.00	7 28.00	25
Few Tourism Infrastructures (from one to two)	7 15.91	15 34.09	18 40.91	4 9.09	44
Many Tourism Infrastructures (more than three)	7 36.84	9 47.37	3 15.79	0 0.00	19
Number of ports/Category of Deficiencies	15	31	31	11	88

Table 4.3.1. Categories of deficiencies in ports with regard the existence of tourism infrastructure

Port amenities as correlation indicators of deficiencies in port infrastructure

With regard to the amenities that were fully recorded per port, the analysis of the results with contingency tables showed that there is a statistically significant change in the percentage of deficiencies in port infrastructure, in relation to the capability to fight pollution, the temporary storage site for vessels, the sheltered port basin, the provision of electricity, the supply of water, the existence of light signaling devices, the existence of lifting crane, the existence of fire safety, the existence of a refloating ramp for vessels, the existence of a waste management plan, the existence of WC infrastructure, the existence of parking lots, the existence of passenger reception areas and the existence of lighting infrastructure.

It was observed that some of the above amenities (variables) have showed strong statistical changes in the levels of deficiencies compared to some others with less strong statistical changes. For this reason, with the Decision Tree model as shown in Figure 6.1., the prioritization of variables was based on their statistical significance. The below prioritization shows that strong statistical variables, i.e. the variables that do affect mostly or not the level of deficiencies in port infrastructure, they are potentially indicators of a decision-making model in relation to the prioritization of future improvements in port infrastructure.



Plan 4.5. Prioritization of amenities with regards to their statistical significance

From the analysis of the Decision Tree, we can see that from the variables analyzed and found to show statistical significant changes in the levels of the deficiencies, the existence of light signaling devices, the lifting crane, and the fire safety have shown to create deficiencies in the non-significant levels of deficiencies, and when the level of significant deficiencies is included, then the sheltered port basin, the parking lot and the capability to fight sea pollution, they contribute positively. On the contrary, the lack of light signaling devices and lightning are the most significant factors of deficiencies in all levels.

Conclusion

In this master thesis, a total of 107 ports and port infrastructures were identified and recorded. Specifically, 66 in Lesvos island, 26 in Chios island and 15 in Samos island. The statistical analysis per island showed that for the 3 islands the largest percentage of ports is for fishing use and that in the second place there are the mixed ports with 2-4 types of use. It was also observed that the number of ports decreases as their distance from the capital increases and in proportion to the population density of the Municipality. Regarding the port management and operations Authority, the number of the ports and their respective port management and operations Authorities isn't equally allocated.

With regard to the statistical processing of deficiencies in port infrastructures of local importance ports, on the island of Lesvos, the largest percentage have to do with very significant deficiencies, in Chios island, most of the deficiencies are significant (with small percentage difference to the not significant ones) and in Samos island, there is an equal number of not significant, significant and very significant deficiencies. In addition, no mixed port hasn't been identified with deficiencies at all levels, in the three islands.

In the overall statistical analysis of correlation of deficiencies among the three islands, there were statistically significant changes: In terms of port distances from the capital where there is generally an increase in the level of deficiencies at longer distances, while at the same time the number of ports-with no significant deficiencies at long distances from capital-is reduced. In addition, it can be seen that where there is a defined land area, the very significant deficiencies and as well as deficiencies at all levels are at 30%, while where there is no defined land area, the respective categories of deficiencies are at 62%. The existence of tourist

infrastructure seems to play an important role in the area where each port is located, where as the deficiency level increases, the smaller is the number of tourist infrastructures.
Finally, regarding the port amenities, light signaling devices, the lifting crane and the fire safety show statistically significant changes in the levels of deficiencies, where they showed to create deficiencies in the not significant level of deficiencies and if the level of significant deficiencies is included, then the sheltered port basin, the parking lot and the capability to fight sea pollution, they contribute positively. On the contrary, the lack of light signaling devices and lightning are the most significant factors of deficiencies in all levels.

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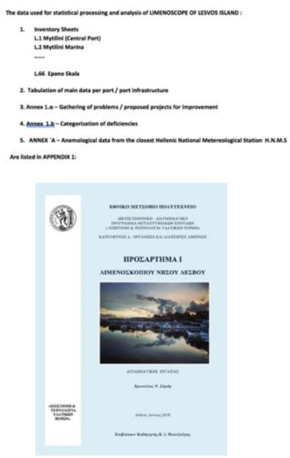
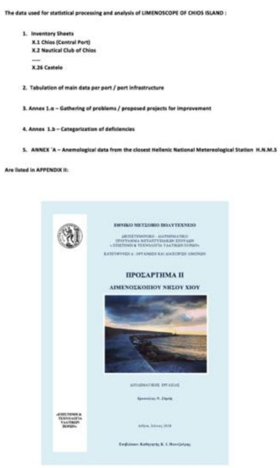
Appentices



The data used for statistical processing and analysis of LIMENOSCOPE OF LESVOS ISLAND :

1. Inventory Sheets
   L.1 Mytilini (Central Port)
   L.2 Mytilini Marina
   ——
   L.66 Epano Skala
2. Tabulation of main data per port / port infrastructure
3. Annex 1.α – Gathering of problems / proposed projects for improvement
4. Annex 1.b – Categorization of deficiencies
5. ANNEX ΄A – Anemological data from the closest Hellenic National Metereological Station H.N.M.S

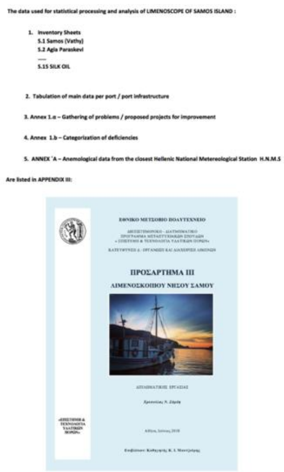
Are listed in APPENDIX 1:



The data used for statistical processing and analysis of LIMENOSCOPE OF CHIOS ISLAND :

1. Inventory Sheets
   X.1 Chios (Central Port)
   X.2 Nautical Club of Chios
   ——
   X.26 Castelo
2. Tabulation of main data per port / port infrastructure
3. Annex 1.α – Gathering of problems / proposed projects for improvement
4. Annex 1.b – Categorization of deficiencies
5. ANNEX ΄A – Anemological data from the closest Hellenic National Metereological Station H.N.M.S

Are listed in APPENDIX II:



The data used for statistical processing and analysis of LIMENOSCOPE OF SAMOS ISLAND :

1. Inventory Sheets
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   S.2 Agia Paraskevi
   ——
   S.15 SILK OIL
2. Tabulation of main data per port / port infrastructure
3. Annex 1.α – Gathering of problems / proposed projects for improvement
4. Annex 1.b – Categorization of deficiencies
5. ANNEX ΄A – Anemological data from the closest Hellenic National Metereological Station H.N.M.S

Are listed in APPENDIX III:

Locals' perceptions towards the environmental impacts of tourism: A pilot study at Linaria Port, Skyros Island, Greece

M. Botzori[1], M. K. Seleventi[2], A. Kounani[3], C. Skanavis[4], K. Antonopoulos[5]
[1]Junior Researcher of Research Center of Environmental Education and Communication, Department of Environment, University of the Aegean, Mytilene, Greece, e-mail: env14084@env.aegean.gr
[2]PhDc, Senior Researcher of Research Center of Environmental Education and Communication, University of the Aegean, Greece, e-mail: seleventi@env.aegean.gr
[3]PhDc, Senior Researcher of Research Center of Environmental Education and Communication, University of the Aegean, Greece, e-mail: kounani@env.aegean.gr
[4]Professor, Head of the Research Center of Environmental Education and Communication, University of the Aegean, Greece, e-mail: cskanav@aegean.gr
[5]President of Skyros Port Authority, email: litasky@otenet.gr

Keywords
island tourism, environmental impact, plastic waste management, environmental awareness, plastic bags

Abstract
Tourism, a traditionally strong pillar of the Greek economy, holds a decisive role in the country's efforts to recover from the current debt crisis. Despite its crucial role in economic development, island tourism has negative environmental impacts as well. The high degree of concentration of summer activities in just a few months (seasonality), leads to strong pressures on the local environment, with high rates of waste generation to be quite a problem. Public awareness of residents and business owners is vital to a successful waste reduction and management. The purpose of this study is to design a tool in order to measure shop owners' environmental awareness and evaluate their perceptions about the environmental impacts of tourism. More specifically, this pilot study aims to estimate the shop owners' willingness to participate in environmental actions and support campaigns to reduce plastic waste. A questionnaire-based survey supplemented with semi-structured, face-to-face interviews was administered to Linarias' port shop owners. Overall, this study aspires to provide an evaluation tool for assessing the way of ensuring that environmental protection comes first in our decision-making even when tourism could pose an environmental threat, like in the case of the Greek islands.

Introduction
Tourism, especially marine and coastal tourism, is one of the fastest growing areas (Hsieh & Kung, 2013) within the world's largest industries (Zhao & Min Li, 2018) and a global force for economic and regional development (Hsieh & Kung, 2013). Compared to other tourism industries, marine tourism industry has grown enormously and become one of the biggest industries in the world (Hall, 2001; Mvula, 2001; Eligh et al., 2002; Gossling, 2002; Pickering & Hill, 2007; Kurniawan et al., 2016). The relationship between tourism and environment is of an interdependence type. The environment, through its natural, cultural-historical, social climate potential, represents the motivation of tourists' travels, while a clean and unaltered environment cannot exist without practicing quality tourism (Stefanica & Butnaru, 2015).

Islands and particularly small islands are significantly dependent on tourism (Briguglio & Briguglio, 2002; Stylidis et al., 2007), a comparative advantage that islands tend to have in tourism-related activities (Briguglio & Briguglio, 2002). In many small islands worldwide, tourism is considered as a development instrument to boost the economy of a country (Croes, 2006; Kurniawan et al., 2016). The preference for small islands is closely related to such factors as their beauty, exoticness, aesthetic, and diversity of natural habitats (coral reef, sandy beach and sand dune), warm, clear and attractive waters (Daby, 2003; Kurniawan et al., 2016). As such, tourism has greater economic, socio-cultural and environmental impacts on them than on the mainland. Moreover, they have small social and environmental carrying capacities, and so the adverse impacts of tourism tend to be more severe in these places than in the large mainland countries. The fragility of their ecosystems arises as a result of a low level of resistance to outside influences (Stylidis et al., 2007).

The main goal of this research was to design an instrument in order to measure shop owners' environmental awareness and assess their insights towards the environmental impacts of tourism. More specifically this pilot study aimed to estimate the shop owners' willingness to participate in environmental actions and support campaigns to reduce plastic waste. Overall, this study aspires to provide an evaluation tool for assessing the way to ensure that environmental protection comes first in our decision-making processes especially when tourism could potentially pose an environmental threat, like in the case of the Greek islands.

Literature Review

The Impacts of Tourism on Islands' Natural Environment

Tourism has been instrumental in the development of peripheral, remote, and insular regions, like islands, which are commonly characterized as peripheral, isolated, fragile, with scarcity of resources, limited labor force and transportation cost, all being competitive disadvantages (Jenkins & Henry, 1982; Coccosis, 1987; Conlin & Baum, 1995). Due to the popularity of island destinations, their development is an important and inevitable matter (Wing, 1995) and thus, many islands use tourism as their major economic growth means (Stylidis et al., 2007). "Small island" refers to islands whose size is below 10,000 km^2 with a population equivalent to or less than half a million. A variety of activities that become a pole of attraction for tourists ranging from beach tourism, diving, recreational boating, cruises, snorkeling, recreational and deep sea fishing play a pivotal role (Farid & Setiawan 2013; Hall, 2001; Voon 2000; Ramdas & Mohamed 2014).

Positive impacts

Small islands have few resources or viable industries other than tourism to provide revenues and employment for the local population (Sheldon, 2005). Croes (2004) suggests that tourism can serve as a tool for small islands to enlarge their economies and overcome the disadvantages of smallness. The extra market demand produces economies of scale, increases efficiency and decreases costs of production. Tourism also promotes competition, encourages new start-up businesses, democratizes market structure, and deters rent seeking behaviors and corruption. This competition can provide greater consumer choice, trade openness and upgrade the quality of life for locals. There are also a number of advantages which are not directly economic, but which have an impact on the material wellbeing of the local population. These include a renewed interest in local arts and crafts, improvements in educational, leisure, communication, medical and other facilities in the host countries, a general awareness of the man-made and natural aesthetic assets, and a broadening in the outlook of the islanders (Briguglio & Briguglio, 2002).

The importance of island tourism is so overwhelming that it is considered, up to an extent to be the leading contributor to generating income of certain country's economy. The fixed physical assets of the island such as fine beaches, moderate climate, tropical forests, coral reefs and colorful fish species, offer an escapism retreat from the stresses of modern life (Ramdas & Mohamed 2014).

All in all, tourism on islands has proven to be very much of importance to the wellbeing of a country's economic and social aspects. However, is has become increasingly difficult to ignore the negative consequences that are brought about by island tourism especially towards environmental attributes (Mohamed et al, 2000; Fisher et al., 2008; Gossling, 2002; Hall, 2001; Teh & Cabanban, 2007; Ramdas & Mohamed, 2014).

Negative impacts

Tourism is not a panacea for all the problems of islands and apart from the positive effects, there are also other adverse impacts of tourism development (Sunlu, 2003). Environmental issues arise when human activities bring impact exceeding the limits of the physical environment and are harmful to the species and population of the surrounding ecosystem. Environmental issues do not arise individually but rather constitute a combination of scientific physical, personal, social and political factors. Environmental issues include interrelationship between the environment and society, environmental effects of technological and economic growth, air and water pollution, the greenhouse effect, global warming and other environmental concerns. It's important to recognize the causes and effects of these environmental issues which will enable the decision according to the context (Ramdas & Mohamed, 2014).

In general, tourism can cause the same forms of pollution as any other industry: air emissions, noise, solid waste and littering, releases of sewage, oil and chemicals, even architectural/visual pollution (Sunlu, 2003). However, tourism is also one of the main contributors that is responsible for environmental depletion, due to building constructions and tourism activities (Pickering & Hill, 2007; Fabinyi, 2008; Hannak et al., 2011). As mentioned by Peng & Guihua (2007), human activities bring implications for quality and quantity of natural resource, such as: (1) the establishment of hotels and resorts, port constructions and boats utilization, (2) reef-walking, snorkeling and diving, (3) fishing, and (4) land-based pollution and sedimentation (Barkes & Roberts, 2004; Parolo et al., 2009; Hannak et al., 2011; Kurniawan et al., 2016).

Those aforementioned developments, commonly found in developing countries, were made without any regards to any consideration that small islands have limited land and clean water making them vulnerable to extensive pressures (Gossling, 2001, 2002; Tompkins, 2005). Theoretically, according to an ecological resilience perspective, all ecosystems are vulnerable and easily disturbed (Lauer et al., 2013). Kaly et al. (2002) and Tompkins (2005) stated that vulnerability and resilience can be viewed as interconnected systems. Another theory stated that vulnerability is defined as a level in which the human- and nature system experiences loss due to external disturbances or pressures (Janssen & Ostrom, 2006), whereas resilience is described as a degree of disturbances that can be absorbed by a system (Holling, 1973) and the recovery time for a system to reach its balance point (Brand & Jax, 2007). Campbell (2009) and Lloyd et al. (2013) stated that vulnerability is the tendency of a disturbed and damaged system, while resilience is regarded as the ability of the system to adapt.

Small islands can be included as vulnerable entities because of their remote location, limited resources, high dependency on imported goods, high incurring transportation costs and susceptibility to natural disasters (Brookfield, 1990; Barrientos, 2010; Adrianto & Matsuda, 2004; Vogiatzakis et al., 2008). Global processes (such as climate change and the associated sea level rise), regional processes (the pollution in developing cities has an influence on small islands located in them), and local processes (environmental and resources degradation as impact of population growth) also contribute to the vulnerability of small islands (Pelling & Uitto, 2001; Barrientos, 2010; Adrianto & Matsuda, 2004; Farhan & Lim, 2012; Kurniawan et al., 2016).

Due to their small size, many islands face relatively large environmental dangers, mostly due to the pressures arising from the process of economic development. Many islands experience fast depletion of agricultural land and destruction of native forests, flora and fauna, which normally accompany an increased demand for residential building, entertainment facilities and industrial construction. The process of economic development also brings with it an increased demand for resources, some of which are non-renewable (Briguglio & Briguglio, 2002; Stylidis et al., 2007).

Additionally, the increased traffic caused by tourism poses severe strains on many islands. Airports and seaports in islands take up very large areas in proportion to the total space available, posing increased land-use pressure as well as air and sea pollution. In the case of air traffic, flying crafts also contribute considerably to noise pollution, affecting practically the whole population of small islands (Briguglio & Briguglio, 2002).

Moreover, the large amount of waste (solid and liquid) created by tourism is a problem since space for its disposal on islands is limited (Sheldon, 2005). These issues can be particularly acute on islands that experience high tourism densities in relation to their population and land area (Briguglio & Briguglio, 2002; Cullen et al., 2004).

The negative impacts of tourism in Greek Islands

Tourism is a central pillar of the Greek economy, boosting employment, generating income, and contributing to regional development. Over 27 million tourists visited Greece last year, according to Bank of Greece (2018). Tourist traffic increased by 9.7 percent, reaching 27,194 million visitors compared to 24,799 million visitors in 2016 (Bank of Greece, 2018). Tourism directly supported nearly 366.000 jobs in 2016, accounting for approximately one in ten positions in Greece (OECD 2018).

This year the country is expected to welcome 32 million foreign travelers, an almost 100 per cent increase from the 15 million visitors in 2010 and over five times as high as the number 10 years ago. Greece is the latest in a string of European countries fighting to maintain the fine balance between sustainable tourism and “over tourism”. Despite environmental uniqueness of scenery becoming central to destinations’ competitiveness, most Greek destinations go through an unparalleled exploitation of nature due to inadequate planning and reinvestment in their sustainability, jeopardizing their future. Coastal pollution, water shortage, sewage treatment, waste disposal, traffic congestion, noise pollution, overbuilding, and aesthetic degradation are some of the impacts experienced already in a number of resorts. Most of the islands also face water shortage due to the inability of natural supplies to provide sufficient water for the tourism demand. Imported mineral water from the mainland is an expensive way to solve this problem due to the transportation cost, while it creates more waste and environmental damage. In addition, the destruction of endangered species’ habitats is another problem confronting several islands (Buhalis, 2001).

A report published by the World Travel and Tourism Council last year, entitled “Coping with Success: Managing Overcrowding in Tourist Destinations”, acknowledges the challenges that can arise from a rapid rise in the number of tourists. The report identifies five key consequences of over tourism: Alienated local residents, degraded tourist experiences, overloaded infrastructure, damage to nature and threats to culture and heritage. “Alienated local residents” is perhaps the most telling factor when it comes to overcrowding as it’s broken into two parts: Density of tourism, which is the number of visitors per square kilometer, and tourism intensity, which is the number of tourists per one resident. With one in five Greek people working in the tourism sector, achieving an equilibrium that benefits residents and tourists will be a delicate business (WTTC, 2017)

The issue of Solid Waste Management and the impacts on marine life

Extensive usage of plastic has resulted in the generation of tones of plastic waste. Plastic waste littering is a continually growing problem on local, regional and global levels. Plastic has a long life span in the environment thereby it accumulates all over and causes considerable threat to both land and marine life. It has severe implications on human health as well.

Plastic waste management has emerged as one of the greatest challenges of the 21th century. Global marine litter is now recognized as one of the most widespread sources of pollution that the world's oceans are facing. While plastic is a vital material in our economy, there is now a growing international momentum to rethink about all the stages of the plastics life-cycle from design, manufacture, use, re-use, end-of-life management, and entry and removal from the environment and to take positive steps towards mitigating marine plastic litter. The current life-cycle approach to plastics is economically wasteful, harms ecosystems, and threatens livelihoods and vulnerable communities. Plastic pollutes our oceans, and as much as 80% of all plastic in the oceans is land based (Walker & Xanthos, 2018).

Therefore, the main concern is the proper disposal of plastic waste. This can be achieved by having a plastic waste management system in place, which makes use of the 3R's (Reduce, Reuse, Recycle). This will ensure lesser generation of plastic waste and would ensure elimination of its accumulation in landfills and marine environment. As a result, plastic in the long run may prove not to be a major pollutant of concern (Lineswala et al., 2017).

"Ban of Plastic bag" as a solution

The plastic bags waste littering problem is significantly increasing all over the world and is becoming a pressing issue. Plastic bags are made from non-renewable resources, where a variety of raw materials and technologies are employed into manufacturing them. However, petroleum and natural gas are the key ingredients widely used for their manufacturing (Muthu et al., 2012). Plastic bags are widely used in shopping because they are very cheap, strong, lightweight, functional, and serve as a hygienic means of carrying food and other goods (Jalil et al., 2013). They are perceived as having no cost as they are offered free of charge. Hence, their environmental damage cost (externality cost) is not internalized in their true cost (Saidan et al., 2017).

Saidan et al. 2017 assessed different scenarios to control the use of plastic bags based on an environmental-social-economic impacts analysis. The results obtained reveal that a blanket ban may not be the best possible solution for the environment. It is shown that the imposition of an environmental levy on plastic bags can reduce their consumption by 70 %. Bans or fees have been one method used by public authorities around the world to limit the consumption of plastic bags (Sharp et al., 2010; Ornell & Finn, 2011, as cited in Bartolotta & Hardya, 2018; Rivers et al., 2017). Findings from this project show that 75% of respondents are in favor of either a ban or a fee, or both. A similar survey conducted by Ornell and Finn (2011) found that 66% of the respondents support a ban for plastic bags in the Outer Banks and Carteret Counties of North Carolina (Bartolotta & Hardya, 2018). Other areas have not followed though, making the lessons of where plastic was banned quite important, if we wish to have others follow.

The campaigns of "Minimal Waste"

Community based ecological solid waste management program can be improved through training, campaign, the provision of simplified guidelines, clearly defined roles and responsibilities, the education of the local community, coordination between various stakeholders, training assistance, evaluation or monitoring, involvement of school and schoolchildren. Community-based participatory research can be implemented to raise public awareness of waste disposal management and encourage the community to solve the problem themselves (Joseph et al., 2017).

Several campaigns were launched in different countries to reduce excessive plastic bag consumption, protect the ecosystem, and stimulate consumer behavioral changes. Some of these campaigns failed and regulations were dropped due to the opposition from commerce and industry, as well as defiance and protest from retails, groceries and plastic industry (Saidan et al., 2017). But, for the plastic management system to be effective, all the stakeholders from both the formal and informal sectors need to be involved. They need to be made aware of and educated about how to manage plastic waste on their part and its proper disposal (Lineswala et al., 2017).

Methodology

In July of 2018, a questionnaire-based survey supplemented with semi-structured, face-to-face interviews was administered to Skyros Island's shop owners. The questions, the total number of which was 26, were derived from other research projects and were divided into 4 groups. The first group of questions revealed the demographics of the sample, the second provided information on their reflections towards general environmental issues; the third one targeted at revealing their perceptions towards the environmental impacts of tourism and the last one aimed to assess their willingness to participate.

The research area was the island of Skyros, and specifically the port of Linaria. The small tourist port of Linaria is considered a key port, with a high tourist interest. In the last ten years, it has drawn lots of attention and is presented as the most complete and friendly public port in the country.

Results

Demographics

As it was described in the methodology section the sample was consisted of 14 Skyrians' shop-owners, the vast majority of whom were permanent residents of Skyros (93%). In Figure 1 and 2, it is shown the gender and the age groups of the participants respectively, and as it is noticed the female participants were more (57%) than the male ones (43%), as well as most of them were in the age group of 36 to 45 years old (57%).

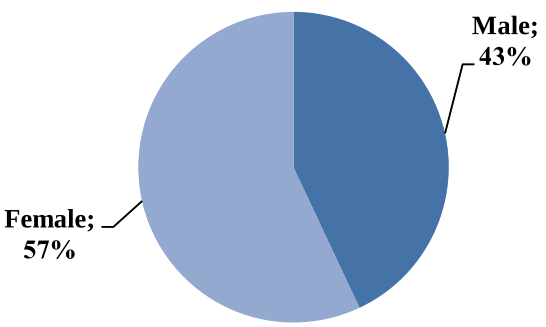

Figure 1. Gender of participants

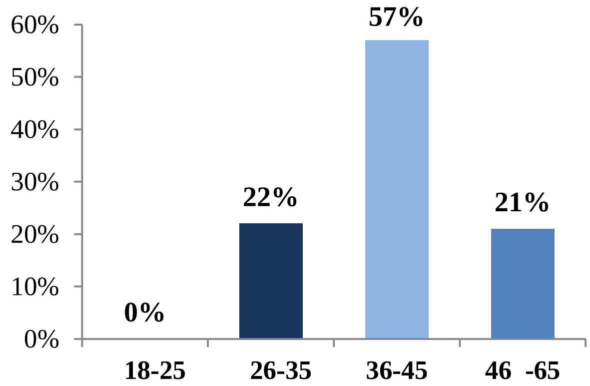

Figure 2. Age groups of the respondents

Approximately half of the respondents had completed high school studies regarding their educational level as it is depicted in Figure 3.

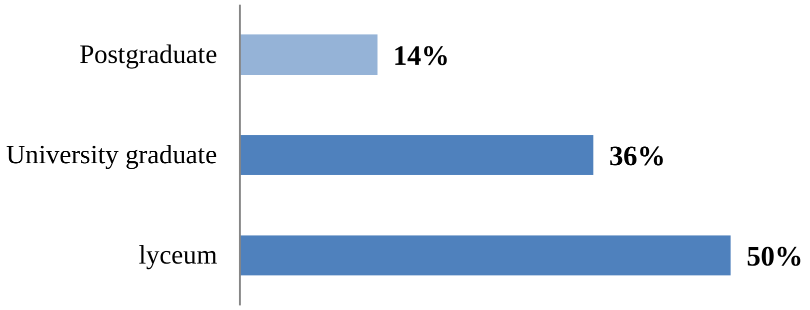

Figure 3. Respondents' educational level

The marital status of the interviewees is shown in Figure 4, and as it is noticed 50% were married, while 43% were single. While at the same time 40% had no children, 7% had one child, 43% had two children and 7% had three children.

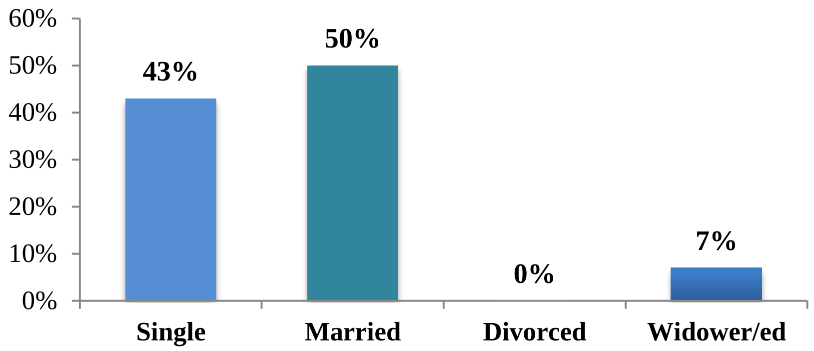

Figure 4. Marital status of the respondents

Most of the participants in this specific research were restaurant (36%) and cafeteria (21%) owners as it is revealed from Figure 5.

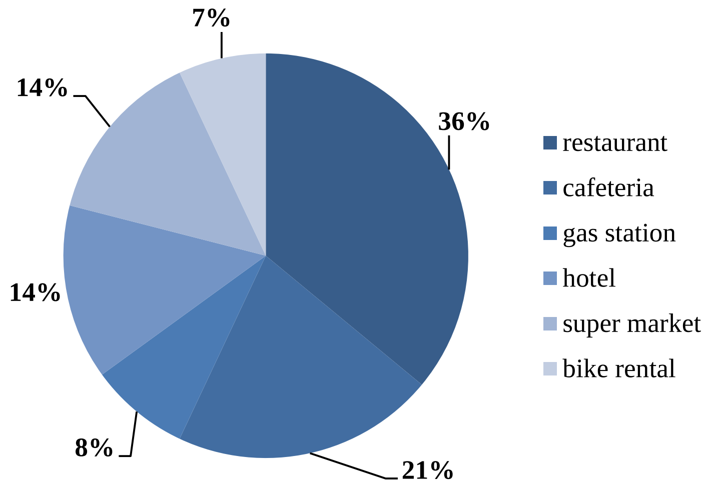

Figure 5. The kind of business the participants own.

Furthermore, their perceptions towards the extend of financial satisfaction of those who are involved in tourism in the summer months are depicted in Figure 6, and as it is revealed that the majority of them were moderately satisfied (57%) and very satisfied (29%).

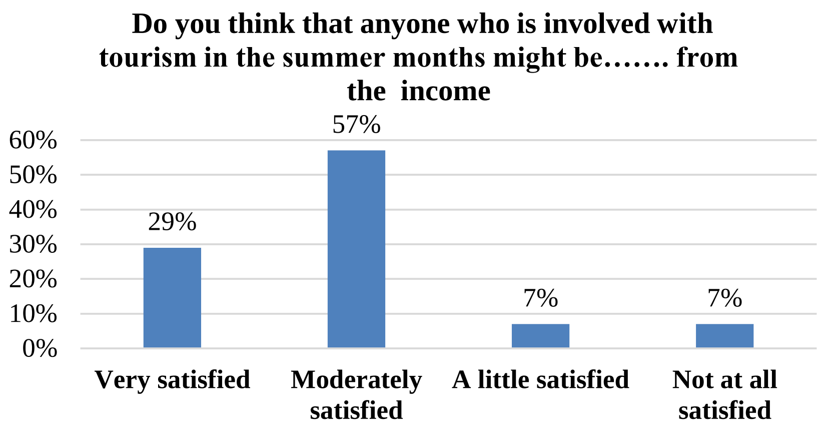

Figure 6. The participants' perceptions due to the extent of satisfaction from the income of those who are involved

General Environmental Issues

Several questions regarding environmental awareness and perception about the environmental impacts of tourism were included in the survey questionnaire. Concerning the comment "the environment is in a trace of pollution…", as is shown in Figure 7, 36% of the participants believed that it is "in a dangerous trace", while the same percentage believed that "very much".

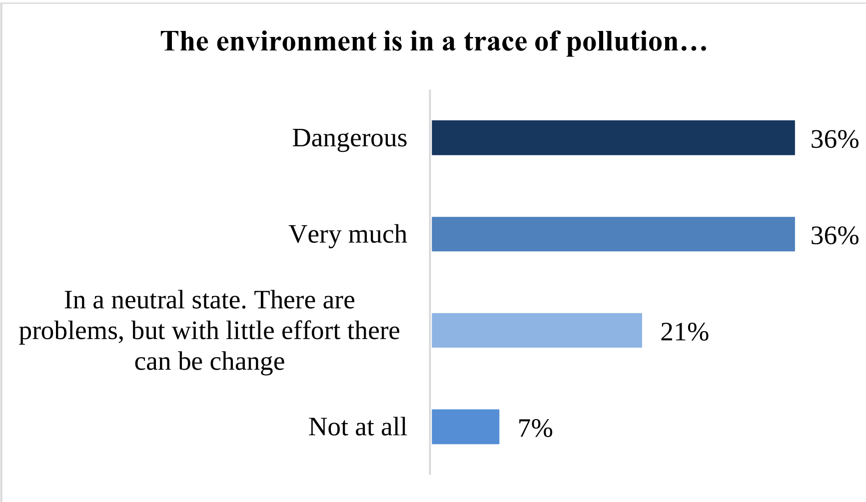

Figure 7. The participants' perceptions with regard to the comment "The environment is in a trace of pollution…"

In addition, the inhabitants were asked to express their opinion about the most serious problems Greece is facing, on a scale of 1 (not serious) to 5 (extremely serious), (Table 1), and as it is observed "the refugee crisis" (Mean=4.57) and "waste management" (Mean= 4.36) were believed to be the most serious problems.

Table 1. Skyrians' beliefs about the most serious problems Greece is facing

	Mean	Stdev	Min	Max
The refugee crisis	4.57	0.64	3	5
Waste management	4.36	0.74	3	5
The economic crisis	4.29	0.72	3	5
Air pollution	3.86	1.29	1	5
Insufficient education	3.79	0.69	3	5
Climate change	3.64	1.08	2	5
Deforestation	3.57	1.01	2	5
Poverty, lack of food and drinking water	3.43	0.75	3	5
The spread of infectious diseases	3.43	1.22	1	5
The increase in the world population	3.21	1.25	1	5
Armed conflicts (wars, etc.)	2.86	1.23	1	5

On the other hand, concerning the most serious environmental challenges that Greece is confronting with on a scale of 1 (not serious) to 5 (very serious) is depicted in Table 2. According to their answers, the most serious environmental challenge for Greece was "the increase in the production of solid waste" (Mean=4.14), "marine pollution from plastic, wages etc." (Mean= 3.86) and "threatened species" (Mean=3.86).

Table 2. Skyrians' beliefs about the most serious environmental challenges Greece is facing

	Mean	St Dev	Min	Max
The increase in solid waste production	4.14	1.02	2	5
Marine pollution (plastics, wages etc)	3.86	0.94	2	5
Threatened species	3.86	1.16	2	5
Climate change (and its impacts such as droughts, floods, extreme weather events, rising sea levels)	3.79	0.97	2	5
Coastal erosion	3.71	1.13	1	5
Air pollution	3.5	1.16	1	5
Deforestation	3.5	1.01	2	5
Fresh water pollution	3.43	1.34	1	5

It is worth noting that 100% of the respondents expressed concern about the quality of the environment. Moreover, 93% of them were willing to participate in educational programs that implement the reduction of waste production, in order to learn more about how to do it more effectively.

Perceptions towards tourism sector

In the 3rd part of the questionnaire they were evaluated concerning their perceptions towards the tourism sector. Firstly they were asked to express their views according to some comments related to the tourism sector, using a scale from 1 (totally disagree) to 5 (totally agree). So, as it is observed in Table 3, the answers that presented to be in the highest mean were “Tourism increases the value of the area and generates income for the inhabitants” and “Tourism makes an area popular and well known” (Mean= 4.79).

Table 3. Perceptions’ of Skyrians shop owners towards tourism sector

	Mean	St Dev	Min	Max
Tourism increases the value of the area and generates income for the inhabitants	4.79	0.42	4	5
Tourism makes an area popular and well known	4.79	0.42	4	5
Tourism is an economic activity that supports the local economy, since it supplies great economic benefits to the region	4.64	0.63	3	5
Tourism provides jobs to local residents	4.64	0.49	4	5
Tourism is an activity that can raise public's awareness due to the contact with the natural environment	4.29	0.91	2	5
Tourism revenues benefit from environmental protection	2.71	0.99	1	4

Concerning the environmental impacts of the tourism sector, the shop owners’ opinions using a scale from 1 (totally disagree) to 5 (totally agree) are depicted in Table 4, and as it is noticed in the mean of their answers they agreed (3.93) with the statement that “Increased construction of tourist and recreational facilities causes pressures in water resources, increases energy demands etc.”.

Table 4. Perceptions’ of Skyrians shop owners towards environmental impacts of the tourism sector

	Mean	St Dev	Min	Max
Increased construction of tourist and recreational facilities causes pressures in water resources, increases energy demands etc.	3.93	0.47	3	5
Tourism can cause a problem in the waste management of a region due to the increased amount of waste generated by tourists	3.79	1.12	2	5
Tourism puts pressures on the natural resources of a region	3.5	0.85	2	5
Tourism is an activity that causes environmental degradation in an area	3.36	0.92	2	5
Waste water produced by hotel units due to increased tourism pollutes the marine and lakes that surround the tourist attractions, causing damage to flora and fauna	3.07	0.91	2	5
Tourism causes a decline in the biodiversity of a region	3.06	0.91	2	5
Increased construction of tourist and recreational facilities causes deforestation of an area	2.93	0,47	1	4

All participants believed that during the summer months, the increase in the number of tourists that visit Skyros Island worsens environmental pressures. In the sequel, they were asked about the environmental problems Skyros Island is confronted with, during the summer months, due to tourism. According to their answers, which are presented in Figure 8, solid wastes seems to be the most serious problem they face, with a percentage of 57%.

Perceptions of the respondents towards environmental problems that your island confronts during the summer months due to tourism?

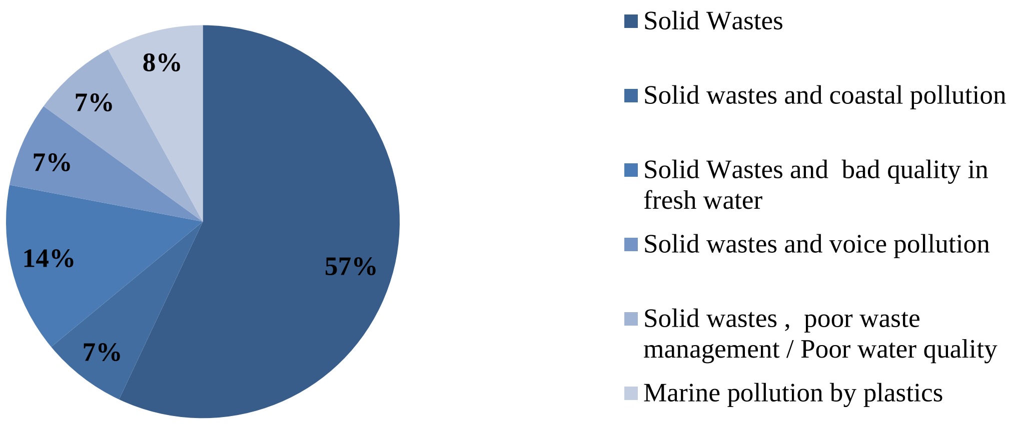

Figure 8. Perceptions of the respondents towards environmental problems that their island is confronted with, during the summer months, due to tourism

Willingness to contribute to the solution

Additionally, on a scale of 1 to 5 (1 = no, 5 = completely), they were asked to say to what extend they would be willing to contribute individually to the solution of the waste problem in Skyros Island, in a variety of ways (Table 5). As it is depicted by their answers through "more recycling" (Mean=4.43) and "use of sachet bag in their daily shopping" (Mean=4.21) they thought they could contribute individually to the solution on the issue of waste management.

Table 5. Shop owners' willingness to contribute individually to the solution of the waste management problem in Skyros Island

	Mean	St Dev	Min	Max
Recycle more	4.43	0.51	4	5
Use a sachet bag in your daily shopping	4.21	0.8	3	5
Change your lifestyle in your everyday life	3.79	0.89	3	5
Reduce the consumption of plastic products	3.71	0.82	3	5
Reduce the use or sale of plastic packaging products in your business	3.57	1.01	2	5

The majority of the participants (86%) believed that their business could manage to be sustainable without using plastic bags and plastic packaging, via the means described by Figure 9, with 43% believing that this could be accomplished via the usage of sachet bags, as well.

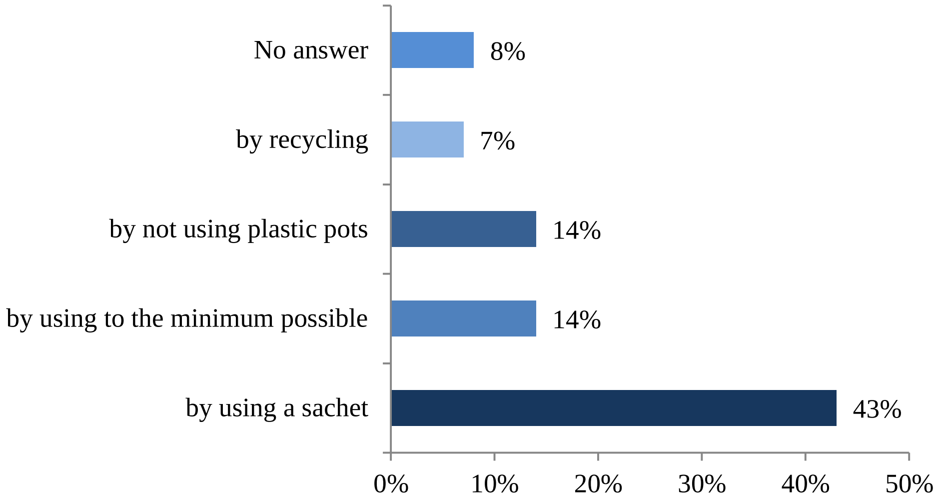

Figure 9. Perceptions of the respondents towards the manner that their business could work in a sustainable direction without the use of plastic bags and packaging

Only a percentage of 36 of the shop owners have already been involved in actions that improve or protect the natural environment of Skyros Island, but all of them were willing to participate in similar actions. Furthermore, all of them wanted to participate in "waste reduction" programs, while they believed that the existence of more environmental education programs, especially targeting on educating public towards reduction of solid waste production is an imperative need.

In the case that authorities charged with this task wouldn't do enough to solve the issue of waste management, they showed the intention to take actions, as it is depicted in Figure 10.

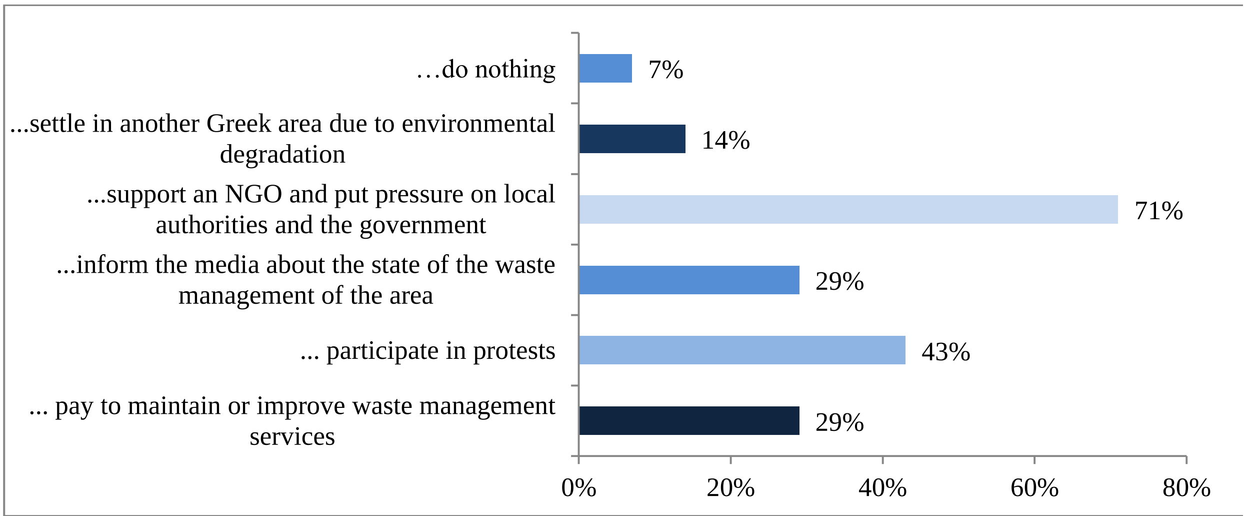

Figure 10. Shop owners' perception towards the activities they are willing to do if the authorities are not going to respond to solving the issue of waste management in their region

Discussion

General Environmental Issues

Environmental concern refers to the cognitive (insight to the problem) and emotional response (feeling of fear, anger etc.) by an individual towards concrete and abstract environmental problems. Concrete environmental problems are visible and local environmental degradation such as water and air pollution that has an immediate and direct effect on individuals cannot be ignored. Abstract environmental problems are less visible and are more global problems, which do not conjure immediate threat to individuals such as ozone depletion and global warming (Gosken et al., 2002; Liebe et al., 2010; Ramdas & Mohamed, 2014) and people tend to underestimate their importance.

In the case of Skyrian shop owners, as it is observed in Table 1, the most serious problems Greece is confronting with is the one of refugee crisis and the related waste management. Furthermore, they believed that the two most serious environmental challenges are the increase of solid waste production and marine pollution. Moreover, they appear to be concerned about the quality of the environment. Global environmental issues like climate change and deforestation appeared to be low in their preferences as they don't influence directly their region and their impacts are not visible.

Perceptions towards tourism sector

The findings of some conducted studies that evaluated the locals' perceptions towards tourism impacts have identified that local people were positive with tourism when several benefits were provided to them (Andereck et al., 2005; Brida et al., 2005; Latkova, 2008). The perceptions of tourism impacts from the locals are various depending on their exposure to tourists. The perceptions depend on how they view the tourism activities in their hometowns which are the tourism spots of attraction. Numerous authors found out that locals were positive with the tourism impacts once they accepted the changes that occur due to tourism activities (Long, 2012). Brida et al. (2005) stated a number of positive responds from the residents, as tourism was considered as a factor that contributes to a higher standard of living and tourism provided more facilities and services to the residents (Donny Sita & Mohd Nor, 2015).

In the same way, Skyrian shop owner's perceptions towards tourism sector since they benefit from tourism, appeared to strongly agree that tourism is an activity that increases the value of an area and generates income for the local residents. Furthermore they believe that tourism adds to areas' popularity and becomes an economic activity that supports the local economy, providing jobs to the local community. Occupational identity is the extent to which an individual's sense of identity is closely linked to his or her occupation (Carroll & Lee, 1990; Nunkoo & Ramkissoon, 2010). Some studies suggest that community members who work in primary and resource-based industries and who hold a strong occupational identity tend to be resistant towards other forms of development, such as tourism (Petrselka et al., 2005; Nunkoo & Ramkissoon, 2010).

The dependency on tourism activities is a factor that explains the residents' attitudes towards tourism. Generally, researches (Prentice, 1993; Getz, 1994; Haralambopoulos & Pizam, 1996; Korca, 1996; Lindeberg et al., 1999; Chazapi & Sdrali, 2006) have shown that economic benefits from tourism play an important role in shaping the residents' attitude toward tourism. More specifically, the residents who were occupied in tourism activities were more supporting and advocating to tourism development (Chazapi & Sdrali, 2006).

In a depressed island economy, residents might need to struggle for a living and might not be in favor of tourism but may still engage in an exchange process with tourists as a result of a lack of other opportunities to boost local economy. Kayat (2002) notes that such residents tend to display positive attitudes towards this industry, which might not always be attributed to the increased preference of tourism, but on the fact that these dependent residents have no alternatives other than tourism to sustain themselves (Nunkoo & Ramkissoon, 2010). It is worth noting that as the local residents benefit from tourism and increase their income from

related activities, they begin to protect the environment voluntarily and enhance the awareness of environmental protection (Zhao & Min Li, 2018) in order to sustain their wealth.
In this specific study, the residents of Skyros Island appeared to be completely aware of the environmental pressures tourism sector poses on their island of residence, since they believed that the increased pressures on water resources and energy demand are the main negative impacts on the region. Furthermore, they believed that tourism causes a great problem in the waste management of the region due to the increased amounts of the waste generated by tourists. Increased construction of tourist and recreational facilities causes pressures on water resources, increases energy demands etc. Tourism puts pressures on the natural resources of a region. All of them believed that during summer months, environmental pressures are increased. The main though problem they identify is the production of solid waste probably because of the local authority's intension to deal with it successfully.
Tourism has provided significant benefits in terms of economy and has led to an increase in community awareness of protecting the ocean environment especially the marine conservation area (Pelletier et al., 2005; Fabinyi, 2008; Abecasis et al., 2013; Kurniawan et al., 2016), assuming that the appropriate environmental awareness programs have been employed.

Willingness to contribute to the solution
Waste management within the tourism industry is not seen as a high priority and often a quite negligible effort is put into this important management aspect. Through better management of waste generated, the impact on the environment will be dramatically reduced.
The respondents of this research appeared to have the willingness to reduce accumulated wastes by increasing the recycling of sachet bags in their daily life, as well as reducing the consumption of products that have plastic packages. On the other hand, the majority of them believed that their business could be sustainable without the usage of plastic bags and plastic packaging, but by using sachets. As it was noticed, by Breedt et al. (2016), the core values are driven by a business philosophy of taking less and giving more. Taking less relates to reducing the footprint of the business, while giving more in turn means giving to the land, the wildlife and the communities which form an integral part of the tourism experience (Breedt et al., 2016).
Several campaigns were launched in different countries to reduce the excessive plastic bag consumption, protect the ecosystem, and stimulate consumer behavioral changes. Some of these campaigns failed and regulations were dropped due to the opposition from commerce and industry, as well as defiance and protest from the retails, groceries and plastic industry (Saidan et al., 2017). Though only a few Skyrian shop owners have already become involved in actions that improve the environment of their region, they appear to have the willingness to participate in waste reduction programs. Moreover, they believed that the existence of environmental educational programs targeting in public's training on the reduction of solid waste production is vital.
As the literature revealed, incorporating environmental awareness and management into training in the tourism industry would be a step towards ensuring the implementation of environmental policies and legislation in tourism enterprises. Proper training and increased staff awareness of the importance and complexity of tourism within a broad social, economic and environmental context would help foster pride in the job and would improve the tourism product for consumers, hosts and the industry (Kilipiris & Zardava, 2012).

Conclusions
Plastic in our oceans is having a negative impact on all the levels of food chain, including humans. In fact, as Connell observed (1988, p.62) 'for island states that have very few

resources, virtually the only resources which may have some comparative advantage in favor of are clean beaches, unpolluted seas and warm weather and water, and at least vestiges of distinctive cultures'. Indeed, since their ecosystems and natural and scenic beauty are some of their main advantages, islands need to preserve them in order to remain competitive in the tourism industry. This may require that islands place further constraints on travelers, in that they may not be able to do all of the activities that they could do at some other destination. However, protecting the ecosystem makes it potentially more difficult to satisfy the traveler's sense of value (Stylidis et al., 2007). Like many countries around the world, Greece needs to act swiftly to curb the vast amounts of plastic waste produced. The Greek government should seriously consider a federal ban of single-use plastics (including single-use plastic bags and other items such as, plastic drinking straws, plastic cutlery, and plastic packaging). This small island in the heart of the Aegean Sea revealed a positive attitude towards environmental campaigns targeted at reducing solid waste production and ban of plastic use. Shop owners are aware of the situation and are ready to participate in solutions acting themselves as models of responsible environmental behavior. Participants on Skyros Island showed the intention of becoming the ambassadors of such a great endeavor.

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The continental Portuguese islands: Marketing anthropological assumptions

Adalberto Dias de Carvalho[1], Cristiana Oliveira[2]
[1]ISCET – Instituto Superior de Ciências Empresariais e do Turismo
[2]Universidad Europea de Canarias

Keywords
Small islands; motivations; utopia; paradise; fantastic

Abstract
The present article, the result of a qualitative research of conceptual nature and of an exploratory analysis of contents, seeks to make a critical approach between concepts related to the anthropology of insular tourism and the main elements of marketing and documentation in general that is developed around the small Portuguese continental islands. This approach seems all the more important, as there are very rare and almost non-existent studies on the tourist phenomenon in these islands which, perhaps due to their smallness, tend to be forgotten.

Introduction

This article intends to highlight the anthropological and sociological assumptions underlying the interest and curiosity many people have for small islands. One based on conscious and unconscious, real or imaginary motivations, which often make us desire to visit islands while tourist destinations. It is just by reference to this desire based on historical and utopian roots that many marketing campaigns are developed in the field of island tourism. Projecting beyond historical time, the small island, following the model of the South Pacific islands, provides the construction of "metaphors of spirituality" and truly utopian paradisiacal images that attract tourists, including the craving for passage to the unknown provided by water. Thus, both isolation and withdrawal foster ideals of liberation and fulfilment in places protected from the inconveniences of a civilization which, in principle, is intended to be overcome by escaping from it. The power of the fantastic and the mythical presents a fundamental role that tourism marketing crystallizes and offers in images, slogans and texts promising the experience of paradise in the small islands. In this article, all these assumptions will be applied to the study of the small Portuguese continental islands.

State-of-the-art

The insularity – as Françoise Péron wrote (1993) – is the way of life more adapted to man, making his contradictory desire for openness and recollection come true, whose unit we continuously search. The sea as horizon is precisely that: projection over the distant and retraction to what is near us.

Arriving on an island, at least for those who don't live in one, always implies to cross waters, by the confrontation with the extension and the power of the sea.

This isolation is here conceived in an essentially physical and geographical perspective, considering the distance from the continental areas. Isolation, which emerges as responsible for the vulnerability of the island ecosystem – as a result of the endemism, the reduced number of specimens of each species, and the struggle in the renewal process of genetic stocks – which imposes a relatively small capacity for overcoming accidents with natural or human causes. Thus, its balance is very fragile (cf. Demangeot, 2000).

This naturalistic approach of the concept of island must be enriched with other sociological and anthropological insights, through which authors as Françoise Péron emphasize the idea that the island societies are "territorialized societies", as the sense of ownership over the territory is exacerbated. The insular space is psychologically lived in everyday life in another way, as its inhabitants, confined between heaven and earth, are particularly exposed to time and space whims.

"The finitude of the island is a constraint to the thought that is lost in it, but it is above all a source of inspiration for the imaginary that is lost in it". Furthermore: "Insularity, if we were able to live it in its fullness, would be the way of life more adapted to man, since it would fulfil his incessant and contradictory desire for openness and recollection in the necessary quest for his unity" (*op. cit*., p. 239).

Moreover, from the anthropological and cultural approach of the island concept, according to Péron, arises a different framework and understanding of its definition and, in this context, of its dimension. Despite the technological evolution and the media, the islands – namely the small ones, which are the prime example – preserve a kind of privacy, ruled by the surrounding sea. This intimacy, when we live on an island, is noticeable and increasingly realized, which Péron characterizes as being something very peculiar: "the art of creating difference, the means of approaching men, the obligation to maintain close relations with the daily life places" (*idem*, p. 13). Actually, "the best island is undoubtedly the small island", as "the insularity is to a large extent, at least in people's awareness, in the relationship with a well mastered space, embraced by the thought and whose contours have been materially experienced, the island is a local concept, in its essence" (*idem*, p. 18).

The concepts approached are the following: "insularity", "islandness", "island desire", "island need", "maritimity" and "desert island". According to Joël Bonnemaison (1990: 120), "insularity characterizes a geographic form resulting from a major physical discontinuity that leads to isolation from large lands or continents."

This way, insularity means isolation. Islandness means being apart, disconnected from the remaining part of the world in a way that creates a place set adrift, free floating in space and in time. A place that is both naked and absolute. This is what generates dreams. However, those who live in the island are rarely those who dream of it. The islanders themselves experience insularity rather as an isolation. Nevertheless, one can live in the island insofar as one does not see it as a centre or a periphery, but as a step in the chain that links it to the universe.

On the other hand, islandness participates in the universe of representation and metaphor; it does not refer so much to the fact but to the vision. The island "isolated land on all sides by the waters" (*ibidem*) really exceeds the measure of physical singularity. There is an island symbolism referring to an ideal archetype that varies according to civilizations, even, perhaps, according to individuals. We call "islandness" to this archetype, to which each island approaches more or less".

The concept of "island desire" expresses the impetus for a "mythical insularity" as the "inverse of the continental world": "the island, due to the maritime expansion that separates it from mainland, appears like the last geographic territory that materializes the idea of distance, of spatial rupture (and time)" (P. George, *apud cit* Bonnemaison, *ibidem*). Thus, due to its reduced dimension, island imposes, simultaneously, boundaries to human excesses and, due to its isolation, irruptions of an alterity allowing the idealization of horizons alternative to the frustrations of urban life.

Deleuze notion of "desert island" associated to the metaphor of the "cosmic egg" as space of freedom and imprisonment, regains its relevance in order for us to understand the anthropological profile of the existential frame.

Methodology

We have adopted conceptual research as methodology because considering the field of study of the present article it was, first and foremost, urgent to clarify concepts, many of them polysemic and often also involved by the imprecision of their use by common sense. Thus, there is a demarcation of both objectivism and subjectivism.

The article by Xin, Tribe and Chambera "Conceptual research in tourism" is our main reference here. From this work, a quote from Drehers is transcribed in the following passage:

"a set of activities that focus on the systematic analysis and profound understanding of tourism concepts. Research can cover the antecedents, origin, history and development of the concept as well as its current use, facets, controversies, applications, characteristics and idiosyncrasies, points of differentiation, discourse and ideological analysis and deconstruction. Its major outcomes include the clarification of a concept, the proposing of a new concept, the modification of an existing one (reconceptualization) or ideological or other critique".

Moreover, Xin, Tribe e Chambera conclude (op. cit., 84):

"The power of conceptual research in tourism is important from its impact on both the world of though (e.g. embodiment, tourist mobilities, authenticity) and the world of practice (e.g. tourism area life cycle, pro-poor tourism, responsible tourism). Given its theoretical inadequacies, the tourism canon relies heavily on the development of its concepts."

For an anthropological approach

The drawing of the contours of the islands is in itself an element of attraction that meets the "need of wandering", since it highlights the limits that separate them from the extension of the oceans, although the continent can be close, as in the case of the continental islands.

In these situations, we are exploring a proximity that will not fail, by our own eyes or the rebelliousness of the waters, to feed the sensation of a separation that can be experienced in a controlled way, but which never ceases to impress.

Here we overcome the latent antagonism between the sedentariness and Maffesoli's (1997) concept of "nomad impulse".

The testimony of former travellers or some more or less solitary residents cherishes the experience of this sensation and the announcement of its occurrence. In these places, the magic of a lighthouse or the company of the birds as inhabitants that find here their shelter are powerful motivations, usually interspersed with legendary stories of pirates, treasure hunters or hermits. The island has always appealed to the sense of ownership and, through itself, to the possession of ourselves, not only by sharing, though illusory, with its inhabitants, whatever they are, as by the regression to an alleged interiority, that transports the Adamic memory of the lost paradise of concord and freedom.

In addition, tourism can and should be fruition of the human condition.

Portuguese continental islands and their marketing focuses

A situation that seems less studied is the one regarding small islands that without inhabitants, or almost, and being very close to the coast, are, even so, object of tourist interest. Alongside the Portuguese coast, there are some that, being continental, are close, not inhabited by communities and most of which are summer and beach locals. Nevertheless, their characteristics are diverse, being important, it seems to us, to try to apply the conceptual network that usually one uses for the comprehension of small islands' insular phenomenon in their relation with tourist activity. This, namely, in terms of marketing, tourist agents and users.

Few islands exist alongside the Portuguese mainland coast. We mention some of them, all practically uninhabited and object of great curiosity and fascination. For this reason, marketing invokes the magic, the mysticism, the mystery, the enchantment, the adventure and the isolation as attributes that characterise these islands and that even appeal to a contagious and intimate sense of possession, certainly raised by its smallness.

Ínsua Island
In the islet of Ínsua, there is a small fortress, known as "Forte da Ínsua". Despite the modest dimensions, it was the first of many coastal fortifications aligned along the coast to prevent the assaults of pirates that came from the sea. Today it is abandoned, although inside there are some ruins of the chapel devoted to Virgin Mary.
Trips to the island are monopolised by two boats but in contrast to the other continental islands, Ínsua is really abandoned. No one knows who takes really care of it. One can tell that the boatmen have a special statute. Just because they have access to it, they consider themselves the owners of the island.
From Jorge Nunes ("Descobrir sem pressas a ilha do Pessegueiro"), you may find the following passage:
"Over time, the old island eventually lost its defensive and religious utility, but that was not enough to remove the charm which continues to embellish the postcards of the region and make the delights of the more adventurous visitors. After all, who never dreamed of having a desert island all for himself?"

Pessegueiro Island
The small Pessegueiro Island, closer to the southwest coast, is continental in origin and marks, therefore, one of those points in which the land emerges from the ocean. Despite its proximity, it arouses spontaneous curiosity because, certainly, although close, it is not immediately reachable and in order to visit it, the experience of a sea crossing is required. In another text about the island (Júlio Gil *apud cit* Jorge Nunes, *ibidem*), the author mentions that "insularity continues to be a remarkable experience for many tourists" and that the island is full of histories and mysteries: the truth is that "one looks at its ruined walls, immediately thinks of pirates, assaults, hiding places, rest, drama and wonder stories". (…) "Its peculiar location, so close, makes it mysterious and irresistible, especially when it is admired from the island fort, a privileged viewpoint to admire the few three hundred and so meters long" (*ibidem*).
The observation of this island reveals its insularity defined by its boundaries namely through a rough sea against the coastline. In addition, it is a desert island making an invitation to discovery and to adventure despite its smallness, which in fact confers to it such an inviting as an intriguing intimacy allied to a close isolation, allowing, for this reason, to experiment it safely.
The marketing of Pessegueiro Island highlights its insularity as a tourist attraction:
"(…) visiting the island, only two hundred meters wide, is always a remarkable event. Even though the mainland coast is only three hundred meters away, insularity remains as an outstanding experience for many tourists. Even if we exclude the abundant rocks – that for their small size only serve as home to seabirds – along the mainland coast of Portugal there are only a few islands where humans can come and stroll on the island" (in http://lazer.publico.pt/passeiosepercursos/261687_descobrir-sem-pressas-a-ilha-do-pessegueiro).
It is very curious the attitude of the person responsible for the island before the tourists exploring, precisely, their imaginary, which he is able to guess due to his experience.

Therefore, he highlights aspects related to an alleged rarity of its flora, its fauna besides episodes that all over the years conferred to it a certain mystique. This way refers to the visitors' eventual scientific knowledge to which they correspond thanks to the inspiring rambling of the passionate guide.

Berlengas Islands
In what concerns Berlengas islands, one finds a description that expressly establishes the correlation between the fact that it is a set of islands and, as such, relatively inaccessible and the circumstance of, because of it, is offered as a natural paradise that has been preserved. A paradise that due to its natural heritage and few inhabitants, presents itself as "wild". At the same time, it stands out the contradictory accessibility that the tourist can easily enjoy of something that being remote, in fact is not. The sea around these islands, as a space of separation and connection, allows the rhetoric of this game of words and implicit feelings, which is attractive to the reader precisely due to this dialectic.
Nevertheless, the marketing images fully illustrate the contrast between the vast blue of the sea and sky. These aspects may be decisive when those who, having to make a decision, look for adventure in the clichés of an authenticity that tourist marketing creates according to the desires – and fears – of an average common visitor.
Berlengas islands' sole inhabitants are the vigilant and his wife whose feelings reveal the life they experience there. It is curious to verify that, according to Paulo Moura (2013), besides the normal routines of a vigilant, his wife's testimony assumes particular relevance. She mentions the isolation they live in, which, instead of provoking distress, arouses, according to her words, feelings of quietness and admiration for the beauty of the place. At the same time, presents her life precisely as a path of habituation to "winter's interminable loneliness", which she really needs in order "to feel complete". To complement this passionate description, she mentions the sound of waves and the singing of seagulls in a world she defines as "a miniature". In fact, a small island like Berlengas provides this kind of living, which corresponding, as this case, to a real experience, will reinforce, many times, among others the will to experience the natural and surprisingly human comfort that a small island can offer, awakening heterotypic feelings, which the concept of islandness expresses.
The following text, from the site www.visitportugal.com, clearly shows the features promoted by the marketing of Berlengas Archipelago:

Reserva Natural das Berlengas
Protected Areas
At a disance of around 10 km from Peniche, the Berlengas Archipelago is a natural haven maintained in a virtually unspoilt state. Constituted by three groups of small islands - Estelas, Farilhões and Berlenga - the zone maintains extensive undergrowth, including unique species such as the Armeria berlegensis and Herniaria berlengiana, whose names indicate their origin.
Many bird species find an ideal refuge here in order to nidify or as a stopping point in their migration routes. By far the most apparent presence is that of seagulls, which can be seen everywhere. Endangered species can also be seen such as the puffin, which resembles a small penguin and has been chosen as the symbol of a Nature Reserve. The protected area also covers an important 985-hectare marine reserve, with a highly diversified range of animal life.

Berlenga, the largest island, is the only one with inhabitants throughout the year, limited to those persons required for indispensable services - operation of the lighthouse and surveillance of the Nature Reserve, thus living in absolute isolation. Between May and October there is daily maritime transport from Peniche. If this timetable does not suit you, or

you would like to visit the islands during a different period of the year, there are small boats that can take you there, subject to seafaring conditions.
Berlenga is the ideal spot for those who are looking for tranquillity, far from the normal hustle and bustle of daily life, given that the island can only be visited by a maximum of 350 persons at any one time. In order to get to know the island better, you may follow the pedestrian walks that will lead you to the grottoes, to the Fortress of São João Baptista or simply find excellent spots in order to marvel at the spectacular landscapes."

Deserta Island
Most commonly known as the "desert island", in the Island of Barreta, which is the southernmost territory of the Portuguese mainland (in Santa Maria Cape), there is a restaurant and five fishermen huts.
"Fernando Alves, 67 years old, lives in one of the five blue wooden houses in the north side of Deserta.
"Dropped everything, built a boat and came to the island to dedicate himself exclusively to fishing. "Bosses never again", he thought. Now lives alone, with his work, bird watching, his thoughts and walks, his mad inventions.
Single inhabitant of the island, alone in the long winters, has plenty of time to think about life but also about techniques and methods applied to the arts of fishing, which made of him one of the best.
They call me the rat of Deserta." he says!" (*ibidem*)
There are elements that will end up attracting visitors willing to experience life on an island. Notice that the protagonist of this narrative is someone who links himself to the paradigms of a deserted island and of a happy loneliness fighting, in practice, everything that might be a threat to his volunteer isolation. They really call him, in his words, "the rat of Deserta" and, using a range of handmade instruments – for his safety, fishing control and comfort – he manages to be apparently autonomous and relatively self-sufficient approaching his daily life to Robinson Crusoe's.
It is meaningful the following excerpt of Deserta's promotion on the website: https://ilha-deserta.com/ilha-deserta-faro/: "ILHA DESERTA - FIND IT. LOVE IT. PRESERVE IT.
Ilha Deserta is one of the 5 barrier islands in the Ria Formosa Natural Park. A commonly asked question is if the island is called Barreta or Deserta. Barreta is the geographic name of the island, Deserta, which means deserted, appeared as a nickname among the anglers.
The shape of Deserta looks like an arrow pointing south, between the Atlantic Ocean and Ria Formosa. The island has been kept pristine for years, and today is still a surprise box if you are into Nature. From birds, to plants and flowers, crustacean, chameleons and others still to be found, Ilha Deserta is a hotspot of biodiversity.
One of the most enthusiastic features is the characteristic smell of the Island, and because of the lack of air pollution, and when a wet atmosphere occurs, Deserta is emerged in a vibrant orchestra of aromas. Depending on the season, Deserta keeps something secret for the occasion. The summer brings along the calm of the Atlantic Ocean where you can enjoy the pristine calm waters, with bright sun on a beautiful landscape. During the Fall, the birds start coming down south and find shelter in Ria Formosa to stay hidden form the cold winter of Europe.

The winter brings us a composition of silence and nature sounds, the waves start to hit the coast, the wind blows faster, as the wildlife finds shelter on the island. As with the arrival of the spring, the blossom of the flowers and the highly productive marine ecosystem brings out a bloom of colours and scents. Come and feel it for yourselves."

Conclusions

It is precisely this insularity that, in the contradiction of its near distance, attracts the visitors of these small continental islands, whose beaches – that fill, more or less, a large part of its surface – are an unconscious insular appeal.

It is in this context that, by offering an insularity that is easily attainable, Ínsua, Berlengas, Pessegueiro and Deserta have become tourist attractions, also promoting the surrounding regions. However, tourism has also created problems of sustainability. In the case of the islet of Ínsua, there was a destruction of a part of the built heritage, namely the tiles and paintings of a church inside the fortress and, in terms of natural heritage, an interesting reserve of seashells. Berlengas imposed conditions to the presence of tourists to avoid flora damages of which some rare species are part. There is a similar threat in Pessegueiro Island, where the sea recently destroyed part of the ruins of a Roman construction.

Finally, it seems important to highlight the concepts of "insularity", "islandness", "island desire", "island need", "desert island" and "maritimity" when analysing the reality of small, uninhabited islands because only then will we be able to understand how the continentals see them as well as the benchmarks to preserve in the tourist marketing.

Furthermore, in each one of them there is always someone who considers himself, one way or the other, to be the owner of the desert island. A circumstance that humanizes the relation of the visitors with these islands.

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Connectedness to nature as a factor influencing well-being: implications on nature-centered tourism

E. Moriki[1], V. Petreniti [2], V. K. Marini[3], C. Skanavis[4]
[1]Junior Researcher, env13055@env.aegean.gr
[2]PhD in Environmental Education, v.petreniti@gmail.com
[3] Psychologist - PhD candidate, kmarini1@gmail.com
[4]Professor at University of the Aegean, cskanav@aegean.gr

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Connectedness to nature, wellbeing, natural environment, tourism

Abstract
The unblocked relationship that human beings had from the very start with nature has been disturbed the past years from the urbanization and modern lifestyle. As a result society experiences decreased emotional bond with the natural environment. Research has shown that the natural environment can boost mental health, psychological wellbeing, self-esteem and other desirable psychological and physiological reactions. Similar positive effects are experienced from the involvement of individuals in tourism. Furthermore, tourism seems to have a positive impact on individuals as well as on the acquisition of skills, knowledge and the improvement of the individual's life through social interaction and personal development. The goal of this research is to identify whether or not mental health and psychological wellbeing are connected with nature and how to support this interrelation.

Introduction

Historical review of man-nature relationship

Since antiquity, the natural environment is an integral part of people's lives. Especially in ancient Greece, there was a belief that nature was the theater of gods and considered it sacred (Hughes, 2014). Hippocrates, a Greek physician, in his lectures on Air, Water and Places, is the first one who mentions that the natural environment can affect the health of the individuals (Wear, 2008).

Nowadays urbanization has spread all over the world and more and more people are moving to big cities (Worldwatch Institute, 2015). As a result, the increased demand for space and materialistic goods has decreased the natural environment’s importance in human life.

In modern societies, man has fewer opportunities for contact with nature and therefore their relationship has been abruptly reduced (Armer & Schnaiberg, 1972)

Kaplan & Kaplan (1989) were the first ones to study the psychological affect that nature plays in people's lives. Their positive inventions are the ones that later on promoted studies in order to assess the influence humans receive from natural environment, including the exposure to tourism industry. Tourism in nature seems to re-create bonds and links with the natural environment. Moreover, it is argued that the combination of nature with leisure experiences creates emotional bonds with nature as well as a sense of interconnectedness (Kaplan & Kaplan, 1989; Rolston, 1993; Wilson, 1984). More specific, nature-centered tourism is receiving more and more attention, a fact that is due to the distortion of urban areas due to the intense industrialization and the ugly aesthetic (Akama, 1996). People are turning to tourism in nature in order to reconnect with the natural environment and restore the connection with the natural world that has been destroyed by the alienation of urban centers (Gössling, 2002).

Nature-centered tourism affects well- being

According to the European Commission (2003) tourism is defined as a set of activities performed by people who travel and stay in places outside their usual environment for no more than one consecutive year, for leisure, business and other purposes.

Several studies support the theory of the positive contribution of tourism in wellbeing and mental health of the participants (Dolnicar, Yanamandram, & Cliff, 2012; Bushell, 2009; Mannell, 1999; Mannell&Iso-Ahola, 1987). Moreover, tourism seems to affect the quality of life and to enhance self–esteem and the feeling of connectedness to others (Bushell, 2009; Moscardo, 2009; Dolnicar, Yanamandram, & Cliff 2012; Dolnicar, Lazarevski&Yanamatndram, 2013).

In the veil of tourism are included many types such as the medical, the educational, the cultural, the archaeological and the nature-centered one. Furthermore, from a psychological view, tourism attracts people by offering psychological tranquility and healthy incentives (Mannell, Iso-Ahola1987).

Factors influencing wellbeing in relation to exercise in natural environments

The World Health Organization (WHO) defines wellbeing as an optimal state of health, essentially characterized by an individual's realization of fullest potential on aspects like the physical, psychological, social, spiritual and economic ones.

The more time someone spends in the natural environment the happier and stress-free he/she is (Nisbet et al, 2009). Spirituality becomes an indicator of measurement of how someone is affected in a beneficial manner (Kamitsis& Francis, 2013).

In an effort to find ways of connecting the individuals with nature, the differences between direct and indirect exposures to nature were studied (McAllister et al, 2017) as well as the impact of natural environment when physical exercise is performed outdoors (Pretty et al, 2007).

Physical exercise has a direct effect on body shaping and the self-esteem of the involved individuals. This in combination with connectedness to nature (i.e., an effective and experiential connection to nature) (Swami et al, 2016), gives the tinder for conduction surveys to capture the effects of exercise-nature synergy in the psyche of the individual (Pretty et al, 2007).

With the results showing that exercise in natural environments has positive effects on the self-esteem of individuals, it goes one step further by studying the influence that individuals have on how they perceive their bodies (Swami et al, 2016; Hennigan, 2010).

Swami et al (2016) researched the connections that may exist between the connection with the natural environment and the perception of the person's body, as well as self-esteem as a factor in the relationship between contact with nature and body perception. The survey was conducted on 380 individuals, adult UK residents, in the form of electronic questionnaires. The sample consisted of 210 females and 170 males, aged 18 to 80. The first results showed that men have greater body appreciation while women have greater contact with nature. In the final results, there seems to be a direct relationship of contact with nature with body perception in women and, moreover, is observed to benefit from self-esteem. In contrast, men's degree of body appreciation does not seem to be affected from by their contact with nature.

Our research was based on this survey.

Research's aim

In this research, we will examine whether or not there are links between connectedness to nature, self -esteem and body appreciation and their type. Also we are trying to find out how the benefits of the connection with nature and nature centered tourism can be combined in order to have at the maximum positive result for people who have already or will be participating in such touristic activities. Recent studies have also shown that self – esteem functions as a variable between body appreciation and connectedness to nature (Swami et al, 2016), which will be studied too. The survey will be conducted in Athens, Greece.

Measures

The survey involved adults, women and men, without age restriction, who completed questionnaires that were later on analyzed. For the creation of the questionnaires, the Connectedness to Nature Scale (a=0.84), the Rosenberg Self-Esteem Scale (a=0.87), the Nature Relatedness Scale and the Body Appreciation Scale were used. All mentioned scales have been tested, with a high degree of validity and reliability (Nisbet. et al, 2009; Rosenberg, 1965; Avalos et al, 2005; Mayer& Frantz, 2004).

These scales have been included in several other similar surveys (Kamitsis& Francis, 2013; Swami et al, 2016)

The composition of the questionnaire

The questionnaire consisted of 6 sections. The first section was about demographics: gender, age, education, place of birth and residence. The second one was composed of general questions such as time spent in nature per day and feeling of connection with nature. The following section consisted of the Connectedness to Nature Scale, in order to determine the feeling of connectedness with nature (Mayer& Frantz, 2004). The fifth section consisted of the Nature Relatedness Scale (Nisbet et al, 2009), where the relationship between respondents and nature was measured. The fourth module contained the Rosenberg Self-esteem Scale (Rosenberg, 1965) and the sixth one the Body Appreciation Scale (BAS), (Avalos et al, 2005). These two sections were included in the questionnaire to examine the self-assessment of questionnaires and their perception of their bodies.

The units consisting of calibrated scale questions (3, 4, 5, 6) had a response form of 1 to 5, one corresponding to ‘ totally disagreeing’ and 5 ‘ totally agreeing’.

The questionnaires were created through Google forms and distributed by e-mail to a random sample, which included students, individuals, members of public and private companies, entrepreneurs, unemployed, etc.

For the creation of the questionnaire the questions of the scales used were translated into Greek, and then tested to examine whether they were easily understandable.

Results

The questionnaires were answered by 243 Greeks, residing in Athens. Most participants were women (61.1%), between 18-29 years old and 57.3% of them had a university degree. From the total sample 29.1% reside in the western suburbs of Athens, 25.6% in the southern, 20.1% in the northern, 14 % in the center of Athens and only a 10.3% in the eastern suburbs. In education, the lowest rate of respondents was observed in high school graduates (0.9%), while the highest was university education with 57.26% of the answers.

Table1: Percentage of gender

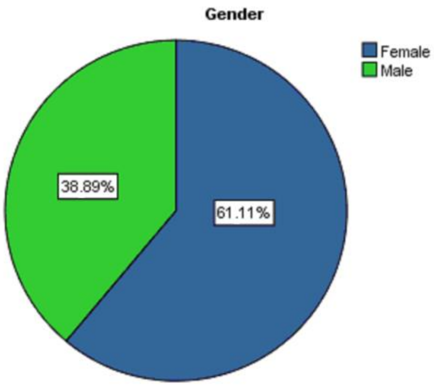


Table 2: Percentages of age

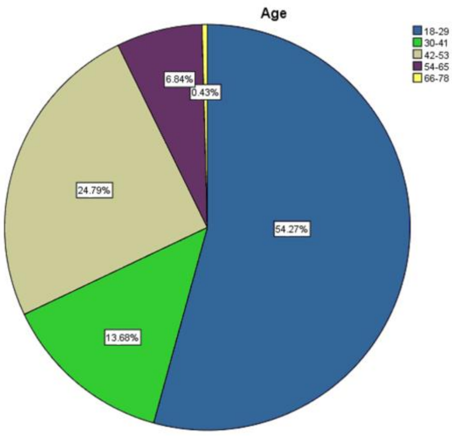


Table 2: Percentages of place of residence

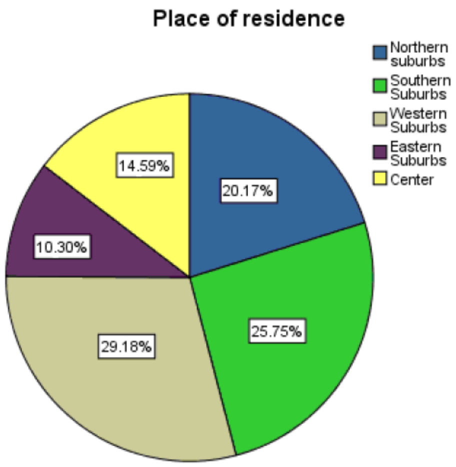
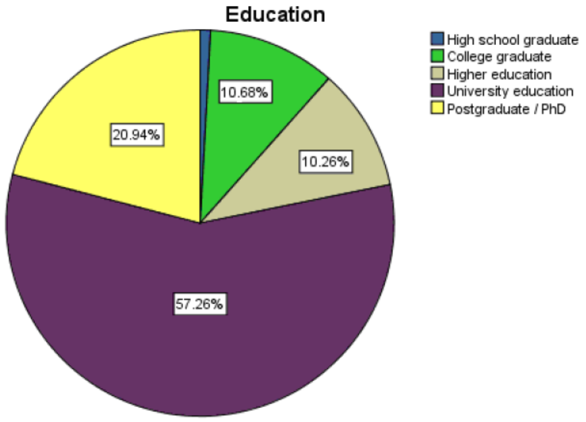


Table 3: Percentages of the education level



In order to perform the statistical checks, the total values for all scales were calculated. In order to do this, all the negatively formulated questions were reversed as to the underlying characteristic.

The following table shows the averages, maximum and minimum values as well as the standard deviations of all scales.

Figure 4:

	Minimum	Maximum	Mean	Std. Deviation
Total connectedness to nature	29.00	55.00	43.0085	5.03208
Total self-esteem	19.00	31.00	25.0342	2.24825
Total relatedness to nature	43.00	81.00	64.8077	6.73290
Total body appreciation	21.00	65.00	48.0812	9.35643

Correlation between connectedness to nature scale/self-esteem scale/relatedness to nature scale/body appreciation

The relationship between the variables was investigated using Pearson product-moment correlation coefficient. There was a small positive correlation between total body appreciation and total connectedness to nature [r=. 137*, N=234, Sig. =. 036]. A small positive correlation was found between total relatedness to nature and total body appreciation
[r=. 240**, N=234, Sig=. 000]There was also a moderate positive correlation between total relatedness to nature and total connectedness to nature[r=. 361**, N=234, Sig. =. 000].On the contrary, a small but negative correlation was found to exist between total self-esteem and total body appreciation[r=-. 268**, N=234, Sig. =. 000].

Figure 5: Correlation between CNS/SES/RNS/BAS

		Total Connectedness to nature	Total self-esteem	Total relatedness to nature	Total body appreciation
Total Connectedness to nature	Pearson Correlation		-.075	.361**	.137*
	Sig. (2-tailed)		.255	.000	.036
Total self-esteem	Pearson			.004	-.268**

	Correlation				
	Sig. (2-tailed)			.947	.000
Total relatedness to nature	Pearson Correlation				.240**
	Sig. (2-tailed)				.000
Total body appreciation	Pearson Correlation				
	Sig. (2-tailed)				

Time spent in nature and connection with nature

The participants spent an average of 8.88 hours in nature daily and on a scale of 1-10 they rated their relationship with nature with 2.94 averages.

Figure 6: Mean of time spent in nature and connection with nature

	Min	Max	Mean
Average time spend in nature daily	0	25	8.88
Connection with the nature	1	5	2.94

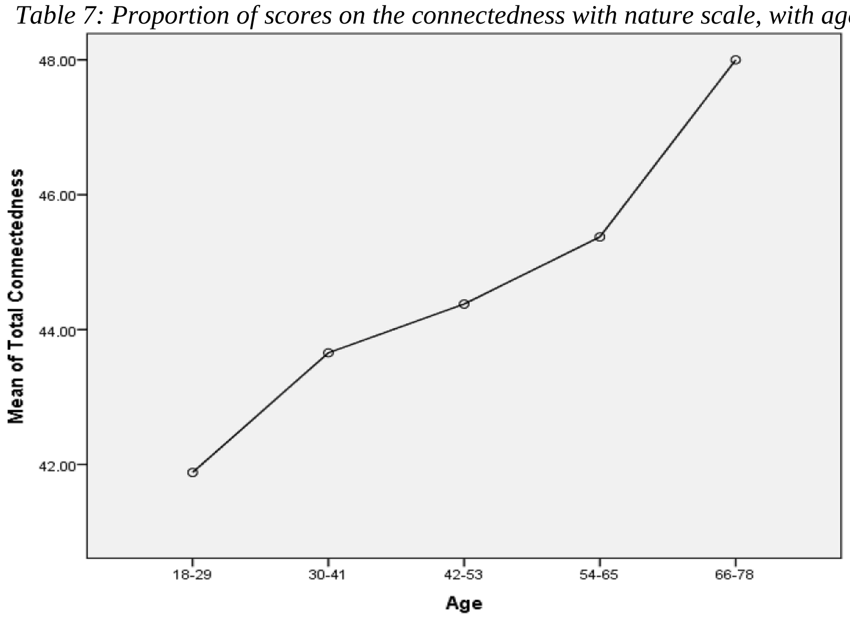
Independent sample t-test and analyses of variance were conducted in order to investigate any possible differences in the scores of the scales depending on the demographic questions. The ones with statistically significant outcome are presented below:

The impact of age in connectedness to nature

A one way between groups analysis of variance was conducted to explore the impact of age on total connectedness with nature.

Subjects were divided into 6 groups according to their age. (group1: 18-29, group2:30-41, group3: 42-53, group4:54-65, group5:66-78 and group6:79+).There was a statistically significant difference at the $p < 0.05$ in total connectedness with nature scores [$F=4.143$ $p<.01$]. The actual difference in mean scores between the groups is moderate small .The effect size calculated using eta squared, was 0.067. Post hoc tests are not performed for total connectedness because at least one group had fewer than two cases.

Table 7: Proportion of scores on the connectedness with nature scale, with age



The impact of education on connectedness with nature

A one way between groups analysis of variance was conducted to explore the impact of education on total connectedness with nature.

There was a statistically significant difference at the $p < 0.05$ in total connectedness with nature scores for the education groups [F=2.729 p<.03]. The actual difference in mean scores between the groups was small .The effect size calculated using eta squared, was 0.045. Post hoc comparisons using the two key HCD test indicated that the mean score for the group of university education (M = 42. 52, SD=4.97) was significantly different from the group postgraduate/PhD (M=44. 85, SD= 4. 72).

Independent –sample-t-test between the places of growth (rural, urban) for the coloration to the total body appreciation scale scores

Independent samples T–test was conducted to compare the total body appreciation scale scores for people who have grown in rural and for those who have grown in urban areas. There was a significant difference in total body appreciation scale scores for those who have grown up in rural areas (M=50.9, SD= 9.14) and those who have grown up in urban (m=47.57, SD=9.32) t = -1.99, p=0.04.

Data that did not show statistically significant differences in the analysis

Independent sample T-test were conducted to compare the total connectedness scale scores and total relatedness scale's scores for males and females, as well as for people who had grown up in urban areas and for those who have grown up in rural areas. There was no statistically significant difference for males and females or for urban or rural place of growth for neither of the two scales.

A one way between groups analysis of variance was conducted to explore the impact of place of residence on total connectedness with nature scores. There was also not a statistically significant result in the one way between group analysis of variance that was conducted to explore total connectedness with nature scores.

Discussion

The results of the research demonstrate the existence of links between connectedness - relatedness to nature and body appreciation. Specifically, it was found that connectedness with nature is associated with relatedness and body appreciation but not with self-esteem. The fact that there was no correlation found between them, contrasts the findings of previous research (Swami et al, 2016). Additionally, according to the results, there is negative correlation between self-esteem and body appreciation. Although there were indications from surveys and experiments that the increase of one affects the increase of the other one (O'Dea & Abraham 2000), our own findings show the exact opposite.

Tese findings may be due to the location of the research. It is very probable for people living in Athens, self-esteem to be more related to other factors. At the same time, contact with nature, especially in urban and industrialized areas, can give individuals the ability to better understand their bodies. Additionally, early findings show nature-based tourism to more appealing to residents of urban and industrialized areas (Sharpley & Jepson, 2011; Curtin, 2009), which it should be analyzed further in relation to self-esteem and body appreciation.

It is important to point out that according to our results the relationship that participants feel to have with nature has had a positive correlation with their scores on relatedness with the nature scale as well as with the scores on connectedness to nature scale. As Wilson (1984) had proposed, direct contact with natural environment through nature based tourism experience creates emotional bonds with nature as well as the feeling of connectedness. Therefore tourism might be a vehicle to enhance relatedness and connectedness to nature.

The findings also indicated that, although previous research has shown that women have a stronger relationship with the natural environment (Swami et al, 2016), sex did not seem to affect scores on any scale. Similarly, the subjects' place of residence did not seem to have a statistically significant impact on the scales' scores.

From the findings of the statistical analysis, age was found to be a strong factor of connectedness with nature, although there was no indication of this relationship so far in bibliography. This specific finding corresponds with Teigland (2000) who supports that younger generation seeking more and more, post-materialistic values, present a stronger interest in nature- based tourism than the older generations.

Education was also found to be a strong factor of connectedness with nature and the respondents with postgraduate / doctoral degree had the highest statistical significance. Similar outcomes can be found in several research concerning connectedness with nature (Mayer & Frantz,2004) along with concern about the environment (Arcury & Christianson, 1993; Kollmuss & Agyeman,2002) This can be explained by the fact that education especially environmental education, gives man the necessary supplies to recognize environmental problems and theirs importance, as well as the need for environmental conservation (Arcury & Christianson, 1993).

In addition, it is very interesting that a statistically significant correlation was found between the area where respondents grew up and the scores in the body appreciation scale. It appeared that the participants who grew up in rural areas had a higher score in the BAS.

In order to further analyze the influence of the person's area of growth, on how she/he perceives her/his body in his adult life and be considered as a critical factor, there should be a further research focused on the specific elements as well as how tourism can affect the way a person perceives body appearance. Furthermore there are already some research supports that tourism can be used as a means to an end for reconciling with one's body (Smith, 2003).

To conclude, our findings showed that people who have been raised in rural areas present the biggest scores in the body appreciation scale, while those who are highly educated present the highest scores in connectedness to nature scale. As regards to the correlations between the scales, the most interesting findings were the negative correlation between self-esteem and body appreciation and the lack of correlation between self –esteem and connectedness to nature.

The findings of this research could be used as a starting point for more investigation into more specific correlations between connectedness to nature and every aspect of wellbeing, separately. Furthermore, the total correlations found to exist between demographics and association with nature could be used as the basis for creating profiles for people who seem to be closest to the environment and are more affected by it. The existence of such a relationship and the generated knowledge would open new pathways for an effective environmental education approach and would introduce innovative environmental awareness processes.

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Relational tourism challenges and opportunities: Therapeutic and Equine Tourism

P. Theodorou[1], M.G. Liapi[2], E.E Pappa[3], G.J. Han[4], Ch. Oursouzidou[5], E.S. Kalogirou[6], C. Skanavis[7]

[1]PhDc, Senior Researcher of Research Center of Environmental Communication and Education. ptheod@env.aegean.gr

[2]Psychologist, Therapeutic Riding instructor, Specialist in Psycho-Educational therapy with Horses, onoufrio@gmail.com

[3]MEd, Senior Researcher of Research Center of Environmental Communication and Education, epappa87@gmail.com

[4]BA in Marine science, Junior Researcher of Research Center of Environmental Communication and Education, University of the Aegean, georgejohnhan@gmail.com

[5]Environmental Scientist, Junior Researcher of Research Center of Environmental Communication and Education, University of the Aegean. charisoursous@gmail.com

[6]Undergraduate student of Aegean University, Department of Environmental Communication and Education. env13030@env.aegean.gr

[7]Professor at University of the Aegean, Head of the Research Center of Environmental Communication and Education. cskanav@aegean.gr

Keywords

Equine tourism, therapeutic tourism, therapeutic riding, adaptive riding, skyrian horses

Abstract

This study attempts to demonstrate the influence of “Equine Assisted Activities” in the field of island tourism and their impact on. The forms of Therapeutic & Adaptive Riding are also described. Through a critical review, the article aims to reflect the effects and impacts of offering aid through equine assisted therapy and activities in order to improve people’s psychological condition, well-being and holiday mood. Areas known for species that are of small size, like the endangered species of Skyrian horses found at the Island of Skyros could become a tourist destination for such therapy of the ones that need it.

After all, this research suggests that equestrian and therapeutic tourism have proven to be very effective methods in fulfilling their purpose. Other animal-assisted therapy methods are expanding all the time; they are not supported to a great extent however. Future research is needed in order to strengthen the benefits of equine-assisted activities, perhaps including the use of other animals. The fact that equestrian events can uplift the economy of agricultural communities should be pointed out, both through providing employment and becoming a tourist attraction. Therefore, equine tourism could be considered as a new branch of innovative tourism. In this context, equestrian tourism can become a real economy, supporting the development of islands.

Introduction

The horse has been used as a therapeutic agent since the time of the ancient Greeks, and Hippocrates once spoke of “riding’s healing rhythm” (Bliss, 1997). Early Greeks were reported to offer horseback rides to raise the spirits of people who had incurable illnesses (Bizub, Joy, & Davidson, 2003).

The physical and emotional benefits of riding horses have been described in literature dating back to the 1600s, as riding was prescribed for such conditions as gout and neurological disorders as well as for low morale (All, Loving, & Crane, 1999; Willis, 1997).

Several studies have shown that both equine-assisted therapy (EAT) and equine-assisted activities (EAAs) may contribute to the development of social skills, mainly for adolescents with different physiological and mental problems (Burgon, 2011; Forsberg & Tebelius, 2011; Keino et al., 2009; Trotter, Chandler, Goodwin-Bond, & Casey, 2008). The indication that the interaction between horses and young people may have positive physiological, physical and psychological effects opens up for the possibility of using horse-assisted activities for promoting health and preventing illness.

Equine-assisted interventions hold much promise, particularly in terms of child/adolescent social and behavioral issues, and perhaps adult affective disorders. The use of the equine in a therapeutic context has been referred to by many different names, including equine-facilitated psychotherapy (EFP), equine-assisted learning (EAL), Hippotherapy and therapeutic riding.

Background/literature review

In France, Horse-riding is the third biggest sports federation. It is a "big business" there, having around 700,000 members. This country is known as the top in equestrian tourism and with an institutional network specializing in equestrian tourism in a national, regional and departmental level (Atout, 2011).Horse riding with therapy aspect started in the 1950s but took until the 1970s for it to expand (Tourre - Malen, 2009 cited in Pickel- Chevalier, 2015). Pony clubs have officially been recognized in France since 1971, and have brought the riding experience closer to more socially varied population groups (Pickel - Chevalier, 2015). The huge increase of pony clubs in France, has led to a corresponding increase of its members, by approximately 500% between 1984 (145,071 members) and 2012 (706,449 members) (Pickel - Chevalier, 2015). Consequently, if the correlation between equestrian tourism and sustainable development is true, this is due to the fact that the local authorities and institutions demanded it (Liu, 2003).

Sports as such are considered as a key factor of sustainable development and are thus promoted by official bodies that recognize their importance and their effect on economy, society and environment. The Greek National Center for Outdoor Sports supports the idea that the above mentioned sports play an important role to the viability of the economy and also to job opportunities

In 2011, British Equestrian Trade Association study estimated that there were 900,000 privately owned horses, 88,000 professionally owned horses and 451,000 horse owners in Britain. It has been suggested (horse Scotland org, 2013) that the highest estimate for the horse population might be 1,350,000 in Britain (i.e. over 350,000 more horses than the British Equestrian Trade Association estimate). It is also estimated that there were 100,000 equines in Scotland in 2014 (horse Scotland org, 2013). The equine industry contributes to the economy in various ways, including recreation and leisure; ancillary services; sports; and racing.

Horse riding was the 35th most popular activity in 2011 amongst the wide variety of sports and leisure activities in the UK. It was more popular than fishing, sailing or rowing but less popular than cycling and gymnastics. Horse riding is the 20th most popular leisure and sporting activity if supporting horseracing is included in the statistics (Beta-uk.org). There are multiple global examples of equine-assisted therapy used in rehabilitation projects and this form of therapy is accessible in some centers, including centers for addiction treatments, all over the UK (Beta-uk.org).

Skyrian Horses

Skyrian horses were named after the Greek island of Skyros. They are small-sized horses and their height is just over one meter, both for adult males and females. In the past, these horses were used for hard tasks, but nowadays their purpose is to participate in events around culture and amusement. Skyrian horses belong to the endangered species, as their number is very specific and the purebreds in Greece are currently 200 horses. Approximately 140 horses live in Skyros Island. The purebreds are strolling around the island freely and there have been observations of horses being crossed with donkeys, a phenomenon that brings skepticism about the future of the breed, but the offspring's of this match resemble phenotypically the Skyrian horses.

Fig. 1. Typical Skyros horses (Avsi & Banos, 2008)

New forms of Tourism

Sustainable tourism is the common denominator of international and local integration, as it embodies culture and nature with economic and social characteristics (Sharpley & Telfer, 2002 as cited in Liu, 1993). According to Cater (1993) sustainable tourism has a threefold meaning, as it boosts the lifestyle of a population, both long term and short term, ensures the safety of nature and meets the needs of the tourist population, (Cater 1993 as cited in Liu, 2003).

A form of tourism with surging number of followers is the equestrian tourism. This has the advantage of enabling participants to get closer to nature and culture (Grzybowski, 2005 as cited in Brzezinska-Wojcik and Baranowska, 2012). This is assisted by the fact that it can be practiced during weekends and holidays (Salita, 1999 as cited in Brzezinska-Wojcik and Baranowska, 2012).The "equitourism" is one of finest hiking ways that grants a more affectionate and natural landscape, to spark emotions in the rider that only the horse can pass on (Bambi et al, 2014).

Equine tourism, having a variety of activities, can be viewed as part of several subsectors of the tourism spectrum, including nature-based or outdoor tourism, adventure tourism, rural

tourism, sports tourism, tradition and heritage tourism, event tourism and the subject under consideration, therapeutic tourism.
Today, in Europe exist two crucial cases of successful integrated offering of equestrian tourism. The primary system is represented by Ireland (today, is completely operational), the second is situated in Italy and is represented by the Abruzzo region. Specifically, Abruzzo's project is similar to the model of Ireland, which has possessed the capacity to relate public and private activities by making a touristic product that has turned the horse culture of the region in a unique traveler offer "all season" and to create nearby financial esteem. A rational and modern grid of riding trails includes the building of particular structures for the horses as indicated by the new needs of equestrian tourists. (Abruzzo cited Bambi et al, 2014). Both cases of equestrian tourism consist of outdoor tourism, adventure tourism, rural tourism, sports tourism, traditional and heritage tourism.

General equestrian tourism as a touristic application
In farming communities, equestrian events affect the local economy because they strengthen the employment of the community and they also draw tourism which empowers agriculture in terms of job opportunities. A worth mentioning example, is the one of Scotland where equestrian business is almost 10% of estate income (Micoud et al, 2015).
Equestrian tourism is considered a new prominent way of combining effectively nature and culture, as an expression of amusement and refreshment, which is practiced when a person has spare time, either within a group or as an individual. Also, people mainly prefer to get involved with equestrian tourism on holidays and weekends and they visit equestrian centers and events of such interest (Brzezińska-Wójcik and Baranowska, 2012).
Globally, there are three types of services offered in Riding Centers (RC). The sports are the most available service, present in 123 CH, followed by rural tourism available on 114 RC.

Forms of therapy - Therapeutic riding
"Therapeutic Riding is an equine-assisted activity that teaches people with disabilities about horsemanship and how to ride" (Bachi, 2012) in order to achieve a variety of therapeutic goals such as physical, emotional, social, cognitive, behavioral and educational. Besides encompassing various leisure and therapeutic activities (e.g., learning riding skills), ThR also places emphasis on the development of the relationship between the rider and horse (Lessick et al, 2004).
The main target of therapeutic riding programs revolves around the riding experience, which focuses on socializing and amusement (Kendall et al, 2015). On the contrary, in equine-facilitated psychotherapy (EFP), which requires an expert on mental health, the horse eases the participants to come closer to mental and social awareness (Kendall et al, 2015). Also, Bachi, Terkel, and Teichman (2012 cited in Kendall et al, 2015) underline the importance of EFP as a fruitful collaboration of the therapist, the patient and the horse. Each kind of therapy, either EFP or therapeutic riding (ThR), attempts to connect the client and the horse so as to have a positive outcome in terms of openness and communication skills and each program has a different direction and approach concerning the way it is performed (Kendall et al, 2015).
The activities of Therapeutic Horse Riding (ThR) are a combination of riding and dismounting a horse, interplay that involves taking care of the horse (for example grooming), social interaction, as well as for the patient to expand their communication skills when riding the horse. In addition, the activities include tasks that focuses on the psychology and physiology of the rider, for example overcoming obstacles accompanied by the horse. One main goal of the session as a requirement is to concentrate on the horse and progressively it is

requested by the riders to pay attention to the other riders and their horses too. An additional task that the riders are taught to accomplish, is to vary their own position while they ride, e.g. forward facing, rear facing, side facing and standing (Kendall et al, 2015).
"Recreational horse riding" has existed for a considerable time, and has developed a variety of riding activities, such as pony clubs, racing, show jumping, endurance, Western riding and equestrian therapy. For the majority of these events' competition is an essential part of the progress and focuses only on participatory ET (which is getting involved with the riding experience, as contrasted with watching horses in events).

Adaptive riding
Adaptive riding (AR) is a form of entertaining and creative horseback riding activity that, if suitably adapted, can be undertaken by people with disabilities (American Hippotherapy Association Inc. Hippotherapy, 2015 cited in Angsupaisal, 2015.) and has similar meaning to therapeutic riding. Therapeutic riding is a very constructive activity for children facing neurological disorders, and aids the psychological, motor and social skills (Bass, Cuchowny, & Llabre, 2009 cited in McMillen, 2015). Also, Therapist-Designed Adaptive Riding (TDAR) enhances the movement and minimizes posture malfunctions in youngsters with bilateral spastic Cerebral Palsy (Angsupaisal, et. al, 2015).

Equine assisted learning
Equine assisted Learning (EAL) is a form of activity which is based on the experience that is earned through the contact with the horse for self-improvement. This particular term (EAL) is used to characterize in a global scale every intervention that uses the horse in order for the participant to evolve and to expand the psychological and emotional limits.

Equine assisted therapy and facilitated psychotherapy
Clients dealing with extreme fear, depression, rage and other emotional conditions, have been effectively improved through Equine therapy. Equine-Facilitated Psychotherapy (EFP) is conducted specifically with equines, including donkeys, mules and miniature horses (Equine Facilitated Mental Health Association [EFMHA], 2009). It is a Psychotherapeutic method in which horses are used to treat people. This treatment can be applied in the stables or around them. EFP is also considered as an independent sector of Equine-Assisted Activities and Therapies (EAA/T) (Bachi, 2012). In equine-facilitated psychotherapy (EFP), which requires an expert on mental health, the horse eases the participants to come closer to mental and social awareness (Kendall et al, 2015). Also, Bachi, Terkel, and Teichman (2012, cited in Kendall et al, 2015) underline the importance of EFP as a fruitful collaboration of the therapist, the patient and the horse. Each kind of therapy, either EFP or therapeutic horse riding (ThR), attempts to connect the client and the horse so as to have a positive outcome in terms of openness and communication skills and each program has a different direction and approach concerning the way it is performed (Kendall et al, 2015).
EFP has been found to enhance self-esteem, trust, relationships, interpersonal effectiveness, and overall feelings of well-being in participants (Rothe et al, 2005; Schultz, Remick-Barlow, & Robbins, 2006; Lentini, & Knox, 2015). Further, EFP has been found to significantly decrease psychological symptoms in individuals with trauma or abuse (McCullough, Risley-Curtiss & Rorke, 2015; van der Kolk, 2005; van der Kolk et al, 2002), eating disorders, depression, anxiety, attention deficit disorder, or autism spectrum disorder (Rothe et al, 2005) and many other disorders in Psychopathology.
According to Vidrine's (2002) study, since horses communicate non-verbally, they become nervous when there is incompatibility among verbal and non-verbal people's communication

cues. Therefore, when they come into contact with a person who presents a discrepancy between the verbal and non-verbal signals, they react to their feelings instinctively whatever their outward expression (Frewin & Gardiner, 2005; Lentini & Knox, 2009 as cited in Brandt 2013).

Hippotherapy

Hippotherapy is defined as an equine-assisted therapy. Hippotherapy has also some common features with physiotherapy, occupational therapy and speech therapy (Bachi, 2012). One of the positive features that hippotherapy has, is that the horse's pacing creates movement patterns that stimulates natural activities such as walking. Hippotherapy induces a multisensory stimulation to the rider through the repetitive graceful movement pattern of the horse's legs. Additionally, studies using a riding simulator have shown positive results in relation to children with disabilities. More specifically, the practitioner's balance and coordination, is gradually improved. Conclusively, it is highlighted that the three-dimensional movement that the motion of the horse gives to the basin of the children cannot be substituted by any simulator.

Activities

Equine Assisted Activities and Therapies require the ease with which a horse can be employed as tool in order to access fields such as education, health and riding (Niehues & Niehues, 2014 cited in Santos et al, 2016). Munaretto 2006 (cited in Santos et al, 2016), it states that a mixture of techniques that redirect the approach of learning can achieve, through the practitioner's aid, conquering problems that concern behavior, motor and sensory damage, using activities that involve sports and where the horse stands as a "kinesio therapeutic" factor, by improving social skills. The aforementioned therapy, concerns people of all ages who face psychological and physical problems and/or have never interacted with the horse (Bastani & Travassos, 2013 cited in Santos et al, 2016). EAAs, like other animal-assisted activities, provide opportunities for motivational, educational, recreational and/or therapeutic benefits to enhance quality of life, self-efficacy, improvement in school subjects or social behavior (Ewing, MacDonald, Taylor & Bowers, 2007; Kaiser, L., Smith, K. A., Heleski, C. R. & Spence, L. J. 2006; Trotter et al., 2008.) EAA is in contrast to EAT, which is a treatment of physical or mental disabilities working with the horse as a co-therapist (Fine, 2010).

Conclusion

It is evident that equine tourism involves a big variety of recreational activities. Many cases that have been described in this article indicate that such tourism tend to enhance not only local but national economy. Equine tourism possesses a complex grid, consisting of categories such as sports tourism, heritage tourism and outdoor tourism with the outcome of combining effectively physical activity in nature accompanied by amusement. Today, several countries, accept equine tourism that focus on therapeutic riding which attempts to assist a variety of patients who have various difficulties, psychological, mental, physical or other. Although there has been progress in equine tourism and therapeutic riding, it is noteworthy that every country has a different growth rate and faces a variety of problems unique to itself.

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Tourism Destination Image, Tourism Discourse and UNESCO sites: a contrastive analysis

Ninfa Pagano, Stefano De Cantis
University of Palermo

Keywords
Tourism discourse, UNESCO sites; contrastive analysis, tourism destination image, Mediterranean islands.

Abstract
The purpose of this paper is to analyse *tourism discourse* - i.e. English as specialised and promotional discourse in the tourism field (Dann 1996, Gotti 2006, Maci, 2013) – as it is applied on websites promoting UNESCO sites in Sicily and in Malta. The consequent Tourism Destination Image (Crompton 1979; Echtner & Ritchie 1991) conveyed by the websites will also be investigated.
A mixed methodological approach, both qualitative and quantitative, has been adopted. More specifically, the Corpus Linguistics approach has been privileged (Teubert 2005; Nigro 2006). The websites considered concern five UNESCO sites in Sicily and five UNESCO sites in Malta in a comparative study; both corpora of websites use English for their online communication.
Each website has been analysed according to Dann's theories (1996) with a special focus on the verbal technique of *keywords* and on the property of the language of tourism concerning *euphoria.* The analysis was carried out through the exam of the occurrences of two specific lexico-grammatical features selected, namely: nouns and pre/post modifiers (Halliday 2004).
The results of the analysis emphasise the different Tourism Destination Image conveyed by the two groups of UNESCO sites, in Malta and in Sicily, on the basis of the different linguistic choices adopted by the two sub-corpora.

Introduction: Aim and Theoretical Framework

This paper will focus on the analysis of the type of *tourism discourse* - i.e. English as specialised and promotional discourse used in the tourism field (Dann 1996; Gotti 2006; Maci 2013)- as it is applied by a corpus of ten websites promoting UNESCO sites in Sicily and in Malta, when they communicate their tourism destination image (Crompton 1979; Echtner & Ritchie 1991) online to the global audience.
Tourism discourse (Dann 1996; Maci 2013; Manca 2016a) is a rather recent area of study in which the lack of systematic studies is probably due to its complexity. It is a "*sub-system of the common language used in professional, technical or scientific areas for descriptive or communicative purposes"* (Calvi 2005).
In his work *The Language of Tourism. A socio-linguistic perspective* (1996) Dann claims that "*tourism, in the act of promotion, […] has a discourse of its own. […] The language of tourism attempts to persuade, lure, woo, and seduce millions of human beings and, in so doing, convert them from potential into actual clients*" (Dann 1996: 2).
The linguistic analysis of e-texts is therefore highly relevant in order to discover the linguistic strategies applied for the purpose of persuasion. Persuasion generally employs rhetorical strategies which affect tourists' decision making process (Maci 2013).
As Dann suggested (1996) the language of tourism is characterised by some specific rhetorical strategies, which he defines: comparison, keywords and keying, testimony, humour, languaging and ego-targeting (1996: 171-188). They have been analysed by tourist experts

over the years (Erwanati 2001; Pierini 2008; Mattiello 2012; Maci 2013; Cappelli 2013; Cesiri 2016, to name just
a few). The rhetorical strategy, which was selected in this paper in order to carry out the analysis of tourism discourse on the ten web-texts, concerns *keywords.*

K*eywords* are defined by Dann as words which "*fire the imagination*" (1996: 174) of the potential visitor. They have a promotional and persuasive purpose**.** They have also been defined as "*words whose frequency is unusually high in comparison with some norm"* (Scott 2003) or with standard language.

On the other hand Dann identifies the properties of the language of tourism (1996: 34), i.e. lack of sender identification, monologue, euphoria and tautology.

The property selected in this study concerns *euphoria.* "*The language of tourism tends to speak only in positive and glowing terms of the services and attractions it seeks to promote*" […] "*The discourse of tourism is a form of extreme language*" (Dann 1996: 65).

The most meaningful works on English as the language of tourism undoubtedly include contributions such as Van den Abbeele and Fodde (2012) on the growing awareness of the socio-cultural dimension of global tourism; Gotti (2006) on the linguistic features of tourism discourse; Cappelli (2006) on the linguistic strategies of tourism discourse; Francesconi (2005, 2007) on the language of tourism promotion and Manca (2016a) on persuasion in tourism discourse.

Fewer studies, however, have tried to explore the relationship between the tourism discourse used to convey a Tourism Destination Image online on the one hand, and UNESCO sites on the other.

The aim of this paper is to begin to address this gap in literature. Specifically, through the analysis of Dann's rhetorical strategy concerning *keywords* and of the property of the language of tourism concerning *euphoria* (Dann 1996), the paper will show how the categories mentioned have been applied by five websites in Sicily and five websites in Malta, in order to convey the Tourism Destination Image (TDI) of their respective UNESCO sites.

Materials and Methods

A mixed methodological approach, both qualitative and quantitative, has been used with the aim of examining discourse analysis in the field of tourism. More specifically the Corpus Linguistics approach (Teubert 2005; Nigro 2006) has been privileged, which belongs to the field of Applied Linguistics and whose aim is the application of theoretical studies to the language in use. "*Corpus Linguistics is empirical. Its object is real language data*" (Teubert 2005: 3). The starting point of linguistic analysis lies in authentic and real data. It "*extracts quantitative data and interpret them from a linguistic perspective*" (Manca 2016a: 1).

The websites considered in this study concern five UNESCO sites in Sicily (Syracuse and Pantalica; Villa Romana del Casale; Agrigento; Arab-Norman Palermo; Val di Noto) and five UNESCO sites in Malta (Ggigantija, Tarxien Temples, Mnaidra, Hypogeum**,** Valletta); both corpora of websites use English for their online communication.

The website (https: //www.VisitMalta. Com) for the UNESCO sites in Malta addresses both a national and an international audience; the Sicilian UNESCO sites present an English version of their website (https://www.thethinkingtraveller.com/thinksicily/guide-to-sicily/general-information/unesco-world-heritage-sites.aspx) in which English is used as a *lingua franca* , i.e. English language used to communicate among native and non-native speakers of English (Guido 2008; Jenkins 2007; Seidlhofer 2001) in order to reach a wider number of potential visitors.

As highlighted before, each website included in this work has been analysed according to Dann's theories (1996) with a special focus on the rhetorical strategy of *keywords* and on the

property of the language of tourism concerning *euphoria*, through the exam of the occurrences of two specific lexico-grammatical features selected in this paper, namely: nouns and pre/post modifiers (Halliday 2004).
Although the strategies and properties mentioned are widely used in tourism discourse, they are employed with different frequencies by the two sub-corpora of websites.
The result will consequently imply different Tourism Destination Images conveyed by the UNESCO sites in Malta on the one hand and in Sicily on the other, on the basis of the different linguistic choices adopted by the two sub-corpora.
The occurrences of the two lexico-grammatical features selected in this study, i.e. nouns and pre/postmodifiers, have identified key semantic fields. Pre/postmodifiers have been analysed independently of their collocation. The key semantic fields identified are:

Key Semantic Fields

Nouns	**Pre/postmodifiers**
- History - Art, Architecture and Archaeology - UNESCO brand - Geo-physical aspects - Local attractions (pull factors) - Places of historical interest - Toponyms	- History - Art, Architecture and Archaeology - UNESCO brand - Local attractions (pull factors) - Surprise - Geo-physical aspects

More specifically, Dann's (1996) property of the language concerning *euphoria* was investigated in the analysis of pre/postmodifiers of the key semantic field concerning 'surprise', i.e. *extreme language* (Dann 1996), or "*words which fire the imagination"* (Dann 1996: 174).
The second relevant issue of this paper concerns the concept of Tourist Destination Image (TDI). *"TDI is the sum of beliefs, ideas, and impressions that a person has of a destination"* (Crompton 1979: 18)
The Tourist Destination Image of a place "*is shaped by the images that a destination evokes, and by the atmosphere and the attractions that the consumer expects from it*" (Echtner & Ritchie 1991). These stereotypical, affective and unique images form "*tourists' mental construct"* (Gallarza, Saura & Garcia 2002).
Image can be characterised by "*any idea, belief, feeling or attitude*" or as a "*set of expectations and perceptions a prospective traveller has of a destination"* (Buhalis 2000: 99) which can be due to past experiences, word of mouth or any other information or promotional campaign.
Consequently Tourism Destination Image plays a relevant role in individual's travel decision. (Crompton 1979; Innis 1986; Cho 2001).
As to the formation of a TDI Gunn (1972) identified three different segments in the formation of the concept of image: the *organic*, the *induced* and the *modified induced* image.
The *organic image* derives from sources of information which are not controlled by the marketer, e.g. word of mouth. Organic images are formed from past experiences and unbiased sources of information, e.g. news reports, movies, newspapers.
The *induced image* develops from marketing information, such as brochures. Induced images are created through information received from external sources such as destination advertising (Gartner 1993).
The *modified* induced image is the result of personal experiences made at the destination.

It is possible to control the induced image because it is the result of a planned marketing effort, whereas the organic image is beyond the control of destination marketers (Gartner 1993).

On the other hand, Gartner (1993) identified three components hierarchically interrelated, i.e. cognitive, affective and conative:

- *Cognitive* refers to values, beliefs, knowledge and ideas that a person has about a certain reality or object. It is generated by a series of mental processes though which a person evaluates the attributes known about the product;. External stimuli (e.g. advertisements, information, etc.) seem to play a relevant role in the creation of a 'cognitive image';
- *Affective* refers to an individual's feelings and emotions connected to a destination;
- *Conative* refers to the way a person reacts to a situation; it has to do with action so it takes place when a destination has been chosen. It depends on the images developed during the cognitive and the affective phases.

Furthermore Gartner divides induced agents into four types: *overt induced I***,** which consists of traditional forms of advertising such as brochures, radio, television; *overt induced II***,** which is information from e.g. tour operators; *covert induced I***,** which consists of testimonies from celebrities and satisfied customers; *covert induced II***,** which is independent endorsement through travel writing (Gartner 1993: 197-201).

Parallely, Baloglu and McCleary (1999) proposed a model which takes into consideration two relevant determinants:

1. *stimulus factors*, or functional variables, which can be directly observed and/or measured (e.g. information sources);
2. *personal factors*, which refer to psychological characteristics not directly observable (e.g. values, personality, etc.).

Consequently destination image is fundamental to tourist decision-making and, ultimately, to the viability and success of a destination (Tasci & Gartner 2007). It has long been acknowledged that the image of a destination, or "*the sum of beliefs, ideas and impressions that a person has of a destination"* (Crompton 1979: 18), is not only a vital element in tourist's destination choice process and subsequent behaviour (Agapito; Oom do Valle & da Costa Mendes 2013; Gallarza, Saura & García 2002; Molina, Gómex & Martin-Consuegra 2010) but also in destination marketing and management strategies (Baker & Cameron 2008).

Therefore, the key aspects on which this paper will focus are:

- identifying the TDI conveyed by the two sub-corpora of websites when they employ Dann's (1996) rhetorical strategy of *keywords* and Dann's (1996) property of the language of tourism concerning *euphoria*, through the analysis of the occurrences of the two lexico-grammatical features selected, i.e. nouns and pre/postmodifiers, on the basis of Gunn's (1972), Gartner's (1993) and Baloglu & McCleary's (1999) contributions.

The Maltese UNESCO sites considered in this paper were inserted in the UNESCO World Heritage List between the years 1980 and 1992. The Sicilian UNESCO sites were inserted in the UNESCO World Heritage List between the years 1997 and 2015**.**

The two sub-corpora of websites are comparable as they both show texts with a similar textual coherence and cohesion and the same function. They also show a similar size (each website includes between 100 and 130 words) . The Maltese websites refer to archaeological sites dating back to 6.000-3.000 B.C., while the Sicilian websites refer to archaeological and historical sites dating back to a period which goes from 500 B.C. to the 18th century.

This paper is an introductory study carried out on the web-texts of the ten websites mentioned, which constitute the quantitative basis on which the qualitative analysis has been carried out. The analysis starts from a quantitative approach and adopts a qualitative approach as far as the interpretation of data is concerned (Dann 1996; Gotti 2006; Maci 2013;

Manca 2016a). In the quantitative approach the software *WHSmith* tools has been used to collect the lexical items and their occurrences (Scott 2012).

Results

Although the total number of words employed by the two sub-corpora is rather similar (Sicilian websites: 734 words, Maltese websites: 1077 words), the frequency of occurrences of the linguistic data examined show some differences between the two sub-corpora and the percentages obtained from the categories examined point out some distinctive features which lead us to the conclusions which will be now highlighted.

As it will be shown by the results obtained, in the formation of a TDI the occurrences of the linguistic data examined all contribute to the creation of an *induced image* (Gunn 1972), or *overt induced I*, to use Gartner's words (1993), or they act as a *stimulus factor* (Baloglu & McCleary 1999)

As emphasised in the Introduction, the lexico-grammatical features selected in this study were nouns and pre/postmodifiers, the latter regardless of their collocation.

Table 1: *Number of Occurrences of nouns and pre/postmodifiers in 10 websites (five UNESCO sites in Malta and five in Sicily)*

	Malta						Sicily					
Archaeological sites of::	**1**	**2**	**3**	**4**	**5**	**Total: Malta**	**1**	**2**	**3**	**4**	**5**	**Total: Sicily**
Nouns with **historical references**	9	0	1	13	0	**23**	8	5	7	26	11	**57**
Nouns with reference to **art, architecture, archaeology**	17	52	33	20	17	**139**	20	20	4	9	15	**68**
Nouns with reference to **UNESCO brand**	0	1	0	1	0	**2**	2	1	1	2	1	**7**
Nouns with reference to **local attractions**	0	18	2	37	0	**57**	4	0	0	0	0	**4**
Nouns with reference to **geo-physical aspects**	1	3	0	4	13	**21**	3	1	0	1	1	**6**
Places of hitorical interest	0	0	0	8	1	**9**	1	0	0	7	0	**8**
Toponyms	3	2	4	8	5	**22**	9	2	4	6	10	**31**
Total	**30**	**76**	**40**	**91**	**36**	**273**	**47**	**29**	**16**	**51**	**38**	**181**
Pre/postmodifiers Key Semantic Fields: Occurrences												
Pre/postmodifiers with reference to **historical aspects**	1	0	0	7	0	**8**	6	10	5	19	4	**44**
Pre/postmodifiers with reference to **art, architecture, archaeology**	15	21	13	7	14	**70**	11	**5**	0	5	8	**29**
Pre/postmodifiers with reference to **UNESCO**	0	0	0	0	0	**0**	0	0	0	0	0	**0**
Pre/postmodifiers with reference to **local attractions**	0	9	0	22	0	**31**	0	0	0	0	0	**0**
Positively connoted pre/postmodifiers (arousing **surprise**)	0	2	0	5	3	**10**	6	4	2	1	6	**19**
Pre/postmodifiers with reference to **geo-physical aspects**	0	2	0	2	5	**9**	3	0	0	0	1	**4**
Total	**16**	**34**	**13**	**43**	**22**	**128**	**26**	**19**	**7**	**25**	**19**	**96**

** Introduction: Guide to Sicily , 82 words

1. Ggigantija (Malta) 120 words	1. Syracuse and Pantalica (Sicily) 159 words
2. The Hypogeum (Malta) 265 words	2. Villa Romana del Casale (Sicily) 115 words
3. The Tarxien Temples (Malta)155 words	3. Agrigento (Sicily) 68 words
4. La Valletta (Malta) 382 words	4. Arab Norma Palermo (Sicily) 182
5. Mnajdra (Malta) 155 words	5. Val di Noto (Sicily) 128 words

Table 2: Percentages obtained from the occurrences of nouns and pre/postmodifiers in 10 websites (five UNESCO sites in Malta and five in Sicily)

	Malta						Sicily					
Archaeological sites of:	**1**	**2**	**3**	**4**	**5**	**Total: Malta**	**1**	**2**	**3**	**4**	**5**	**Total: Sicily**
Nouns Key Semantic Fields: Percentages												
Nouns with **historical references**	30,0%	0,0%	2,5%	14,3%	0,0%	**8,4%**	17,0%	17,2%	43,8%	51,0%	28,9%	**31,5%**
Nouns with reference to **art, architecture, archaeology**	56,7%	68,4%	82,5%	22,0%	47,2%	**50,9%**	42,6%	69,0%	25,0%	17,6%	39,5%	**37,6%**
Nouns with reference to **UNESCO brand**	0,0%	1,3%	0,0%	1,1%	0,0%	**0,7%**	4,3%	3,4%	6,3%	3,9%	2,6%	**3,9%**
Nouns with reference to **local attractions**	0,0%	23,7%	5,0%	40,7%	0,0%	**20,9%**	8,5%	0,0%	0,0%	0,0%	0,0%	**2,2%**
Nouns with reference to **geo-physical aspects**	3,3%	3,9%	0,0%	4,4%	36,1%	**7,7%**	6,4%	3,4%	0,0%	2,0%	2,6%	**3,3%**
Places of hitorical interest	0,0%	0,0%	0,0%	8,8%	2,8%	**3,3%**	2,1%	0,0%	0,0%	13,7%	0,0%	**4,4%**
Toponyms	10,0%	2,6%	10,0%	8,8%	13,9%	**8,1%**	19,1%	6,9%	25,0%	11,8%	26,3%	**17,1%**
Total	**30**	**76**	**40**	**91**	**36**	**273**	**47**	**29**	**16**	**51**	**38**	**181**
Pre/postmodifiers Key Semantic Fields: Percentages												
Pre/postmodifiers with reference to **historical aspects**	6,3%	0,0%	0,0%	16,3%	0,0%	**6,3%**	23,1%	52,6%	71,4%	76,0%	21,1%	**45,8%**
Pre/postmodifiers with reference to **art, architecture, archaeology**	93,8%	61,8%	100,0%	16,3%	63,6%	**54,7%**	42,3%	26,3%	0,0%	20,0%	42,1%	**30,2%**
Pre/postmodifiers with reference to **UNESCO**	0,0%	0,0%	0,0%	0,0%	0,0%	**0,0%**	0,0%	0,0%	0,0%	0,0%	0,0%	**0,0%**
Pre/postmodifiers with reference to **local attractions**	0,0%	26,5%	0,0%	51,2%	0,0%	**24,2%**	0,0%	0,0%	0,0%	0,0%	0,0%	**0,0%**
Positively connoted pre/postmodifiers (arousing **surprise**)	0,0%	5,9%	0,0%	11,6%	13,6%	**7,8%**	23,1%	21,1%	28,6%	4,0%	31,6%	**19,8%**
Pre/postmodifiers with reference to **geo-physical aspects**	0,0%	5,9%	0,0%	4,7%	22,7%	**7,0%**	11,5%	0,0%	0,0%	0,0%	5,3%	**4,2%**
Total	**16**	**34**	**13**	**43**	**22**	**128**	**26**	**19**	**7**	**25**	**19**	**96**

** Introduction: Guide to Sicily , 82 words

1. Ggigantija (Malta) 120 words	1. Syracuse and Pantalica (Sicily) 159 words
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From the data analysed and included in *Table 2* we can summarise as follows:

Sicilian websites	Maltese websites
a) Nouns	
- historical aspects:	- art, architecture:
32% vs 8%	**51%** vs 32%
- toponyms:	- local attractions:
17% vs 8%	**21%** vs 2%

Sicilian websites	Maltese websites
b) Pre/postmodifiers	
- historical aspects:	- art, architecture:
46% vs 6%	**55%** vs 30%
- *Extreme language:*	- local attractions:
20% vs 8%	**24%** vs 0%

Therefore, as far as nouns are concerned, Sicilian websites show a higher number of occurrences in the key semantic fields concerning:

- historical aspects (**32%** vs 8% in Maltese websites)
- toponyms (**17%** vs 8 % in Maltese websites)

Conversely, the Maltese websites prefer to build their TDI by insisting on aspects concerning:

- art, architecture and archaeology (**51%** vs 32%% in Sicilian websites);
- local attractions (**21%** vs 2 % in Sicilian websites).

As far as pre/postmodifiers are concerned, Sicilian websites again insist more on:

- historical aspects (**46%** vs 6 % in Maltese websites).
- extreme language, i.e. pre/postmodifiers arousing surprise (**20%** vs 8 % in Maltese websites).

Conversely, Maltese websites continue to concentrate on the same aspects, i.e.:

- art and architecture (**55%** vs 30%)
- local attractions (**24%** vs 0%)

Discussion

As far as Sicily is concerned, one of the possible reasons for the prevailing historical aspects in its websites could rely on the fact that it has experienced various foreign dominations and each of them has left its legacy; therefore, websites prefer to insist on this factor of attractiveness, which is almost unique in the case of Sicily and could represent a remarkable ‘pull factor’ to exploit in destination marketing.

Pre/postmodifiers arousing surprise (**20%** vs 8% in Maltese websites) show the aim of further involving the addressee, of ‘seducing’ the potential visitor, to use Dann’s words (Dann 1996). Strangely enough, Sicilian websites in their use of pre/postmodifiers do not hint at the UNESCO brand (**0,0%** in Sicilian websites; 0,0% in Maltese websites) as they do in their use of nouns (see *Table 2*).

On the other hand, Maltese websites show more consistency as both nouns and pre/postmodifiers concentrate on the same key semantic fields, i.e. art / architecture and local attractions. They, therefore, show a relevant interest in those aspects which are connected to

the present as well as to their historical past and which could thus be considered as an extra pull factor, in order to attract visitors.
From the occurrences obtained plenty of detail is provided by Maltese websites as for the architectural features of the monuments and sites described, as well as the building techniques described in a diachronic perspective over the centuries (see *Table 1).*

Another striking difference between the two sub-corpora is clear in their use of toponyms : **17%** in Sicilian websites vs 8 % in Maltese websites (see *Table 2*).
As emphasised before with the occurrences of historical aspects, the fact that toponyms are more widely used by Sicilian websites is probably due to the richer and more complex history of Sicily, compared to Malta or other islands.

From the percentages obtained (see *Table 2*) no striking difference can be noticed between the two sub-corpora as for geo-physical aspects (nouns: Sicily 3%, Malta **8%**; pre/postmodifiers: Sicily 4%, Malta **7%),** as for the exploitation of the UNESCO brand (nouns: Sicily **4**%, Malta 0,7%; pre/postmodifiers: Sicily 0,0 %, Malta 0,0%) or places of historical interest (Sicily **4**%, Malta 3%).

Conclusions
Although we have taken into consideration two sub-corpora of websites of two Mediterranean islands – of different size but both with a remarkable number of UNESCO sites – they seem to invest on different aspects when communicating their TDI online.
Both sub-corpora dwell on the richest part of their historical past and background. However, they choose to concentrate and deepen different aspects.
More specifically, as far as the Sicilian websites are concerned, they exploit the historical richness and variety of Sicily (nouns: **32%** vs 8 % ; pre/postmodifiers: **46%** vs 6 %) – probably incomparable to other countries - reinforced by the use of toponyms (**17%** vs 8 %) - thus underlining the uniqueness of the Sicilian past, to which various dominations gave their contribution over the centuries (Greek, Roman, French, Lombard, Byzantine, to name just a few) .
Secondly, Sicilian websites try to seduce the potential visitor by using plenty of pre/postmodifiers which arouse a sense of wonder (**20%** vs 8%), because the language of tourism is an *extreme language* (Dann 1996: 65) whose aim is "*to fire the imagination*" (Dann, 1996: 174).
On the other hand, Maltese websites seem to show a more consistent perspective. They lack the variety of Sicilian history and they consequently prefer, on the one hand, to concentrate more on the architectural and archaeological features of their sites (nouns: **51**%, vs 38%; pre/postmodifiers: **55%** vs 30%) and, on the other, on local attractions (nouns: **21%** vs 2%; pre/postmodifiers: **24%** vs 0,0%).
Local attractions are quite a relevant issue in Malta and seem to balance its past with the present. As a matter of fact, the potential visitor is equally attracted by features connected to the present and its liveliness (e.g. shop, markets, restaurants, pubs, etc.) as well as to historical attractions. Malta offers, therefore, an extra opportunity to visitors, which Sicily at present seems to lack .
As for as the possibility to improve their TD images, the features on which Sicilian websites should try to invest more concern local attractions, which should be promoted as well as its historical past and its legacy, in order to offer an extra pull factor to its visitors. They would influence the potential visitors' *cognitive* component in the process of formation of a TDI (Gartner 1993) or, in Gunn's (1972) words, the would contribute to the formation of the

induced image or, in Baloglu and McCleary ‘s (1999) words, they would act as an extra *stimulus factor.*
On the other hand, Maltese websites should rely on the UNESCO brand more, which could work as an extra pull factor and which could act as an extra *stimulus factor* (Baloglu & McCleary 1999); moreover, a wider use of *extreme language* (Dann 1996), with pre/postmodifiers aiming at arousing surprise, could play a relevant role in Maltese websites, thus improving the attractiveness of their UNESCO sites, increasing the *cognitive-affective* components (Gartner 1993) and involving more *personal factors* (Baloglu & McCleary 1999).
The application of the rhetorical strategy (i.e. keywords) and of the property of the language of tourism (i.e. euphoria) highlighted in this study (Dann 1996) will be later employed in a second study, which will further enlarge the present analysis, by examining the web-texts of a wider number of websites concerning UNESCO sites in Sicily vs other Mediterranean islands when they communicate their TDI online.
The results so far acquired, far from being exhaustive, may have relevant implications in future research concerning tourism discourse and tourism destination image, both in destination marketing and tourists’ decision making process (Hudson *et alia* 2001).

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Emotional status affecting environmental decision making: the case of environmental video expose. Further implications on Tourism audiences

E. N. Vasdeki, M. I. Michail, K.C. Vratsanou, M. Botzori, K. Marini, V. Petreniti, C. Skanavis
University of the Aegean, Greece

Keywords
Environmental, emotions, video, education, decision-making

Abstract
The aim of this study is to assess what the subjects' emotional condition and pro-environmental behavior was, before watching an environmental video and how this emotional condition and behavior changed after watching it. The sample of the research consisted of 36 students studying at the University of the Aegean. The results were calculated by measuring how each student perceives the importance of his/her actions related to environmental protection, by answering a questionnaire about their emotions, daily habits and whether they are willing to change their behavior, before and after viewing a video about climate change. The statistical analysis of the data showed the influence of the video on the subjects' emotions as well as on their intention to adopt pro-environmental behavior in the future. The results point out that beyond the exposure to stimuli like the video, there is a need of an intervention of tailor–made educational programs for the audiences in order that the intention could transform into action. An alternate way to substitute for the intervention through an educational program could be offered through the tourism industry by showing videos related to environmental issues during organized trips to places of rare beauty.

Introduction
The environment is a dynamic system, which is evolving and constantly adapting to the changing influences and reactions between the biotic and abiotic factors of which it is composed. The contemporary way of life is causing environmental and social problems due to the increased demands of the consumer. The pace at which the environment is altered depends on the citizens' involvement in environmental decision-making. Each citizen must acquire the ability to understand environmental issues, understand the causes of problems and evaluate possible solutions, as well as, to have participatory skills. This requires a development on a communication process (Skanavis, 2004).
Tourism is one of the biggest and fastest growing industries globally, impacting significantly society, culture, economy and environment (Rath and Gupta, 2017). According to Valentine (1992) nature-based tourism is the direct enjoyment of some relatively undisturbed parts of nature. Physical environment is often referred as the key element of tourism (Theobald, 1998), but often is severely altered due to poor planning and management. Tourism puts pressure on resources such water, food, energy due to increased consumption and seasonality (Dickman, 1992, Rath and Gupta, 2017). Moreover land-resources, forests, wetlands and wildlife are under a lot of pressure because of the change in the use of land in order to accommodate the tourists' needs (Travis, 1982). Tourism industry is also affecting the natural environment by contributing to local pollution (Mbaiwa, 2003). Researchers have shown that all types of recreational activity can cause environmental degradation, even at low use levels (Hammitt & Cole, 1998; Liddle, 1997), and that visitor behavior and density levels can influence the quality of their experience (Manning, 2007; McCool & Lime, 2001).

Although, the natural environment attracts many tourists, there is no strong indication that they act to protect biodiversity or even to avoid the negative effects of their travel behavior (Sharpley 2006, Buckley 2009, Buckley & Coghlan 2013). The exposure of tourists to nature doesn't necessarily lead them to care about nature or have any concern to minimize their impacts on it (Buckley & Coghlan, 2013). Studies in the educational psychology field show that it is very difficult to change human behavior (Gudgion and Thomas, 1991). Educational programs that are offered by tourism operators even if they had the intension to contribute to behavioral change, they are hesitant to attempt it. This is due to circumstances in most tourism situations, such as a diverse range of ages, educational backgrounds, cultures and native languages, which make even a simple communication a frustrating task (Orams, 1997). In order to convince the nature-based tourism industry to make a positive contribution to the conservation of the natural environment, operators must get trained into developing environmental educational programs (Gudgion and Thomas, 1991). A model proposed by Orams (1996) identifies five main techniques which can be effective in prompting behavior change in an ecotourism setting: Curiosity, The affective domain, Creating motivation to act, Giving opportunities to act, Evaluation and feedback

Environmental education and communication

Environmental education can be defined as a process to raise awareness and sensitivity to the environment, to increase knowledge and experience of environmental problems (UNESCO, 2002), and to acquire positive attitude of the natural world and skills to identify and mitigate environmental threats (Jacobson, McDuff & Monroe, 2006).

behavior. Societies throughout the world establish educational systems in order to promote citizens to behave in desirable ways.. In Tbilisi Intergovernmental Conference on Environmental Education (1977) the objectives for Environmental Education (EE), are stated as following:

Awareness- to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems (and/or issues).

Sensitivity- to help social groups and individuals gain a variety of experiences, and acquire a basic understanding of the environment and its associated problems (and/or issues).

Attitudes- to help social groups and individuals acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection.

Skills- to help social groups and individuals acquire skills for identifying and solving environmental problems (and/or issues).

Participation- to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems (and/or issues).

By these objectives, we might define an environmentally responsible citizen as one who has 1) an awareness and sensitivity to the total environment and its allied problems (and/or issues), 2) a basic understanding of the environment and its allied problems (and /or issues), 3) feelings of concern for the environment and motivation for actively participating in environmental improvement and protection, 4) skills for identifying and solving environmental problems (and/or issues) and 5) active involvement at all levels in working to world resolution of environmental problems (and/or issues) (Haungerfod & Volk, 1990)

Behavior, decision-making and emotions pro-environmental behavior

To promote pro-environmental behavior, many studies focus on identifying factors that can effectively induce people's environmental profile. Researchers suggest that more highly educated individuals are more concerned about environmental quality and are more motivated to engage in environmentally responsible behavior since they are better aware of the potential damage (Lozano, 2006, Olli et al., 2001). A review of prior research indicates that most studies investigate psychological variables that may hinder people from taking environmental action. The results consistently demonstrate that environmental beliefs, values, self-efficacy or effectiveness can affect people's environmental behavior (Lee, 2011; Lee et al., 2014; Tabernero & Hernández, 2011; Vicente-Molina, Fernández-Sáinz & Izagirre-Olaizola, 2013).

Ajzen and Fishbein's (1980) theory of reasoned action and its extension and the theory of planned behavior, have been among the most influential attitude-behavior models in social psychology. Both the theory of reasoned action and the theory of planned behavior are predicated on the notion that intention to perform a behavior, which is a function of attitudes and norms, is the most accurate prediction of actual behavior (Chan, 1998). Applied to environmental action, these theories suggest that a positive attitude, feelings of competence, and a belief that the new behavior is a socially acceptable one are factors likely to motivate behavioral change (Nisbet & Gick, 2008). Media use may play a critical role in people's adoption of environmental action too.

Huckle (1995) points out that 'it is by watching television that many of the world's people acquire an awareness and understanding of environment and environmental issues locally as well as globally. Images and sounds from television are increasingly significant in shaping their beliefs, attitudes and identities ...' This is supported empirically, with many studies reporting relationships between types of television viewing, news media coverage, and documentary watching with higher levels of environmental knowledge, concern, and/or action (Barbas et al, 2009; Brothers et al, 1991; Eagles and Demare, 1999; Holbert et al, 2003). Exposure to environmental messages from traditional media and the web also has positive effects on environmental behavior through environmental value, attitude and intention mechanisms (Lee, 2011).

Decision-making and emotions

The main point of this hypothesis is that decision-making is a process guided by emotions. Decision-making is a complex activity that is influenced by many factors. One particularly important factor is the amount and format of the presented information. When good decision-making is the goal, providing information that is easy to process helps decision makers (Payne, Bettman, & Johnson, 1992). Tversky and Kahneman (1981) first illustrated the framing effect in the prospect theory of psychology, which describes how people make decisions between alternatives that involve risk. The outcomes of the decisions can be framed as either perceived gains or perceived losses in relation to a particular reference point. According to Tversky and Kahneman's landmark study (1981) not all individuals are equally susceptible to framing effects. The level of experience and knowledge of each individual affects his or her response to a framed message (Kaczynski, Havitz& McCarville, 2005). Message involvement and the level of information processing can also interact with framed messages to influence attitudes and behaviors (Block & Heller, 1995; Loroz, 2007; Meijnders et al, 2001). Loss-framed messages do seem to be more persuasive than gain-framed messages and tend to foster intentions to adopt the target behavior, which may be explained by the tendency to perceive negative information as more important, salient and fear inducing (Davis, 1995). People tend to be more accepting of risks when a decision is framed in terms of its associated costs, whereas people tend to be more risk-averse when the same decision is framed in terms of its associated benefits. Rothman and Salovey (1997) have said that loss-framed messages are more effective for persuading detection behaviors, which may be perceived as risky, and gain-framed messages may be more effective for preventative behaviors, which are perceived as more cautious. Loss frames also generated more negative emotions, such as fear and anger, whereas gain frames generated more positive emotions, such as joy and contentment. Negative emotions have been shown to trigger avoidance behaviors, supporting the effectiveness of loss frames in discouraging undesirable behaviors (Dienstbier et al, 1975; Weiner, 1980).

Positive and negative emotions

One of the most important challenges for psychologists is to understand which factors encourage greater engagement in behaviors that protect the environment and reduce environmental impact (Gifford, 2014; Stern, 2000). Studies have shown that both positive and negative emotions influence engagement in pro-environmental behavior. Individuals' experiences of self-conscious emotions, such as pride and guilt, are broadly based on appraisals of own behavior; assessments of such behavior are developed based on personally important standards of right and wrong (Tangney et al., 2007; Tracy & Robins, 2007b). If people believe that something they have done is moral and valued, they are likely to feel proud of this behavior. In contrast, if people believe that their behavior is immoral and inappropriate, they are likely to feel guilty about this behavior. Following from this premise, engagement in pro-environmental behavior-a positive and socially desirable behavior (Gifford, 2014)-should result in feelings of pride, whereas lack of engagement when opportunities arise should result in feelings of guilt. According to the broaden-and-build theory of positive emotions (Fredrickson, 2001; Fredrickson & Branigan, 2005), positive emotions, such as pride, expand people's thought patterns to allow consideration of new and alternative behaviors, as well as new ways of thinking. The emotion of pride, which arises from personal achievements, should therefore motivate further achievement (Fredrickson, 2001; Tracy & Robins, 2007a). According to functionalist theories of emotion, guilt leads to reparative action and increased future effort (Barrett, 1995; Tangney & Dearing, 2002). That is, guilt should motivate a desire to atone for prior wrong-done. Collective guilt predicts personal pro-environmental behavior intentions as well as public expression of environmentally friendly attitudes (Mallett, 2012). The more specific the emotion, the better it should predict a specific behavior (Fishbein&Ajzen, 1975). Researchers have found that, individuals in a happy mood tend to overestimate the likelihood of positive, and to underestimate the likelihood of negative outcomes and events, whereas the reverse holds for individuals in a sad mood (Johnson &Tversky, 1983; Nygren et al, 1996). Furthermore, studies on emotional arousal, such as fear, have demonstrated its significant role in determining behavior. Emotional arousal in response to a cue leads to avoidance of behaviors that may have aversive consequences (Dienstbier et al., 1975; Weiner, 1980). In other words, the fear of punishment or disapproval results in the avoidance of behaviors that would lead to consequence. Coke, Batson, and McDavis (1978) have suggested that both cognition and emotional arousal interact to influence behavior. Baumeister, Vohs, DeWall, and Zhang (2007) have added that emotion indirectly causes certain behavior by acting as a feedback system that facilitates the learning of associations between affect and behavioral responses.

The aim of the research

The aim of this study is to see what the subjects’ emotional condition and pro-environmental behavior was, before watching an environmental video and how this emotional condition and behavior changed after watching the video. We intent to investigate what effect it has on the audience’s willingness and intention to involve themselves in environmental issues and adopt pro-environmental behavior in the future.

Methodology

The sample of the research consisted of 36 students from the Department of Environment of the University of Aegean. The ages of participants were between 18-26 and they were undergraduate students. Participants had to fill in a questionnaire that was administered at the university. In order to maintain the questionnaire's confidentiality, it was shared anonymously.

The questionnaire began with demographic questions such as gender, age, education level, place of birth and place of growing up. We then proceeded to divide the questionnaire into two categories.

The first category included questions that were to be asked before the video watching. We divided the questions into three subcategories. The first subcategory was based on their daily habits, which reflected their behavior towards the environment. The answers were on a Likert scale (1-Not at all, 7-Very much).

The second subcategory included questions about the participants' involvement in volunteer actions, non-profit organizations and their involvement in environmental decision-making. Two of the three questions were answered with Yes/No and the third on a Likert scale (1-Not at all, 7-Very much). In the third subcategory, they were asked questions about their current emotions. The subjects were asked to indicate their personal evaluation about their emotional condition at this particular moment, on a Likert scale (1-Not at all, 7-Very much). Before proceeding to the next part the subjects had to watch a video about climate change. The video used was the winner of the film4Climate 2016 competition (https://www.youtube.com/watch?v=VrzbRZn5Ed4). After the subjects watched the video, they were asked to answer the same questions again in order to see if the film would influence their environmental attitude. Finally, they had to answer additional questions about their intentions to change their behavior and involvement on environmental matters.

Women comprised the 63.9% (23) of the pool, and the 36.1% (13), was comprised by men. Concerning the age groups, 19.4% were between the ages of 18-20, 8.3% between the ages 24-26, while the majority of 72.2% was between the ages of 21-23. The Undergraduate student status represented the 100% of the sample pool. Finally, the 75% of the pool was born and raised in an urban area, as opposed to the rest 25% that was born and raised in rural areas.

Results

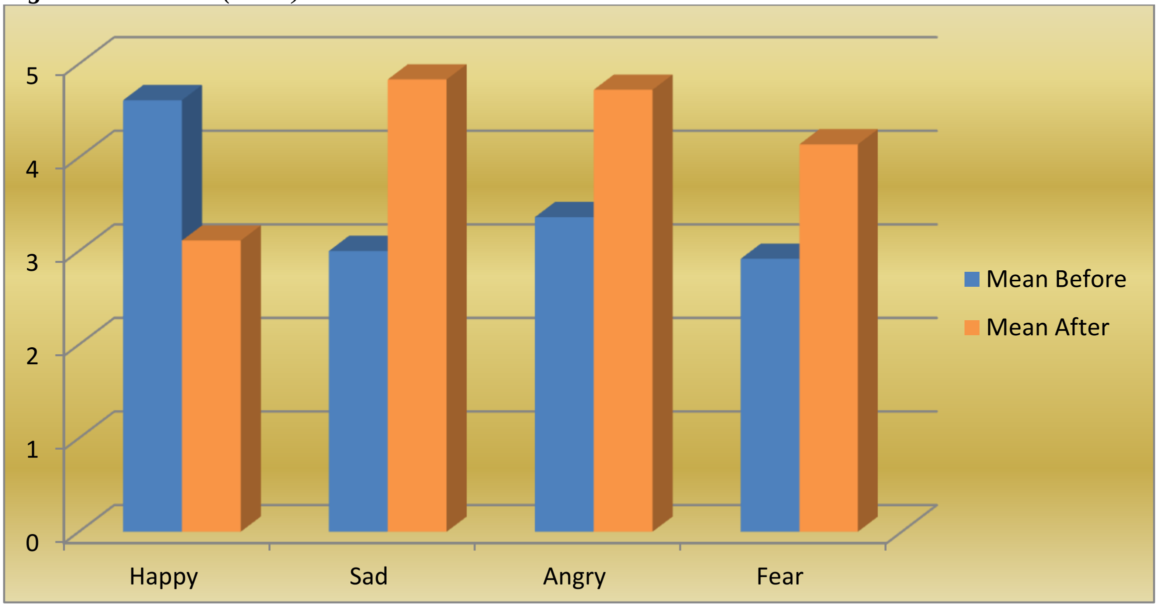
Paired samples t-test

The following tests show us the statistical significance of the difference of emotions before and after the video watching. It is worth mentioning that the mean of happy mood decreased (M: 4.61/3.11), t(35)=4.362, p=.000, whereas the other moods such as sad (M: 3.00/4.83), t(35)=-5.161, p=.000, angry (M: 3.36/4.72), t(35)=-5.682, p=.000 and fear (M: 2.92/4.14), t(35)=-4.568, p=.000 increased significantly.

Table 1: *Means and standard deviations of emotion mood before and after the video*

Emotions	Mean before	Std.D Before	Mean After	Std.D After	t-test	Df	P
Happy	4.61	1.554	3.11	1.617	4.362	35	,.000
Sad	3.00	1.454	4.83	1.665	-5.161	35	,.000
Angry	3.36	1.944	4.72	1.614	-5.682	35	,.000
Fear	2.92	1.730	4.14	1.588	-4.568	35	,.000

Figure 1: Emotions (Mean)



McNemar Test

On the category of participation, we used the test of McNemar's, since our variables were nominal.

Table 2: *Volunteer actions, before the video and the intention to change it, after watching the video*

Participation_BV1 Do you partake in environment-related volunteer actions?	Participation_AV1 Were you inspired by the video to join volunteer pro-environmental actions?	
	Yes	No
Yes 20	17	3
No 16	11	5

From the results it seems that the subjects who answered "Yes" to the question before the video, 17 of them answered again "Yes" after the video, whereas only 3 answered "No". While before the video , 6 subjects answered "No", after the video only 5 participants answered "No", whereas 11 answered "Yes", p=.017.

Table 3: *Organization memberships before the video and the intention to change it, after watching the video.*

Participation_BV2 Are you a member of an environmental organization?	Participation_AV2 Were you inspired by the video to join an environmental organization?	
	Yes	No
Yes 15	13	2
No 21	13	8

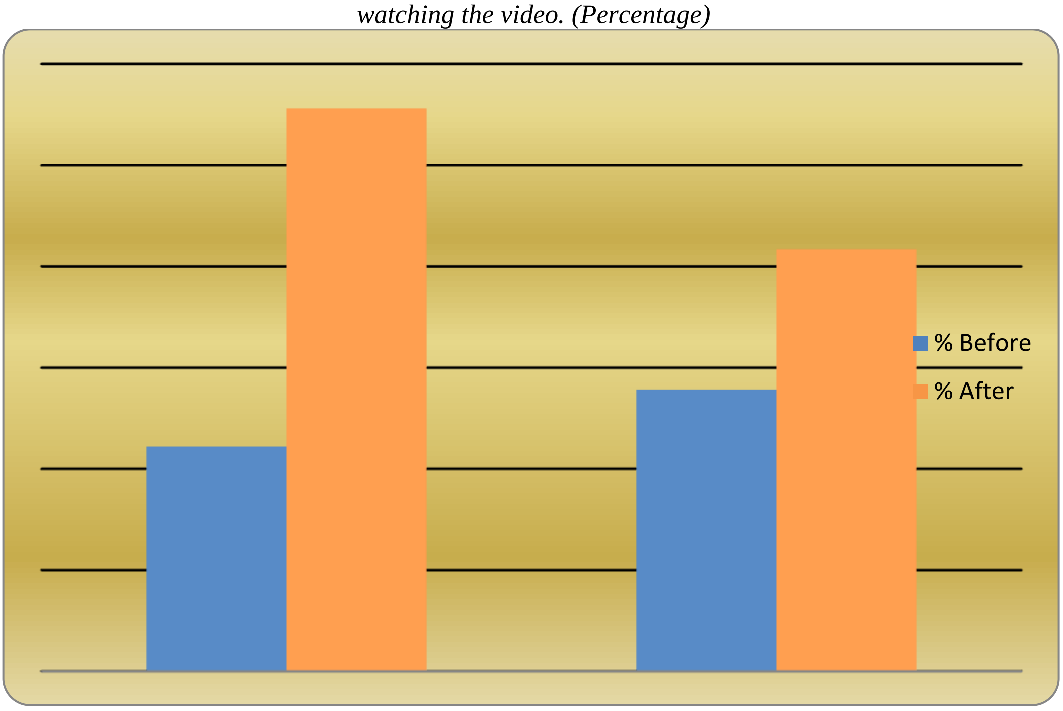
From the results it seems that the subjects who answered “Yes” το the question before the video, 13 answered again “Yes” after the video watching, whereas only 2 answered “No”. While from the subjects which answered “No” before video watching, 13 answered “Yes” after the video and only 8 answered again “No”, p=.383.

Table 4: *Statistical significance of differences*

Test Statistics[a]

	Participation_BV1 Do you partake in environment-related volunteer actions & Participation_AV1 Were you inspired by the video to join volunteer pro-environmental actions?	Participation_BV2 Are you a member of an environmental organization.& Participation_AV2 Were you inspired by the video to join an environmental organization?
N	36	36
Exact Sig. (2-tailed)	.017[b]	.383[b]

Figure 2: *Volunteer actions, organization memberships before the video and the intention to change it, after watching the video. (Percentage)*



Paired samples t-test

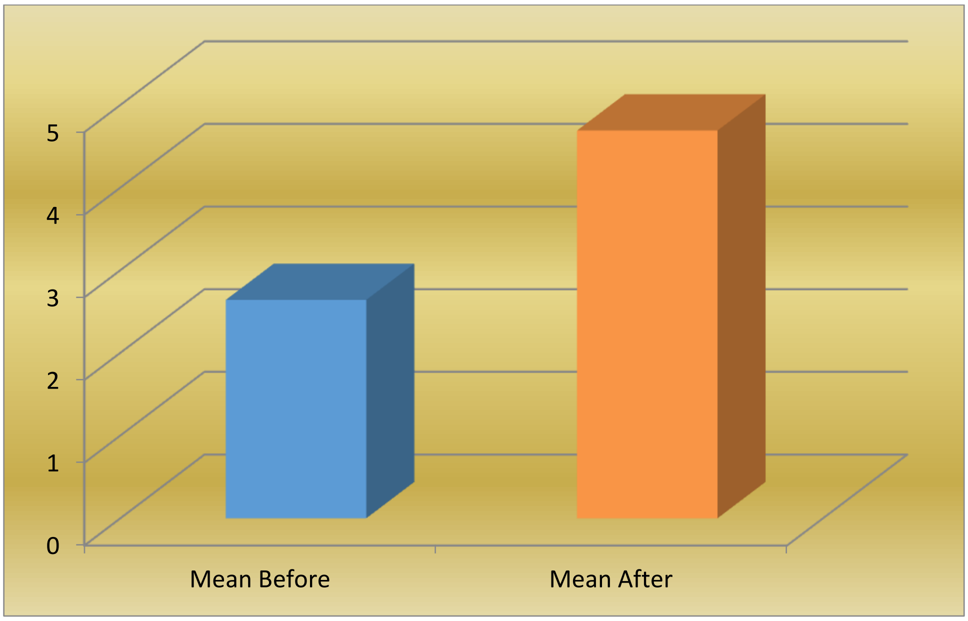
The subjects also had to rate on a Likert scale of 1 to 7 (1-Not at all, 7-Very much), if they actively participate in environmental decision-making before the video and if they intend to partake in environmental decision-making in the future.

Table 5: *Active participation and intention to actively participate*

	Means Before	Std.d Before	Means After	Std.d After	t	df	p
Active participation in environmental decision making	2.64	1.291	4.69	1.670	-6.259	35	,.000

The mean before watching the video was 2.64, whereas after the video, the mean of the intention to participate, rose to 4.69, t(35)=-6.259, p=.000.

Figure 3: *Active participation before the video watching and the intention to change it, after watching the video. (Mean)*



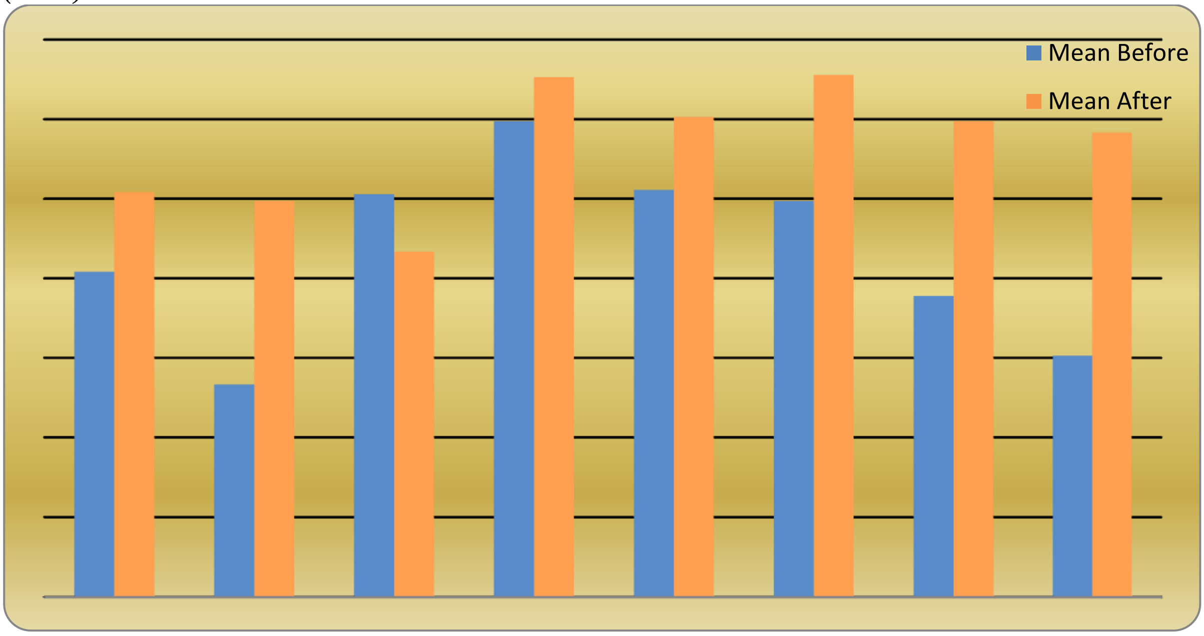
Paired samples t-test

The following tests show us the statistical significance of the difference of pro-environmental behavior before and after the video watching. The usage of unbleached paper, presented the highest mean difference after watching the video : (M: 2.67/4.97), t(35)=-6.877, p=.000.

Table 6*: Means and standard deviations of pro-environmental behavior before and after the video*

	MeanBefore	Std.d	MeanAfter	Std.d	t	df	P
Use means of mass transportation	4.08	1.857	5.08	1.826	-3.000	35	,.005
Usage of unbleached paper	2.67	1.309	4.97	1.748	-6.877	35	,.000
Meat consumption	5.06	1.788	4.33	1.805	1.487	35	,.146
Turning off water tap	5.97	1.540	6.53	1.055	-2.193	35	,.035
Usage of energy saving light bulbs	5.11	1.389	6.03	1.558	-3.416	35	,.002
Recycling	4.97	1.699	6.56	,.695	-5.247	35	,.000
Usage of plastic bags	3.78	1.884	5.97	1.341	-5.209	35	,.000
Usage of palm oil products	3.03	1.594	5.83	1.134	-8.489	35	,.000

Figure 4: *Means and standard deviations of pro-environmental behavior before and after the video watching (Mean)*

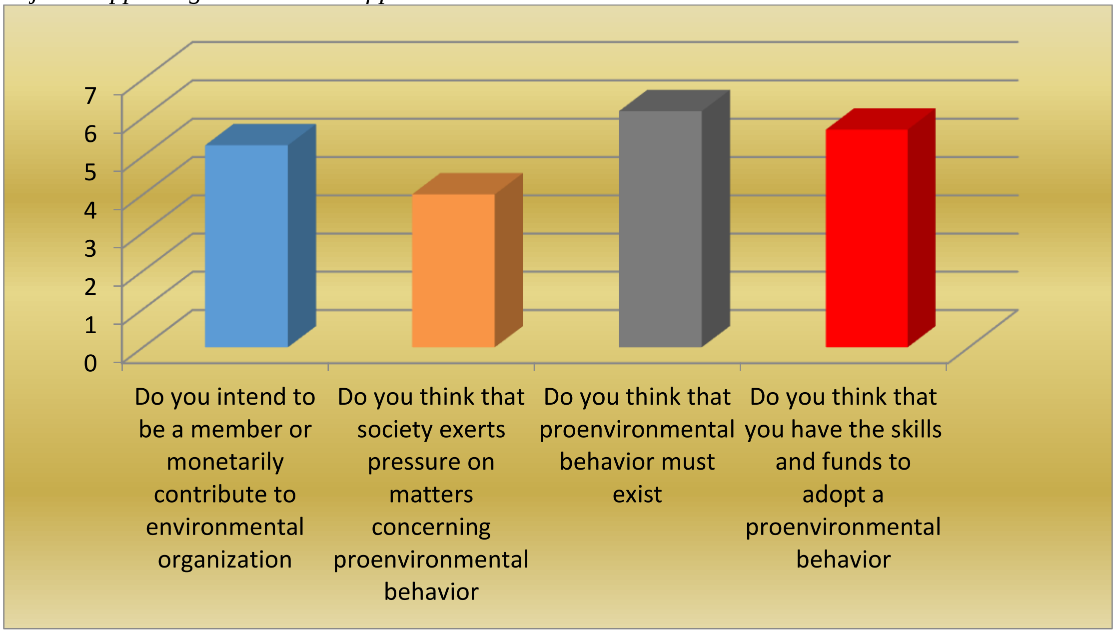


The following tests show us the means of willingness to be a member or to monetarily contribute to environmental organizations and whether the subjects supported the existence of pro-environmental behavior. From the answers given on Table 11, it appears that the mean of all questions is relatively high except for the second question. As for the first question "Do you intend to be a member or monetarily contribute to environmental organization", (M:5.28) the mean was close to 6, which is a high percentage. As regards the second question "Do you think that society exerts pressure on matters concerning pro-environmental behavior" the mean (M:4.00) was the lowest of all. A relatively high average was also presented to the fourth question, "Do you think that you have the skills and funds to adopt a pro-environmental behavior", (M:5.69) with a mean close to 6. Finally, the highest mean collected to the third question "Do you think that pro-environmental behavior must exist", was close to the higher level of the scale (M:6.17).

Table 7: *Means of willingness to be a member or to monetarily contribute to environmental organizations and the subjects supporting the existence of pro-environmental behavior*

Opinions	Mean	Std. d
Do you intend to be a member or monetarily contribute to environmental organization?	5.28	1.446
Do you think that society exerts pressure on matters concerning pro-environmental behavior?	4.00	1.656
Do you think that pro-environmental behavior must exist?	6.17	1.502
Do you think that you have the skills and funds to adopt a pro-environmental behavior?	5.69	1.117

Figure 5: *Means of willingness to be a member or to monetarily contribute to environmental organizations and the subjects supporting the existence of pro-environmental behavior*



Discussion

Within the results we can see the power of educational videos in enhancing people’s intention for engagement in a pro-environmental way of living. Also, there is an influence in the subjects’ intention for active participation in environmental decision-making (Tsamopoulos et al, 2018). According to this study, the subjects’ emotions have been influenced by the video watching. After watching the video, which by the way had a negative content, we noticed the change of the emotions of the subjects, with the average score of happiness being diminished and the other three averages’ being increased, more specifically the scores of the anger, sadness and fear. The results, confirm the research of Rothman and Salovey (1997), which claims that the messages with lack of context are capable of changing the behavior and triggering negative emotions, such as fear and anger. The rates of the answers after watching the video indicate the subjects’ willingness to participate in environmental actions as volunteers or become an active member of such organizations. In addition, an increased average was noticed in related willingness for active participation in environmental decision-making. At this point we can say that the research of Nisbet and Gick (2008) is confirmed by our research, which indicates that the emotion of competence and the belief that the new behavior is socially acceptable, are factors that may contribute to change of behavior.

Concerning the questions, which referred to the habits, we noticed that all of the subjects were willing to change their habits, more or less in favor of the environment. And at this point, the research of Lee (2011) is confirmed as well, which specifically states that the exposure to environmental messages, either from traditional media or from the web, has a positive impact via mechanisms of environmental worth, behavior and intention.

The findings also indicate that environmental attitude is linked to pro-environmental behavior, although an already preexistent pro-environmental behavior is the foundation that we must build upon, in order to achieve higher involvement in environmental decision-making. The subjects' place of origin and growth did not seem to have a statistically significant impact on the extent that it can be considered a factor relevant enough to change individual’s behavior (Tsamopulos et al, 2018).

In addition, when asked about the personal view on the subject addressing the pro-environmental behavior and if they would become active members in environmental

organizations, the majority responded positively while the rest agreed that there is a social pressure on people to have a pro-environmental behavior. These two rates should concern us as a society, as we are not as interested as we must be when referring to environmental issues.
It is very important to note that the statistical analysis of the data showed the influence of the video on the subjects' emotions as well as on the subjects' intention to adopt pro-environmental behavior in the future. However no statistically significant relationship was found, between emotional change and intention for change confirming the up to now data generated from other studies. Only intervention of educational programs can alter behavioral change. This research can be used as a part of a methodology for environmental education and communication to change the willingness on boostering environmental behavior, daily habits and exhibit a better environmental decision-making approach. The results point out that beyond the exposure to stimuli like the video watching or relevant methodologies, there is the need of an intervention of tailor –made educational programs for the audiences in order that their intention could translate into action in real time conditions.
As it has been analyzed, emotions influence engagement in pro-environmental behavior. According to Hungerfod & Volk (1990) an environmentally responsible citizen is one who has, among others, sensitivity to the total environment and its allied problems and feelings of concern for the environment. Besides, Orams (1996) identifies the affective domain as one of the five main techniques which can be effective in prompting behavior change in a tourism setting and suggests that "invoking the 'affective domain' program messages are more effectively 'internalized' and are more likely to be acted upon". The educational programs, which are offered to tourists are planned by tour operators whose main concern is tourist satisfaction and enjoyment. Orams (1995) notes that, in the sector of ecotourism, management aims to "protect the environment from detrimental impacts and to provide for and promote enjoyable tourist experiences". On the other hand researchers have found that, individuals in a happy mood tend to overestimate the likelihood of positive, and to underestimate the likelihood of negative outcomes and events, whereas the reverse holds for individuals in a sad mood (Johnson & Tversky, 1983; Nygren et al, 1996). Furthermore collective guilt predicts personal pro-environmental behavior intentions as well as public expression of environmentally friendly attitudes (Mallett, 2012). Further research should be done about whether an educational program offered through tourism industry showing videos related to environmental issues with negative content has a better impact on the visitors' responsible environmental behavior.

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Environmental education empowers travelers: choosing bottled water

P. Theodorou[1], T. Kefala[1], G. J. Han[1], L. Vourdougiannis[1], P. Kydonakis[1], C. Skanavis[2]
[1]Research Center of Environmental Communication and Education
[2]University of the Aegean, Head of the Research Center of Environmental Communication and Education

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Bottled water, Greek island travelers, water market, environmental protection

Abstract
This research examines the factors that influence tourists to choose bottled water instead of tap water, which is safe, accessible, costs far less and has less environmental impacts than the bottled one. The overwhelming majority of tourists in Greece consume still bottled water and not tap. Interesting enough, probably because of bottle waters are a profitable business, a wide variety of brands are available in the market. The aim of this study is to investigate the Greek bottled of mineral water, its trace elements, cost and preferred choices of tourists. Particularly, different categories such as flavor, water hardness, quantity of chemical elements and the main factors that consumers pay attention to, are noted.

Introduction
This research focuses on how environmental education can empower tourists to use bottled water instead of tap water in order to protect human health and even the environment in some situations of water scarcity. Everyone knows that water is essential to support life. Water also has a major role in keeping tourists content and healthy (Stonich, 1998; WTM, 2007). It is recognized as one of the most critical and scarce resources for the tourism industry (UNWTO, 2003). This is often most apparent in the summer or dry season which also correlates with the tourist high season (Eurostat, 2009).
The Greek mainland does not face problems with either the quality or quantity of the potable water. But the Greek islands present certain problems, especially in the summer. During the summer when the weather is dry, the water availability is limited and, in most cases, not potable (Kaldellis and Kondili, 2007). There are three ways that have been periodically utilized by the Greek government to solve the limited water supplies problem: (1) ground reservoirs, (2) water transportation and (3) desalination (Tsagarakis et al, 2003). This paper focuses on this major problem for tourism and highlights the importance of bottled water for covering the basic needs of the tourists.
Minerals are chemical elements that take part in biological and physiological processes (Soupioni et al, 2005). They decrease the possibility of osteoporosis, ischemic heart disease, cardiac arrhythmias, sudden death, and Alzheimer (Azoulay, 2001). Greek bottled water is highly concentrated with Ca (calcium) and K (potassium).
In recent years, the demand for bottled water has seen a remarkable rise. According to Hawkins (2015) there are three reasons for this: (1) Product packaging, (2) Branding and (3) Health awareness. With regard to the last point, increased health awareness, healthier lifestyle, urban life and good advertising are some of the reasons of this rise (Foret and Procházka, 2006; Rahdini et al, 2014). Consumer preferences in a certain brand are affected mainly by the brand itself, the quality of the water and the innovative packaging. In the Greek water bottled market, there is also a rise in the growth rates. Tourism has played an important

role in this rise. The aim of this paper is to shed light on the Greek bottled water market and how it affects the buying decision of the customers, especially of the tourists.

Literature review

Quality and Importance of Water

Water is essential for sustaining life, ensuring human race survival and determining wellbeing of the society. Drought results in hunger and floods bring diseases, both increasing death toll (Chaplin, 2001). Our body consists two thirds of water and requires water to function. The quality and development of every society depends on the quality and quantity of water. Water quality is commonly defined by its physical, chemical, biological and aesthetic (appearance and smell) characteristics. Water resources quality determine what water is used for drinking, irrigating, producing electricity, transporting merchandise and producing food (Office of Environment and Heritage, 2018).

Quality of water depends on several factors, which specify for what short of purposes is the water ideal to use for. The indicators can be categorized as:

3 Physical (temperature, taste, odor, color of water etc.)

4 Chemical (Ph, nutrients, salinity, Total hardness, metal and radioactive contaminants)

5 Biological (bacteria, algae, etc.) (IOWATER, 2005)

The quality of water is directly linked to the source and the surrounding environment, where it is collected from. Agriculture, urban and industrial activities can affect the quality of water and degrade it.

Drinking water must fulfil a certain number of requirements. These requirements are defined by guidelines, which ensure that drinking water will not pose any risk to health over a lifetime of consumption, including the different sensitivities that may occur between life stages (World Health Organization Guidelines).

New: Potable water in Greek islands

In the developed world, drinking water can be provided either by tap or through bottled water (Makov et al, 2016). On the other hand, the population of developing countries usually depends on bottled water since other alternatives for consumable water are limited, due mainly to water depletion (Unicef and WHO, 2014). Europe, altogether, does not face major issues with drinking water as other parts of the world. The majority of the inland part of Greece does not have a specific problem with drinking water, the islands though of the Aegean Sea do present water issues (Karagiannis and Soldatos, 2007).

Providing adequate water supplies is a harsh task in Aegean islands due to low precipitation (Kaldellis and Kondili, 2007). However, in winter, the Greek islands do not face a specific problem, because the population is limited and stable in numbers. However, in the summer when the weather is warm and dry, the islands are transformed into a touristic hotspot. The population numbers of the islands change rapidly and the need for water rises sharply. Water resources are scarce and not able to cover the increasing population during the summer months. The sustainability of tourism is dependent on an adequate water supply of sufficient quality and quantity but there is little research on the significance of water in tourism growth (Essex et al, 2004).

Three main solutions that have been applied to solve the limited water supplies: (1) ground reservoirs, (2) water transportation and (3) desalination (Tsagarakis et al, 2003). The first solution was a widely used one, especially in the ancient times. People installed ground reservoirs and the rainwater was collected in them (Gikas and Tchobanoglous, 2009). But nowadays, twenty islands from Cyclades and Dodecanese Islands are having water transported to them. This solution can fulfill rapidly the island's need of drinkable water

(Hellenic Ministry of the Aegean, 2007). The cost of the water transportation is very expensive, thus this method is not a permanent solution for these islands but it is chosen when in need, due to the fact that the Ministry of Aegean provides subsidies for the water transportation (Karagiannis and Soldatos, 2007). Due to the technological advancements, desalination is more accessible to people (Shannon et al., 2008). It minimizes the concentration of dissolved minerals in the water. For the desalination to take place, plants have to be built and operate in order to cover the area's water needs. These plants are using reverse osmosis (RO) technology. Even today the solution of desalination for drinkable water brings many negative effects, like requirements for power, high cost for production and sustaining equipment (Gikas and Tchobanoglous, 2009).

In the Aegean islands and especially in Cyclades and Dodecanese Islands, water is limited and not potable. So, the population covers its drinking needs via imported bottled water from the mainland (Karagiannis and Soldatos, 2007).

Standards for bottled water market

EU legislation and directives on bottled water

European and national legislation distinguish three water categories, carbonated or not, i.e. natural mineral water, spring water and bottled drinking water, also known as table water. According to Annex I.I.1 of Directive 2009/54/EC, natural mineral water comes from a fixed underground exodus, which must be protected against any type of pollution. Natural mineral water is characterized by its natural purity, microbiological hygiene, fixed composition (as indicated on the label) and, in some cases, its beneficial health effects, while it cannot be disinfected. Regular and comprehensive analyses are carried out to ensure that these standards are met. Additionally, natural mineral water has to be bottled at the source and sealed with a stopper and be approved by national authorities.

High quality standards must be met by spring water pursuant to Article 9(4) of Directive 2009/54/EC. Safe to drink and not disinfected are non-negotiable conditions for water consumers. However, spring water doesn't need to have the same mineral content as natural mineral water while its chemical composition does not need to be mentioned on the label.

Regarding bottled drinking water, sometimes called "table water", the description given refers to water of various origins, including surface waters or municipal water supply systems. Bottled drinking water is generally treated and disinfected, as well as deionized and/or inorganic salt enriched when appropriate. Bottled drinking water is governed by Directive 98/83/EC of 3 November 1998, on the aspect of water quality, which is intended for human consumption.

According to the directive 2009/54/EC of the European parliament and of the council of 18 June 2009 on the exploitation and marketing of natural mineral waters, the sales description of natural mineral waters shall be 'natural mineral water' or, in the case of an effervescent natural mineral water, as appropriate, 'naturally carbonated natural mineral water', 'natural mineral water fortified with gas from the spring' or 'carbonated natural mineral water'. Labels on natural mineral waters shall also state the analytical composition, giving its characteristic constituents, followed by the place where the spring is exploited and the name of the spring. Moreover, there is a mandate for information on any treatment such as full or partial de-carbonisation or separation of undesirable constituents, if off course this treatment does not alter the composition of the water with respect to the essential constituents that account for its specific attributes/properties.

Characteristics of Bottled water in Greece

It is widely known that water is an important factor of life (Birke, 2010) and it provides minerals to cover basic human needs in nutrition (WHO, 2007). Minerals are chemical elements, which take part in multiple important biological and physiological processes needing for life. Minerals are divided into two categories: minerals and trace elements. The daily intake of minerals is greater than 50mg, while the daily intake of trace elements is less than 50mg per day from the human body (Soupioni et al, 2005).

The Greek bottled waters are highly concentrated in calcium (Ca) and potassium (K), all the other elements exist as parts per billion. All these concentrations are within the guiding limits the European Union directive and World Health Organization and Food and Drug Administration have set (Soupioni et al, 2005).

Table 1 exhibits the information of the water source and the chemical analysis like pH, positively charged particles etc.

Table 1. Characteristics of Bottled water in Greece

		WATER INTAKE			CHEMICAL ANALYSIS														
								Positively charged particles (mg/l)					Negatively charged particles (mg/l)						
A/A	Designation	Water Source	Dominance	Region	pH	Conductance (μS/cm)	Hardness (mg/l)	Na^+	K^+	Ca^{2+}	Mg^{2+}	NH_4^+	HCO_3^-	Cl-	SO_4^{2-}	NO_2^-	NO_3^-	F^-	SiO_2
1	ATHOS	Krioneri Polygyrou	Mainland Greece	Macedonian	7.4	655		20	1.5	83	22		292	40	42		10	<0.5	13
2	GARGARO	Zagoroxoria	Mainland Greece	EPIRUS	7.4	430	224	2	0.7	88.4	1.1	<0.1	256	5.2	<5	<0.05	9.1		
3	IOLI	Ioli, Oroseira Oitis	Mainland Greece	Stereá Elláda	7.53	399		6.51	0.74	59.5	21	0.013	280.6	6.77	9.8	0.006	8.43		
4	ZAGORI	Karakori Peribleptou	Mainland Greece	EPIRUS	7.5	357	200	2.05	0.63	76.4	5	0	250	5	9.1	0	1.4	0.1	
5	Bikos	Bikos	Mainland Greece	EPIRUS	7.3	480	240	2.6	0.7	93.1	1.9	<0.1	270	9	12	<0.05	7.2		
6	ARETHOUSA	Dirfys, Steni Eyboias	Mainland Greece	Stereá Elláda	7.8	487	237	7.8	0.44	62	20		291	14	8		3.4		
7	SAMARINA	Gkoura Karditsas, Agrafa Ori	Mainland Greece	Thessalía	8.9	184	99	1.7	0.2	2.5	23	<0.1	111	<5	6.8	<0.05	1.6		
8	NERA KRITIS	Mayra Pila Xanion (drilling)	Island part of Greece	Crete	8	265	125	5.9	0.5	37.2	7.8	<0.05	145	11.2	<5	<0.05	2.2		
9	SAMARIA	Stylos Xanion (drilling)	Island part of Greece	Crete	8	285	134	7	<0.5	31	14	<0.1	151	13	<5	<0.05	<5		
10	ERIMANTHO	Erymanthos	Mainland Greece	Peloponnese	7.6	580.2	267	30	1	95.5	8.5	<0.07	308	26.1	15	<0.05	12.4		
11	SARIZA	Sariza Androu	Island part of Greece	Nisiá Aigaíou	7.4	559	182	39.3	1.9	52.2	13	<0.1	168	79.8	23	<0.05	5.3		
12	KORPI	Korpi, Akarnanika Ori	Mainland Greece	Stereá Elláda	7.31	504	261	4.7	0.7	100.8	2.5	<0.05	304.3	9.8	<5	<0.05	6.5		
13	Ydor Sourotis	Anthemountas Xalkidikis (drilling)	Mainland Greece	Macedonian		670		19	1.5	44	51	<0.05	380	25	16	<0.01	10		
14	THEONI	Gkoura Karditsas, Agrafa Ori	Mainland Greece	Thessalía	8	238	113	1.2	0.3	47.7	0.1	<0.1	145	<5	<5	<0.05	1.5		

The characteristics of the most widely known brands in bottled water industry are presented in the Table 1. All brands of bottled water except three come from the Greek mainland. The other three bottled waters come from two Greek islands; Crete and Andros.
According to the aforementioned records, it is observed that the bottled waters of Thessaly (Samarina and Theoni) have the lowest concentrations of nearly all the chemical elements. On the other hand, high concentrations of chemical elements are observed in a large number of bottled water, certain brands of which can be found more often – Sariza (Andros), Erymanthos (Peloponnese) and Athos (Macedonia).
Apart from nutrition, mineral water has many other health benefits (Galan, 2002; Gillette-Guyonnet, 2005; Napier and Kodner, 2008), such as decreasing the possibility of osteoporosis due to the higher levels of calcium, of ischemic heart disease or cardiac arrhythmias or sudden death due to the higher levels of magnesium (Azoulay, 2001), of Alzheimer disease due to the high levels of silica (Gillette-Guyonnet, 2005). The mineral-rich bottled water is capable of providing the total dietary requirement for minerals. As a result, patients with health concerns may check the label of the product for the concertation of the water's minerals (Napier and Kodner, 2008).

Characteristics of consumer market

Bottled Water Market - Global & Greek Market

The global demand for bottled water has been continuously increasing in the past 15 years (Brei, 2017; Doria, 2006; Rani et al., 2012) and these growth rates vary in every country (ASDA, 2004). This demand for bottled water is a remarkable fact (Biro, 2017), if someone takes into account that in the developed countries, potable water is widely available (Boesler, 2013).
In terms of value, the annual growth rate of the bottled water market in 2000 reached 11.4%, which is the highest growth rate recorded. The growth rate has never reached this standard again, but it has remained above 6.0% since then (Rani et al., 2012). Between 2001 and 2005, the total volume of the sold water in liters grew to 310bn L from 121bn L, the revenue grew to USD 183bn from USD 71bn and finally the consumption per capita grew to 43L from 20L (Brei, 2017).
In 2015, Hawkins (2015) came to the belief that three phenomena have driven the global bottled market to thrive: (1) The innovations that took place in the product's bottle - the material was changed to PET (polyethylene terephthalate), which is friendlier to the human's health, (2) the rise of biopolitical debates for health and (3) finally, the fact that the branding has taken over the years a more intensive role in the global market.
Except for these three phenomena described above, there are more reasons that have played a role in the growth of the global bottled water market. One of these is the degree of purity between the tap and the bottled water. Especially, in undeveloped countries, the purity of the tap water is, in many cases, of a lower standard than this of the bottled water. This differentiation happens due to the lack of the state's ability to maintain or improve the quality of the tap water. As a result, a large number of consumers tend to consume larger volumes of bottled water than in the past (Brei, 2017). In the developed countries, the trends for healthy living and wellbeing have pushed the consumers to turn to healthier choices than those of the soft drinks. Also, the increased incidents of obesity, is another reason to avoid the consumption of soft drinks. So, consumers choose bottled water as a healthier choice (Rani et al., 2012).
Nowadays, the Greek bottled water market has seen an increase in the growth rates (Nikolopoulou, 2018). This increase is due to the use of bottled water in the country. The

consumption of bottled water was up to 380 million liters in 1998 and by 2005 it had increased to about 1 billion liters. On average this consumption has been increasing by 10 to 12% per year which means that the consumption per person was 45L/person in 1998 and by 2005 it had been over 100L. In the summer months the use of bottled water is always increasing due to the sunny weather and the high number of tourists that visit Greece (Demetriades, 2010).
One of the factors that has played an important role in the increased growth rates of the Greek bottled water market is the increased rate of the tourist arrivals in the country. Due to this growth, the Greek companies tend to strengthen their investment activities and expand their market shares. They are targeting markets that are selling outside Greece and are therefore participating in international organizations of high standing. The companies are environmentally friendly and try to reflect to their consumers' active lifestyle. Raising public awareness on the subject of health and making the customers to prefer more natural product choices will give more boost to the bottled water sales (Nikolopoulou, 2018).

Consumers' behaviour
The rise in bottled water consumption is based on several factors : (1) Consumers show an increased interest in their health, obesity and safety (Ferrier, 2001; Huang and Liao, 2017) (2) There has been changes in the way of life; nowadays water is easily found in the market, it has a low cost and can be easily transferred from one place to another due to its plastic package, (3) Consumers living in urban areas prefer to drink bottled water because tap water is transferred through old pipes, which may lead to contamination of the water with lead, (4) the global market has made a huge success advertising bottled water to the consumers (Ferrier, 2001) (5) brand (6) Quality of the water and (7) Packaging (Foret and Procházka, 2006; Rahdini et al, 2014). As for the branding, the companies should continuously deliver an attractive image of their product to the customers. As for the quality of the product, the companies have to provide water with good taste and smell and with improved quality due to the water treatment the product receives. As for the packaging, companies should have in mind that consumers prefer an innovative (Deliya and Parmar, 2012) and easy to be carried and open package (Rahdini et al, 2014).

Conclusion and future work
Although the public drinking water in Greece is safe to drink, bottled water consumption booms when temperatures reach high levels during the summer. Our project attempted to outline the bottled water in Greece. However, there has not been enough information on tourist behavior and the preference of water specific in Greece. In addition, there has not been enough research on Greek bottled water in terms of attitudes towards consumption.
Our plan for future research, therefore, will be conducted through composing a questionnaire that focuses on tourists’ behavior and preference with the aim to measure the factors that influence tourists in their choice of water purchase. As it is referred before, tourists prefer bottled water for the reasons of quality of water, convenience to transport it, a big variety of taste, the ease to acquire it, and its low cost. Through the questionnaire we wish to document the ratio of bottled water consumption that has as a result the surge of discarded plastic bottles. Also another goal is to be examined if consuming bottled water in islands helps in the reduction of drought. The questionnaire will be distributed in the area of Skyros island and specifically in the Port of Linaria, where a sizeable number of tourists pass through there in the season of Summer. Port of Linaria is a Greek small public port which, with just a few resources, has succeeded in drawing much publicity. It has been described as the friendliest

public port of Greece providing services of a small boutique hotel (Antonopoulos, Skanavis, & Plaka, 2015). These characteristics of the Port makes it an ideal place to practice this research using our own created questionnaire.
Before buying a bottled water product, consumers should have in mind that different sources of natural water - even if they are close enough geographically - offer different concentrations of minerals and trace elements. If a consumer has ischemic heart disease or cardiac arrhythmias, then they should select products which are richer in magnesium. Likewise, in Greece where the calcium concentrations vary greatly consumers may prefer the water bottles with the highest concentrations of calcium.

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Circular Tourism Through Small Eco-Marinas

Ch. Fountas, C. Skanavis, V. Plaka
Research Center of Environmental Education and Communication,
Dept. of Environment, University of the Aegean,
GR-81100 Mytilene, Lesvos, Greece

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Circular tourism, eco-marinas, environmentally responsible behavior

Abstract
Tourism is an important factor that offers many advantages to society and related economy of every country. Many countries rely on their maritime tourism,which in turn enforces tourism in general rampantly.As years go by, maritime tourism is directly linked to the environment and this leads to sustainable tourism.
Circular Economy (CE) receives increasing attention worldwide as a way to overcome the current production and consumption barriers, based on continuous growth and resource allocations.In circular economy, resources are efficiently used to recover the maximum value of the product. Models in design, address the problems associated with consumption, continued development and depletion of resources. The aim is to achieve a balance between society, environment and economy.
Circular tourism implementation can contribute to sustainable use of resources and strengthen the maritime tourism industry.The implementation of such actions requires the right environmental behavior in order to become a success. In this paper we will refer to the practices followed by the small marina of Linaria, on its way to become an eco-marina.

Introduction
Tourism has seen a dramatic growth over the last 40 years (Tribe, 2005). Tourism is the third largest socio-economic activity in the EU (European Parliament, 2015). Tourism expansion or tourism growth can also have a strong influence on the corporate performance of hotel companies.The expansion of tourism industry or activities directly enhances the development of hotel industry by increasing the occupancy rate and hence sales revenue. Tourism sector in many developing (and least developed) countries is one of the principal sources, and in some countries the main source, of foreign exchange earnings. It is often the most viable and sustainable economic development option, with positive impacts on reducing poverty levels(UNWTO,2010).
According to Dyer (2006) tourism development occurs within specific environments with idiosyncratic features. Within these environments, the support of the residents is a key factor in developing and implementing successful initiatives. Because tourism development can happen without prudent approaches or professional reasoning, tourism planners should be concerned about the perceptions and attitudes of residents towards tourism developments in order to gain their support. In fact, resident's participation in planning and development stages is a fundamental necessity for sustainability of the development (Dyer,2006), since they agree with some interventions and disagree with others.
Sustainable tourism is based on policies that create relationships and produce synergies among local government, local community, private sector, nonprofit organizations and academic institutions. Applying these practices, it is possible to protect and exploit natural and cultural landscape compatibly with economic growth (Edgell, 2006). Sustainable tourism

activities principally cover the environmental, economic, social and cultural aspects of the developmental plans at stake. Natural resources may be intensively exploited in the tourism business. Tourism activities tend to pose major impacts on the environment, ecosystems, economy, society and culture (Buckley, 2011).
During the past three decades, many concepts and approaches such as ‘sustainable development’ and ‘green growth’ have been introduced to tackle the serious, global problems connected with the prevailing growth-based production and consumption model, such as resource scarcity, climate change, and pollution of land and oceans. The Circular Economy (CE) has many similarities with other concepts and approaches, which address the relationship between humans and their environment. It does, however, have a distinctive usage and it does generally have more radical implications. For instance (Brundtland, 1987) circular view will be able to give a breakthrough in industry of tourism. In order to achieve this, however, a new management approach should be considered. The concept of resource efficiency should be promoted with a strong commitment to ensure a sustainable tourism industry (Enkvist and Klevnas,2018).

Literature review

Maritime tourism and the importance of small marinas

There are many kinds of tourism, as Panet al. (2018) mention, some of them are ecotourism, community tourism, rural tourism, culture tourism, maritime tourism and others. New terminologies for tourism activities keep being created but we still have under-researched areas, such as accessible tourism. Maritime tourism typically requires a multi disciplinary approach in an effort to comprehend involved themes and scopes combined with sustainable tourism approach(Polat,2016).Maritime tourism is one of the world’s largest industries of contemporary tourism, imposing significantly on the economies of participating countries (Hall,2001). Tourism activities constitute one of the world's largest markets and it is likely to show higher growth in the future (Diakomihalis,2007).
The concept of maritime tourism, at an international level, includes tourist, recreational and leisure activities that take place in the marinas of receiving countries, and which offer hospitality to tourists operating at the nexus of the world economy (Pallis, 2007). Marinas are vital nodes in the countries and regions in which they are located, facilitating and enabling flows of information, materials, resources and people within countries, between countries, and across seas and oceans (Fenton,2017). The extraordinary beauty, cultural wealth and great diversity of EU’s coastal areas have made them the preferred destination for many travelers in Europe and abroad, making coastal and maritime tourism an important sector of the tourism agenda (European Commission, 2015).

The necessity of protecting small marinas

However the development of maritime tourism has serious consequences on the environment. The seas and coasts are among the most complex, vulnerable and sensitive natural ecosystems. Their management is a difficult task (Beriatos, 2011). Marinas are generally enclosed areas characterized by high levels of pollution both in their water and sediment compartments (Jiang and Falconer, 1983; Salvo et al., 2005).
The effects of year-round boating and boat traffic and their related pollutants contribute to the constant, growing pressure on the state’s fragile aquatic and marine ecosystems (William, 2017). In particular impacts related to recreational boating which, can negatively affect the marinas’ environment, and also the surrounding coastal system, must be taken into account in order to join a sound environmental management of coastal zones (Diez,2010).These

activities bring about cumulative human pressure on coastal and marine areas (Halpern,2008). Negative though impacts related to marinas can be avoided, mitigated or significantly reduced by environmentally conscious development and planning, observance of recommended environmental best management practices and adherence to environmental regulations (European Union, 2015).

The management and stable operation of small ports is a topic that is rarely mentioned (Kuznetsov, 2015). Smaller marinas have set as their mission to safeguard their harbor operations and "protect the maritime area against the adverse effects of human activities so as to protect human health and conserve marine ecosystems" (DEFRA, 2002). Small marinas, comply with environmental laws and regulations. Operating a clean marina is not only good for the environment and for boating, but it is also great for business (Gordon and Matuk, 2004). Small marinas have limited visitation of cruise ships in their docks. An impressively large number though of leisure crafts lure by their services. These crafts act on an individual basis as "hotelling" systems and have significant demands related to customized services. Such visitors assert pressure on the establishment of green technologies and practices in the ports they choose to spend time and money (Antonopoulos et al., 2017).

However more investigation on sustainability management issues in smaller marinas would fill us in with new knowledge, efficiency and awareness in order to proceed with the best possible practices (Dinwoodie et al., 2012).In order to achieve a proper operation in small marinas, some strategies need to be implemented. Each marina should be governed by the standards that respect tourists, visitors and local residents, making carrying capacity an issue of intense consideration.

Circular economy

Manniche (2017) suggested that, "The concept of CE defines a set of principles for production and consumption, radically different from the linear 'take-make-dispose' regime prevailing in today's market economies, based on continuous economic growth and increasing resource throughput. The CE goes further than calling for implementation of 'sustainable', 'green', resource-effective and environment-friendly technologies in isolated links of production systems. It requires a broader and more comprehensive design of radically alternative solutions over the entire life cycle of products and adoption of closing-the-loop production and consumption patterns within the entire economic system. The CE relies on value creation through restoration, regeneration and re-use of resources, enabled by new types of business models and forms of consumption that discard ownership and rely on active 'users' rather than passive 'consumers'. Thus, the CE concept introduces an agenda for radical change, which involves and integrates the production and consumption tendencies of our societies".

In its most basic form, circular economy can be loosely defined as one which balances economic development with environmental and resource protection (UNEP, 2006) and in this form, it appears to be inseparable from industrial ecology, and close to the three pillars (economic, environmental and social) of sustainable development, although the social aspect is being criticized (Murray et al., 2015). This goal is mainly pursued by redesigning the life cycle of the 'product', with the aim to have minimal input and generation of 'waste'. This involves a system capable of achieving net reductions at the organizational supply chain and industrial levels (Murray et al., 2015). In a circular economy, the importance of working effectively at all scales – for large and small businesses, for organizations and individuals, globally and locally (The Ellen MacArthur Foundation, 2017) is the optimum goal. The combination of collaboration and competition introduces incentives to firms for operating at

higher levels of innovation and productivity, and to the emergence of a new businesses ethic (Rivera et al,2016).
The UNEP report suggests that features of the Circular Economy include 'low consumption of energy', 'low emission of pollutants' and 'high efficiency (UNEP, 2006). The nation that has fully embraced the circular economy development and implementation of related concepts thus far is China. They have developed an ambitious program of applying the circular economy concept across the line (Zhou, 2014). Circular economy also aims to contribute towards higher regional competitiveness and supports an equal distribution of economic growth and wealth. At a theoretical level, the CE model fits closely with the ecological modernization theory, which is ''centrally concerned with the relationship between industrial development and the environment" (Murphy and Gouldson,2000).

Circular economy tourism in marinas
Developing a circular tourism economy could bring on surface sustainable use of resources, enhance the efficiency of the tourism industry and achieve the sustainable development of tourism (European commission, 2015). The traditional model of tourism management needs to change. Collaboration between technology and business are mandates for a successful implementation of CE. Reduction of wastes and offsetting of the environmental burdens of tourism, positioning this way, the tourism sector to a better position in the battle of resource scarcity are some of the benefits (European commission, 2015). One way that tourism could make a real difference is through more efficient waste management. Rather than sending discarded items to landfills, they could be reused or at least separated out to be more effectively recycled. Furniture and mattress recycling organizations are a tempting example of CE, they either redistribute items to those in need or strip down the furniture into its constituent parts so they can be recovered (European commission, 2015).

Practices in circular tourism
Resource efficiency and circular boating concepts of various types have emerged. Such a scenario is seen in increasing renewable energy sources on board yachts (solar, wind, hydro), leading boats to energy autonomy, reducing energy bills for users as well as pertinent jobs. Innovative concepts have reduced energy consumption and production of wastes during yacht construction, leading to savings for companies and thus keeping them alive in a competitive market (European commission, 2015; GS4C, 2017).
Effective tourism policies and strategies based on sustainability principles, at national and locals are in need. In a multi-dimensional sector as the tourism one, adequate policy and regulatory framework are necessary, encouraging private sector and other stakeholders to work with government on tourism planning, development and management. Sustainable tourism requires awareness and a wide participation of the all involved stakeholders (Luigi, 2017). Sustainable tourism innovations include aspects of visitor management, new accommodation forms and hospitality management developments, conservation and protected areas wise exploitation, and safe tourism growth. Most innovations associated with sustainable tourism are strongly dependent on, and affected by, trends in wider socio-economic and societal processes (Bramwell, 2011).

An example of circular economy in marinas
Every marina must manage the water with a cohesive and an appropriate infrastructure. Since water is the single most important shared resource across all supply chains, and wastewater is the largest untapped waste category – as big as all solid-waste categories taken together – it is

the point where circular revolution must start (Stuchtey, 2015). Water is consumed by a wide range of activities such as cleansing and recreational facilities, such as pools, as well as more general services, such as kitchens, laundry, cleaning and watering grounds (Watt and Beyada, 2011).

In the face of ever-growing demand, wastewater is gaining momentum as a reliable alternative source of water, shifting the paradigm of wastewater management from a ‘control, treat and dispose’ agency to ‘reuse, recycle and resource recovery’ agenda. Wastewater can potentially be a cost-efficient and sustainable source of energy, nutrients, organic matter and other useful by-products. Wastewater’s vast potential as a source of resources, both as energy and nutrients remains underexplored and underexploited. According to the UN, urine collection is ‘likely’ to become an increasingly important component of ecological wastewater management, as it contains 88% of the nitrogen and 66% of the phosphorous found in human waste – both nitrogen and phosphorous being essential components to plant growth and therefore having a potential within agriculture (WWAP,2017).

Wastewater remains an undervalued resource, all too often primarily perceived to be a troublesome waste product, which does not reflect its actual value: “-wastewater is a potentially affordable and sustainable source of water, energy, nutrients, organic matter and other useful by-products”. From a resource perspective, sustainable wastewater management requires: 1) supportive policies that reduce the pollution load up front; 2) tailored technologies that enable fit-for-purpose treatment to optimize resource utilization; and 3) taking account of the benefits of resource recovery (WWAP, 2017).

The role of environmental behavior

Marine and coastal environment is under severe pressure from both land-based and ocean-based pollution sources. Climate change is already affecting the marine environment and will continue to trigger changes in biological, chemical and physical processes. Impacts include rising sea levels, increased sea temperatures, precipitation changes, and ocean acidification (European commission, 2015). Although some of the likely impacts of climate change in marine and coastal regions can be anticipated, the extent and location of these impacts is more difficult to predict with any certainty. Marine strategies in some coastal areas will need to identify ways of adapting to the effects of global warming and to reduce the vulnerability of natural and human systems to climate change effects (European commission, 2015).

Yen et al. (2014) mentioned that environmental phenomena such as climate change have raised awareness about environmental protection, natural conservation of a tourist site and environmental consciousness of tourists. Tourists need to abide by local regulations and avoid damaging the natural environment by exhibiting environmentally responsible behavior (Yen et al., 2014).

To mitigate impact on the environment, tourists should be educated to engage in general and site-specific Environmentally Responsible Behavior (ERB) at tourism destinations (Lee et al., 2013). Environmentally responsible behavior can be expressed through different types of behavior, such as waste recycling and energy management. Environmentally responsible behavior can be classified into environmental activism, public participation in the environmental decision-making, and environmentalism (Stern, 2000). Huang and Shih (2009) suggest that environmental knowledge is related to an understanding and concern regarding natural environments, and encourages an individual’s stronger responsibility for environmental protection. In particular Cheng and Wu (2015) suggest that tourists with rich environmental knowledge will have a high degree of concern and respect (environmental sensitivity) to the destination. Such concern and respect will reinforce tourists’ affective and functional attachment (place attachment) to the attraction they visited and, finally, they will exhibit ERB toward the visited places. "Responsustable tourism (Mihalic, 2016), this new terminology added the sustainability value to the behavioral concept by connecting responsible behavior with the sustainable tourism concept (Aall, 2014).

Methodology

This research is based on a case study approach. More specifically, thought a quality assessment process, collected information and the data, which could assess the potential of the small marina of Linaria, at Skyros Island, as being a paradigmatically small eco-marina in Greece, would be analyzed. Literature review on circular economy of tourism and marinas would provide answers to the question of how Linaria port can implement environmentally friendly practices and if other islands could enjoy the same status.

The Case Study of Linaria Port

In the heart of the Aegean Sea there is the island of Skyros (Figure 1). Its harbor, Linaria, is a small ordinary public port, which has been presented as a model one in the list of Greek marinas. It has been characterized as a boutique port in the long list of "marinas" and "small ports" category. Furthermore, the Linaria port has been highly competitive for securing high sustainability enforcement standards and operates in ways that complement the environmental quality (Antonopoulos et al., 2015). It is used for various purposes, such as passenger transportation, cargo and fishing boats (Antonopouloset al., 2016). Since 2010, the port of Linaria has adopted an effective sustainability approach, with a wise and conservative allocation of its financial resources (Antonopoulos et al., 2015). Consequently, the port of Linaria is reasonably attracting high tourist interest (Antonopoulos et al., 2016) characterizing it as an environmentally sustainable small port community, where an environmentally responsible behavior is promoted to both visitors and residents. Furthermore, a friendly and highly competitive tourist services system has been enacted, tailored to the needs of the leisure crafts sector. As a result, today the arrivals of yachts have boosted traffic, reaching 975% (Antonopoulos et al., 2017).

Figure 1: Map of Greece (worldatlas.com)   Figure2: Skyros Island (greekisland.co.uk)

The implementation of circular practices in the Linaria Marina

Linaria is regarded as a port with high visibility and praise (Antonopoulos et al., 2016). Tourism activities could bring severely negative consequences to natural environment (Hashemkhani, 2015) although this small marina in the last ten years constantly develops innovative ideas, such as the construction of seadromes, the use of electric scooters, a gas station. There is even a study on the installation of solar panels to the marina of Skyros providing an autonomous energy status for the port area.

In Skyros Island there is a need for successful implementation of innovations pursued as part of the environmental and sustainability agenda because of its tremendous and unique beauty of nature and indigenous species found in the island. More specifically, in Linaria port boat users dispose their boat wastes in specified areas, which are connected with the Skyros' wastewater sanitation plant. There are tanks to litter used mechanical oil, bilge waters and used cooking oil. Linaria Port has adopted recycling processes for all situations that call for such an approach. The port has recycle bins for all types of waste in multiple sites (Antonopoulos et al., 2016).

A world wide environmental campaign, under the brand name "SKYROS Project", has launched there, presenting an innovative cooperation with the University of the Aegean and the Skyros Port Authority. This Project has attracted the interest and respect of travelers (Antonopoulos et al., 2016). The SKYROS Project, taking off in 2015, established Linaria port as an interactive lab, which promotes environmental issues awareness through hands on experience. The program educates the youth into becoming active and environmentally concerned citizens while it gives the opportunity to college students to get trained as potential environmental educators. The Linaria Port spreads environmental awareness. It acts as an interactive tool, which is used to educate and transform the upcoming generations as responsible decision-makers for environmental issues of concern. This is made possible through the establishment of a day environmental camp at Linaria Marina. This small port is trying to raise awareness of its residents and tourists, collect data and evaluate them in order to prevent environmental consequences and at the same time use environmentally friendly implementations all over (Antonopoulos et al., 2017; Antonopoulos et al., 2016).

Furthermore, an Observatory of Sustainable Tourism and an Observatory of Marine Tourism and an ongoing collection of opinions based on visitors' comments generate continuous data accumulation. Assessment of the gathered data directs on the design of environmental protection programs that can be successfully implemented. Linaria port has set the basis for sustainable tourism. A small Greek harbor has managed to send all over the message of the importance of nature protection. An interdependence of all involved presents what nature is all about. A bond between different places and cultures has been established, creating green chain that will unite Greece with interested foreigners who envision responsible environmental behavior as a realistic goal in every part of our world. Skyros Project is leading environmental actions at Linaria Marina, empowering participants. Skyros Project establishes practices through which a small port promotes an innovative sustainable lifestyle in Greek Islands. Already a network of supporters has been established at national and global level, strongly believing that man and nature can live in a balanced way. Promotion of a harmonious with nature everyday life can safeguard environmental quality for future generations (Antonopoulos et al., 2016).

Discussion

In a circular economy, the importance of the economy needing to work effectively at all scales – for large and small businesses, for organizations and individuals, globally and locally (The Ellen MacArthur Foundation, 2017) is being underlined. Since natural resources may be intensively exploited in the tourism business, tourism activities would sometime pose major impacts on the environment, ecosystems, economy, society and culture (Buckley, 2011). All this will be achieved by a collective effort on the part of the state and the private industry. Environmental Innovation is a sub-category of overall business development, and can be defined as consisting of new or modified processes, techniques, systems and products to avoid or reduce environmental damage (Kemp et al., 2001).

There should be a proper guidance to reach the desired level and to be able to talk about an integrated effort. This is the case with the circular economy over the last few years, yet there is still place for improvement. Incentives should influence the practice of tourism activities and development toward sustainability via changing the behavior or the business practice of tourism providers (Pan et al, 2018).

Marinas around the world are operating with the same philosophy, as the hotel industry. These activities bring about cumulative human pressure on coastal and marine areas (Halpern, 2008). Negative though impacts related to marinas can be avoided, mitigated or significantly reduced by environmentally conscious development and planning, observance of recommended environmentally best management practices and adherence to environmental regulations (European Union, 2015).

During the past three decades, many concepts and approaches such as 'sustainable development' and 'green growth' have been introduced to tackle the serious, global problems connected with the prevailing growth-based production and consumption model, such as resource scarcity, climate change, and pollution of land and oceans. As Enkvist and Klevnas (2018) mentioned, Circular Economy (CE) has many similarities with other concepts and approaches, which address the relationship between humans and their environment. This circular view of tourism will be able to give a breakthrough in industry of tourism. In order to achieve this, however, a new management approach should be considered. The concept of resource efficiency should be promoted with a strong commitment to ensure a sustainable tourism industry.

In this case study approach, Linaria Marina extended the promotion of an environmentally friendly port to the residents and tourists, giving them the sense of empowerment. This way, locals actively support responsible environmental behavior in their own neighborhood. Interesting enough, the environmentally friendly management of the port of Linaria, has become a paradigm of an informal environmental education process for the community and the tourists (Antonopoulos et al., 2016). This eco friendly management based on the principles of circular tourism, established Linaria Marina as a paradigmatically small eco-marina in Greece. In fact, residents' participation in planning and development stages is a fundamental necessity for sustainability of the development (Dyer, 2006).

Linaria Marina actions like implementing, collating, interpreting and disseminating environmental information on tourism impacts has as a long-term goal to wisely use scientific information in decision-making. This small port community has understood and established the practices that circular tourism promotes. These practices will be a signal for other Aegean Sea islands. Circular tourism can affect positively the planning and management of small eco marina communities all over Greece.

Conclusions

Circular tourism in a marina, like the Linaria one, should be governed by certain principles and specific strategies. Making a marina sustainable mandates that pressure on the environment is being offset. An example of sustainability of a marina is the recycling of liquid and solid wastes by collecting them in special containers. Innovative measures for energy resources friendly to the environment strongly reduce the pressure from the marina on the natural surroundings. Solar panels are a good strategy for producing the desired amount of energy, with no adverse effects. Appropriate environmental awareness, will empower locals and visitors to act environmentally responsible.

Greece has numerous small islands, and Skyros Island can lead the way to a sustainable tourism approach through its eco friendly marina of Linaria. Circular economy is the concept behind a revolutionary change of behavior and environmental protection.

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The role of sentiment analysis in the place brand

Nicola Capolupo[1], Roberta Croce[2], Maria Antonella Ferri[3], Gianpaolo Basile[4]
[1]PhD Student Management & Information Technology – Marketing and Communication, University of Salerno ncapolupo@unisa.it
[2]Professor and member of management department of I.C. G.Caloprese, Scalea, Italy croce685@gmail.com ;
[3]Associate Professor of Marketing and Strategy, Faculty of Economics, Universitas Mercatorum, Rome (Italy) e-mail: mariaantonellaferri@gmail.com.
[4]Adjunct Professor of Destination Management, Faculty of Economics, Universitas Mercatorum, Rome (Italy) e-mail: basilegianpaolo@gmail.com.

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Participatory place marketing, systems theory, place as complex adaptive system, sentiment analysis

Abstract
In this paper the authors, analyzing Scalea case on the net, aim to show that the place brand has changed the role moving from static and unidirectional communication tool to a semantic and semiotic space in which company and numerous and heterogeneous social agents (consumer and/or individual) exchange several information to meet their relative needs.
In this scenario, the active role that the digital marketing tools that can play on a constant condition of bidirectional relationship becomes important.
This kind of relationship amounts to some conditions: the place is a Complex Adaptive System (CAS) in which the boundaries are both tangible components and intangible, cultural values that allow to create and maintain relationship with relevant stakeholders. The low level of boundaries shows a territorial/systemic capability to create/stimulate the spontaneous and/or planned relations between other territorial subsystems and with the relevant stakeholders. From these last relations emerge perceptions that, in this work, the authors are considering “place brand”.
On this epistemological basis, authors will apply sentiment analysis (i.e. opinion mining) to study the emergence of the ‘place – as – brand’ idea through Scalea’s city positioning on Twitter, collecting by hashtags users’ feedback through their ‘sentiments’ and experiences as results of their relations with territorial and/or holonic agents, in order to evaluate the city-brand positioning on the net.
The expected results are mainly twofold: on the one hand, a representative number of Tweets high enough to help understand Scalea’s place - brand positioning on the net, mainly positive and increasing over time; on the other, that even negative experiences help to potentially improve what Scalea city has to offer (implementing services, facilities etc.).

Introduction
In the recent years, the concept of territory has undergone several evolutions and multiple declinations: from simple space or physical environment stand-alone, place where events are developed, land where the architecture and infrastructures of an area are articulated, becomes the result of interactive dynamics that continuously take place between different actors, both locally and globally: *"[...] the specificity of the territory consists in being the result of the symbolic structuring capacity of space, allowing the recognition of a correlation between*

physical site and cultural, symbolic, economic space of the established society "(Sansone, et al, 2014). Given their complexity, it is not easy to observe and predict the relationships and interactions between the actors of a system, which rapidly change, developing, almost implicitly, the attitude to change, mutually influencing and adapting. In the present work, the authors will argue the territory as a complex social system, which, in its entirety, includes almost all typical phenomena of larger systems; an economic, political, cultural and social phenomenon evolving, in large lines, from the industrial revolution onwards, after the enormous growth of the urban phenomenon. The high variety of elements that characterize the territory means that this has always been associated with a multi-subjective, multi-dimensional, multi-stakeholder, multi-agent, multi- functional systemic entity (Barile, 2011).

The contributions, that have been devoted to the study of the territorial system, are remarkable. Most of the recent methodological developments, as for the analysis of the phenomenon, are closely related to the past prospects, which lay the foundational preconditions for modern methodological development in the analysis of territorial systems, from industrial period or from the social urban ecology's school, better known as Chicago School.

Nevertheless, the contribution of Fordist theory (the city-factory) should be considered, already inspired by the Taylorian theory, according to which the territory was interpreted as a space that enterprises used to develop their production (Zuffi, 2013).

The process of urbanization of territories, therefore, becomes a scientific theme from the industrial revolution onwards. The research path becomes determinant, which is decoding through important way of thinking: from "Theory of Localization" to Urban and Social Ecology, Urban Economy, and Losch's Space Organizational Model (1944).

Then it was Christaller (1980), the father of the "central locations theory", to describe, in a new way for his time, intersubjective relations and exchanges within the territories, dynamic ones (considering the school of Chicago of the 1920s) were the basis of modern disciplines such as urban sociology. The Christallerian investigation starts from the definition of a specific territory function, the city, and how it is distributed within a network of urban centres, in order to obtain a localization that guarantees the balance, above all, from the economic point of view. The territories develop not randomly but in relation to gravitational areas based on the concept of functions, so as to give the theory a purely deterministic connotation.

On the basis of this theory, in the territory, the "functions" are attractive to the population.

According to the author, the function strongly attracts users, just because of its interest; in fact, the importance of its impact on the territory was already quantitatively assessed. From a strictly functionalist point of view, the territories or cities could stand out according to their function: active or passive; active in directing productive and working activities, passive if limited to the typically residential plan. The central location theory, however, did not consider the specialization of production sites.

Finally, points of reflection about the contribution of the American sociologist Davidoff (1965) about "advocacy planning" have to be developed: the emphasis is shifted, according to this scholar, to the citizen's participation, to give decision-making space to local communities. This, in the old continent, becomes "community planning": a series of programming patterns and styles, based on citizen's active participation and involvement in processes.

The community, here, is considered as a whole in its articulations, its institutions, voluntary associations, informal groups, and economic firms. Since then, the urban policy of the territories has been heavily affected by a large number of changes that has had an impact on the government of public space, forms of participation, the relational approach between local institutions and citizens. “The attempt was to overcome procedural logic, exclusively managed by urbanism, to reach a global, cross-sectoral and multicultural approach, through a dynamic path that involves the wide involvement of various consultants and stakeholders. In fact, these co-produce proposals around which to mobilize consensus, to identify priorities, from a multidimensional perspective with intersections of economic and social networks”.

Theoretical framework - The Systemic Approach

The excursus just exposed culminates in the study of social phenomena according to the systemic approach. This study aims to integrate empirical research with possible methodological interpretative strategies, to scientifically show how the territory is a complex adaptive system (CAS), whose boundaries become cultural values and where the numerous and heterogeneous social and economic agents exchange information to meet their needs, adapting from time to time.

Such approach lends itself to explore an interpretative side, aimed at highlighting the subjectivity of the observer, a semiotic analysis of the concept of "territory". In fact, it overrides the idea of "object" of observation, outlining a new perspective of elements (material and immaterial, tangible and intangible) existing therein, not to support a mere static vision anymore, but one in which the territory becomes a "dynamic place/space" of production, innovation, processes, products, social capital, models of development and growth, widely of social practices.

The approach, through careful and virtuous paths, seeks to design and to interpret innovative and creative trajectories at the base of local networks, trying to contribute, through the scientific awareness provided, on the level of solidity and collaboration, interconnections, even with actors outside the system, needed to encourage the survival of the territory.

In order to support and implement the governance of the territories, both in terms of decision making and decision setting, the work proposes an interpretative methodology, capable of identifying dynamics and modelling the phenomenon, taking into account the perception relevant observers/stakeholders, empirically converted into the second part of the work.

Therefore, the territory, as a simple material resource, susceptible to exploitation, is gradually configured as an unfinished process constantly seeking, in relation to the contingency, to regenerate its identity, sometimes destabilized to the point of not fully reaching its own address (Rullani, 2013). A predominantly relational character is now attributed to it, recognizing the peculiarities of a complex system, which has codified resources.

The territory takes the metaphorical appearance of a stage, a scenario, a place of representation, and actions by its actors: not just a geo-physical space but above all a complex anthropic space. Its specificity does not only go through the aggregation or recombination of the various resources, but also for the interconnection, both endogenous and exogenous, which is established among actors and their roles.

The resources, both tangible and intangible, that can be used by system actors and superhistries, remain the soul, the essence of the territorial identity which cannot be left aside, but the ability to know how to interconnect and/or adapt the various actors and resources is a great challenge to optimize the potential of a local system, the base on which the territorial success is based on.

In the present work the authors argue that the territory is configured as "an idiosyncratic system of relational resources, barycentric in a relatively narrow geographical context". Many currents of thought highlight some of the territorial system's features that appear relevant to the cognitive, semantic and organizational dynamics that can be activated. The territory, seen according to the systemic approach, is conceived as a social organization consisting of

tangible and intangible components in relation to each other, which sets as purpose the survival through the ability to create and/or maintain relations with the relevant stakeholders.
The subject of relationships is the identity that represents the distinctive features of other territories and tends to play the role of responding to the needs of numerous and heterogeneous stakeholders.
All this happens also through the control and coordination of the action of a Government Body (GB), which is the subject in charge of the definition of territorial strategies, aimed at creating value for the territorial system through a continuous activity of interpretation and redefining the territorial vocation resulting from relationships and interactions with relevant contexts.

Place as brand, a brief introduction

Concerning the case study, it is essential to contextualize the importance of the place-brand positioning and its developing over time. The general framework of place provided by Philip Kotler is that of "… *cities, states, regions, and nations compete to attract tourists, factories, company headquarters, and new residents. Place marketers include economic development specialists, real estate agents, commercial banks, local business associations, and advertising and public relations agencies*" (2011).
Despite the fact that there is not a unique definition that can characterize the term, place branding is used to be generally understood as the practice of '*applying brand strategy and other marketing techniques to the economic and sociopolitical developments of towns, cities, regions, and countries*' (Anholt, 2004). It concerns the development of a place – or a tourist destination for instance – brand identity based on the perception of citizenship and/or tourists and on improving the services offered to them (Kavaratzis and Ashworth, 2005). As a matter of fact, as Hanna and Rowley (2011) suggest, the key outcome of the branding process should not consist on the merely brand image improvement, but rather on *'brand experience. Brand initiatives must be based upon the 'brand reality' and not only on the communication of the image'*. Is not a coincidence that the majority of models of brand positioning literature review focus on tourism perception, *even though place brand identity models should incorporate more stakeholders* (Ruzzier and de Chernatony, 2013).
Moreover, according to some scholars' view (Zenker and Braun, 2010; Braun, et al., 2013) the place brand is a *network of associations in the consumers' mind based on the visual, verbal, and behavioral expression of a place, which is embodied through the aims, communication, values, behavior and the general culture of the place's stakeholders and the overall place design*.
Therefore, considering how marketing (Dominici and Yolles, 2016) and communication research shifted over time (i.e. in a more dynamic, less conventional and above all differently perceivable way), it appears fundamental for the authors to explore new places and social contexts in which to carry out their qualitative methodologies to evaluate the territory brand positioning. In particular, they will stress social media because it enables consumers/citizens and firms/places to *'interact and exchange all kinds of information, including comments, reviews, invitations, images, photos, and videos'* (Cheung, et al., 2016), so to keep people on contact and contribute to generate and/or co-create value (Vargo and Lusch, 2004; 2006; 2008).
Thus, a methodology aimed at studying and applying these tools has been identified; the objective of the analysis is to explain how it can help to explain the city of Scalea as 'place-as-brand', its positioning on the net applying sentiment analysis:

Q.: How sentiment analysis can contribute to understand and help improve Scalea place brand positioning on the net?

The following paragraphs, answering the research question, will detail the chosen research methodology and its practical implications for the place-as-brand.

Methodological approach – Sentiment analysis

Theoretical Framework

According to Bing Liu (2012), sentiment analysis - also called opinion mining - is that field of study which examines through text analysis opinions, feelings, values, attitudes, and emotions of people to entities such as products, services, organizations, individuals, issues, events and their attributes. It is one of the branches of natural language processing (NLP), and it mainly aims to identify the overall emotional polarity of a given text, which could be classified in positive, negative and neutral polarity (Cui, et al., 2016).

These texts are characterized by the use of subjective language which better explain personal opinions and other types of sentiment. However, this subjectivity may also show a sentiment in an indirect way. As a matter of fact, it is impossible for readers of a text '*to infer a positive or negative impression of a certain topic from factual information using world knowledge or common sense'* (Van de Kauter, et al., 2015).

It must be taken into account that human language is ambiguous, and it will be inaccurate to simply extract and mechanically classify parts of the text which express sentiment (Capolupo, et al., 2016). There are factors (context, human behavior and perception for instance) which must be considered and analyzed by human beings, because it tends to share other users' common language, emotions and background.

Two of the major scholars who apply sentiment analysis to their consumer behavior researches are Bo Pang and Lillian Lee. They propose a method of automatic learning of sentiment analysis which applies the techniques of categorization of parts of a given text to analyze the subjectivity level of the chosen document portion.

This categorization (2008) is based on two fundamental moments:

1. label the phrases in the document both subjective and objective, discarding the latter;
2. apply a classifier machine learning standards for the part extracted.

The first stage consists of a general analysis in which practitioners have to choose between that part of the text where sentiments are inscribed, and choose between those they believe are subjective and objective feedbacks, not considering and discarding other comments (spam, unknown language etc.). The second represents a mechanical moment, during which those two categories of extracted contents are quantitatively classified to strengthen analysts' objectives of research.

Generally speaking, one of the major aims of sentiment analysis consists of analyzing an opinion given toward one specific product or service or about comparisons among different products or services, thus extracting user opinions on referring products is fundamental to finding product weaknesses and suggestions to implement them (Wang and Wang, 2014).

Methodological approach

According to the literature – which aim to inscribe sentiment analysis to a practical context of action - consumers in the electronic market are able to send their feedback on products and services, which are known as user-generated content (UGC) in structured type, both as numeric ratings, and/or unstructured type, and as textual comments (Zhang, et al., 2016). Therefore, our referring places of investigation are social media.

Balahur and Perea-Ortega (2015) suggest that social media platforms, such as Facebook, Twitter, Flickr and LinkedIn, offer their own users the possibility to '*share their experiences and opinions on several topics and issues like economics, politics, products, local and globally-critical events*'. In particular, authors will choose Twitter as the core digital place to extract users sentiments, because Twitter sentiment analysis has attracted much attention due to the rapid growth in Twitter's popularity as a platform perfectly suited for people to shortly express '*their opinions and attitudes towards a great variety of topics'*.
They will refer this suggestion (Saif, et al., 2016) to a lexicon-based method, which tries to use the sentiment orientation of words and phrases in a given document '*to calculate its overall sentiment'*. The L-B methods is structured on sentiment lexicons, which means that to dictionaries of words will be associated sentiment orientations.
Furthermore, as some scholars suggest (Fersini, et al., 2016), to better capture t*he sentiment orientation of the messages several valuable expressive forms should be taken into account when we use to track polarity detection in online social environments*. Twitter, for instance, was the first signal platform-dependent, using 'hashtags' (words prefixed with the symbol #) to allow users to easily specify their referring topic, and to identify themselves in the community which discusses that topic.

Case vignette - Scalea
Methodology
As previously mentioned, sentiment analysis may be considered as one of the most suitable research method for case-studies. Nevertheless, in order to frame the research and focus on the aims of this work, it will be necessary to apply some context indicators to reach specific results. In particular, the analysis has been conducted applying three indicators:
− the social context, understood as the community of users/actors which play an active role in Scalea net placement;
− the physical environment, trying to track users experience on the city's offer in terms of tourism and services;
− the time frame, to temporally contextualize users' answers in a given period of time.
Since communication styles differ from a user to another, once the core keyword has been defined to allow the authors to explore the relationship that occur between users' perception and Scalea positioning on the net, other keywords closely related will be chosen to foster a wider horizons survey if results are not enough to meet the research needs.

Sentiment analysis
In order to focus the attention on Scalea's positioning on the net, authors agreed to choose the hashtag #Scalea only if referred to the Calabria's region city cited in Italy, thus differing from the same term that, in other languages (Spanish for instance), could refer to other meanings. Moreover, authors decided to take into account tweets of a given period of times, mainly that of summer season, since the city of Scalea tourism mainly consists - and in any case closely linked to – of maritime tourism, and both in Italian and English. Therefore, sentiment analysis will analyze contents from the 2nd of June 2017 to the 13th of August 2017.
In general, sentiment analysis pointed out that, after having analyzed that given period of time, users enjoyed a lot their personal experience of Scalea seaside and cityscape. From a tourist point of view, it suggests excellent indicators both for Scalea public administration and for private structures. Fewer were negative experiences, more related to a well-defined succession of days in which a user noticed a very polluted and dirty sea. Lastly, neutral

feedbacks were more numerous: they include hotel and residence room offers, press news, public administration updates and so on.

POSITIVE	NEGATIVE	NEUTRAL
34	5	75

In the following examples, authors went into details of *s.a.* in order to foster a better comprehension of its results and aims.

Unbiscottoperdue @unbiscottoperdue 2nd June
First day at the sea #calabria #calabriadaamare #scalea #ifood ☺ #instamamme #unbiscottoperdue #summer #summergirl... http://fb.me/8GfSasrnC

One of the first positive feedback has been extracted analyzing icons: even if it is part of a written text, user's sentiment is conveyed by using an emoticon – the representation of a facial expression (Kaye, et al., 2016) by using punctuation marks. Without it, it would not have been possible to recognize the Scalea’s sea user's positive experience and, as a result, the tweet would have been placed among the neutral ones. User’s first day at the sea is positively witnessed not only by the emoticon but also by a picture which represents the beauty of Scalea sea landscape.

Jessica Martinelli @jessica84512145 13th August Summer <3 #scalea #mare #sea #summer @ Scalea (CS) https://www.instagram.com/p/BXug-uTh6CX/

Hence, it appears that users who refer to positive sentiments use the emoticon as the most popular icon to express their feedback, especially if they share a picture inside the post. Jessica Martinelli use the emoticon of the heart ‘<3’ to express her appreciation of Scalea’s sea, which shows her special emotions, as the attached photo suggested.

Giampiero Valente @GiampyValente 3rd July #night with friends ...#scalea #oldtown...wonderful... nicolinoerricosg86… https://www.instagram.com/p/BWGTFCIgPsV/

The sea, even if considered as the most important attraction of Scalea city, is not the only place loved and experienced by tourists. As a matter of fact, there were several users who posted their Instagram pictures of Scalea old town, as Giampiero Valente did with his friends. They had a good time in the ‘wonderful’ historical town, enjoying both the view and the cityscape.

VIAVAI @viavaiscalea 10th June #livemusic #saturdaynight #nightlife #drink #cocktail #drinking #nicepeople #scalea #summer2017 #calabria... http://fb.me/10UpHhDZj

Furthermore, there were positive feedback even from local business sector. Via Vai Scalea is the Twitter account of a pub located in Scalea, which posted a picture showing the bar full of people (defined as ‘nice people’) listening to live music on Saturday night, drinking cocktails and enjoying their city experience. In this case, positive feedback is not only given by the ‘#nicepeople’ hashtag, but also from the fact that the picture shows a bar full of people, an extremely relevant evidence of the local business success.

Negative feedback found by sentiment analysis is little, and is mostly related to specific episodes occurring within a defined time line. All the analyzed cases refer to pollution issues or poor coverage of the telephone line.

maurofabiolino @maurofabiolino 12th July #Scalea, even today, like yesterday, the #sea is dirty after 12 o'clock maurofabiolino @maurofabiolino 13th July Scalea #calabria third day at the sea, is #dirty #pollution, are #purifiers not working? maurofabiolino @maurofabiolino 14th July #Scalea #calabria fourth day at sea still #dirty #pollution, seems #purifiers are not working

The user Mauro Fabiolino experienced Scalea for several days, spending his holidays in Calabria's city. Of course, as lots of tourists did, he chose this location for its wonderful seaside. Nevertheless, he has been disappointed because for three days he found an extremely dirty and polluted sea. He posted three tweets on the 12th, 13th and 14th of July complaining that after 12.00 m. Scalea's sea had been dirty. Moreover, he seems to try to ask for an answer to this weird phenomenon, asking the Twitter #Scalea community (and, perhaps, to Scalea public administration as well) if purifiers were working or not.
Despite the pure and simple feedback which aims to share a negative sea pollution experience, this tweet series is important to report a problem not only to other Scalea users and tourists, but also to city authorities which are to solve it in the shortest time.

grazia hess @GraziaHess 7th August @Tre_Assistenza I am at #Scalea and telephone signal is gone. I can't receive calls. Internet up and down. Now is back but then it disappears.

The other negative feedback concerns a user complaining of Scalea's lack of telephone and internet signal. However, it seems a problem related to a specific telephone company, which does not seem to work within the city. Anyhow, further posts absence related to this problem makes understand that it could have been solved at once.
Neutral feedback represents the largest amount of authors' sentiment analysis. They include mostly news, communications, and those users tweets which have not released a key indicator in their post, so it has been impossible to evaluate their experience. Nevertheless, some of these feedbacks is crucial to understand the city's positioning on the network.

Big fantasy tour @Bigfantasytour 5th June □□#SantaCaterinaVillage - #Scalea□ Price for room, 2 adults + 2 kids to 16 years old... http://fb.me/6bn1AX2oa

TuristaGO @TuristaGO 9th June #Goodmorning dear friends, today we have an awesome offer for families - #SCALEA prices for room!!!... http://fb.me/1fHAD5dnq

The first two examples show the offers of tourist facilities accounts for staying in the city for the night. It includes special opportunities both for adults and kids, for families and single tourists. Social media such as Twitter represents a fundamental tool for tourism marketing, and Scalea local businesses are productively using them, as there are several replies from users interested in knowing more about hotel prices. Thus, in this case *s.a.* could be extremely useful for users to find hotel offers and different tourism services.

TuttixTutti @CeiTuttixTutti 15th June Even Parrocchia #SSTrinità of #Scalea is challenging for the contest @CeiTuttixTutti. Fifteen days remaining to proclaiming winners

Parrocchia S.S. Trinità is a catholic community of Scalea which participated in the Scalea context 'Cei Tutti x Tutti'. The example shows a newspaper article telling participants that contest winners will be announced in the following fifteen days. And, as other tweets provided by the account @CeiTuttixTutti, Parrocchia S.S. Trinità of Scalea won the second prize.

Practical implications

Before going into the details of sentiment analysis considerations, some fundamental premises should be made:

- those examples of tweets were chosen because considered 'icons', which according to the authors are necessary to explain the above-mentioned indicators. Therefore, other posts conveying different issues have not been taken into account to avoid a too broad and lacking of focuses research;
- in order to track more tweets, it is fundamental to know all the possible languages in which users may identify their opinions. As a matter of fact, authors strictly conducted the investigation in English and Italian, nevertheless with a better knowledge of other languages they will be able to track those users who share further experience and opinions on the city.
- the number of tweets analyzed in the case vignette is enough to strengthen the view on these specific topics, nevertheless the authors recognize that a major amount of comments – perhaps using an IT tool - may even better quantitatively improve their assumptions;
- conducting sentiment analysis on other social media which shares a hashtags syntax and research may further improve both quantitatively and qualitatively the research indicators.

Sentiment analysis pointed out that Scalea's brand positioning on the net, particularly on Twitter, is currently positive and is increasing over time. The city is majorly taken into account for reasons and feedback related to the tourist experience of web users, which give the network significant trust in helping the city improve itself.

Value co-creation happens when users with their posts act as part of #Scalea community. They share pictures, events, feedbacks, experiences not just because this may increase their self-esteem, but specially to help other users have a better experience of their holidays. This, by all means, helps the city to improve as well, because it advices to both public administration and the private sector how to provide valuable services and eventually solve defections brought to light by the same users.

Positive feedback has shown that there is a particular tourists' affinity for Scalea's natural scenarios and cityscape. The Calabrian city sea represents, of course, the greatest tourist reference for network users who share their positive experience among them. And this through texts, icons, emoticons, videos, pictures and so on.

Concerning neutral feedbacks, *s.a.* has shown how even from tweets which apparently do not convey a certain experiential data it is possible to extract profitable information for all the actors involved it the research (stakeholders, tourists, public administration). Firstly, for tourist operators, who may discuss and show users their holiday offers; then to tourists, who usually look for the best price and/or service within the city; and lastly, to Scalea local administration, which may thus understand which city services to improve to allow a better tourist experience and facilitate stakeholders job.

Lastly, it appears that users on Twitter do not have often negative experiences of the city and its services (only 5). As already discussed, they concern only a defined period of time in which the sea was polluted according to the user's view. Nevertheless, this assumption is not enough to demonstrate that Scalea's offer effectively met their needs without negative issues.

Authors believe, furthermore, that other typologies of research, especially conducted at local level, could better investigate negative instances.

Conclusions

The systemic view presented allows a universal interpretation of 'place as brand' dynamics which, in relation with individuals, constantly evolve over time. This work aims to give a contribution to territorial marketing and management studies and practice applications, underlining some key aspects about the adaptation and self-organization concepts. Furthermore, adaptation towards heterogeneous target needs to underline the existence of a 'place as brand' without boundaries and with sub-systems that are more autonomous than the Governance can plan.

In this scenario, the sub-system self-organizes its behavior on the basis of tourist needs, and with it, it creates conditions considered pivotal for emerging properties development. At this regard, the systemic view highlights that the relationship between places administration and target behavior cannot be tackled in a linear, deterministic and quantitative way, but according to a non-linear path that highlights stochastic approaches (Capolupo, et al., *forthcoming*).

According to the research question, sentiment analysis has not only demonstrated the Scalea's tourist appeal, but also the media coverage and the exchange of information among multiple users / tourists, tour operators, journalists and public administration in order to:

1) tell about the territory and its offer;
2) share their experience - positive or negative - of the territory;
3) mention any disservices useful for improving the offer and the reputation of the brand both online and offline;
4) co-create value with the city administration to improve it (and thus contribute to the emergence and affirmation of the 'place-as-brand').

This work presents some limitations: the authors is not expected to consider the sentiment and qualitative analysis a perfect and universal approach and tool to evaluate and support the place as brand behavior forecast, and the case vignette refuse to be considered as a full Scalea brand positioning analysis, but only a practical icon of the constant, dynamic and cooperative relationship between the territory and its tourists/citizens.

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Leaders in tourism destination

S. Iannolino[1], G. Ruggieri[1], Francisco J. Calderón Vázquez[2]
[1] Department of Economics, Business and Statistics Sciences, University of Palermo (Italy)
[2] Professor Department Applied Economy, University of Málaga (SPA)

Keywords
Social network analysis; Tourism destination; family relationships; cooperation

Abstract
Competition between different tourist destinations is not embodied in the mere competition between the enterprises that make it up but in the pursuit of the efficient development of the intangible resources found within them (*culture of the territory*; *specific skills*; *relational skills*). This has resulted in an effort to analyze networks within the tourism industry and to understand whether cooperation and trust between economic players leads to a better economic performance of the destinations.
This paper falls within this line of research and it draws insights from two key strategic theories: network theory and Destination theory . Under this approach, one way to reach a thorough understanding of Destination theory is to link this theory with social network analysis (SNA), which is concerned with the analysis of the structural patterns of behaviors instead of looking at the individual influences of each leaders. The pertinence of this study lies in the fact that social networks are a relevant phenomenon that has been given increasing attention in the small business literature, in particular, regarding the tourism destination and local community development (Saxena, 2005; Pavlovich, 2003;Tinsley & Lynch, 2001).
Tinsley and Lynch (2001) researched the networking process between the destination's small tourism businesses and found the important role of cooperation between local actors. In the same line, using the principles of the networks approach, Saxena (2005) examined the nature of the exchange structure. They analyzed different attitudes of actors toward partnership building and their perception of cross-sector networks. Pavlovich (2003) clarifies how the grouping of small firms within interdependent systems can be self-governing and demonstrates how this process assists the destination in building tacit knowledge for competitive advantage.
On the basis of this argument, this study aim is examining the patterns of relationships of the tourism network and analyze the role of leaders in the management of relationships in order to understand their impact on tourism activities.
JEL: C31, L83, O14

Background
Far back in 1942, Walter Hunzinker and Kurt Krapft defined Tourism as: "… the sum of the phenomena and relationships arising from the travel and stay of non-residents, in so far as they do not lead to permanent residence and are not connected with any earning activity", looking at tourism as a global, complex and organic phenomenon. In other words, Hunzinker and Kraptf (1942) represent tourism as a dynamic and relational tourist matrix, where the relationships and the interactions among the involved subjects, the resources and the interests are essential in order to explain both the origin and the development of tourist activities, as well as its rise and its decline in different sites over all the world.
Though relationality in the tourism sector can be considered from different theoretical perspectives, the focus of our analysis will be on the importance of the social network for the

creation and the development of a tourist destination. Then (Laumann, Galaskiewicz and Marsden, 1978), the social network could be viewed as a set of knots which could be individuals as well as organizations (companies, institutions, third sector organisations and so on) linked through specific social relationships (friendship, affairs, family, affinity and so on). From this point of view, each tourist destination could be considered as a network of relationships between subjects belonging to the destination which, at the end, represent the tourist local system. So, the proliferation of studies focused on social networks in tourism comes as no surprise (Camprubí, Guida, Comas, 2009; Bhat and Milne, 2008; Dregde, 2006; Novelli, Smith and Spencer, 2006; Shih, 2006).

The tourist industry at the destination consists of different activities (accommodation, transport and food and beverage), including those of a complementary nature (entertainment and customized services) and support activities (institutions, public administrations and so on). The combination of these activities can generate an integrated supply of tourist products to satisfy different needs and preferences.

Hence, it follows that, from a social network point of view, coordination, cooperation and interaction between tourist operators are essential for genuine tourism development (and consolidation) at the destination. It is crucial that local operators work together in an integrated way, because the competitiveness of a destination, based on an integrated supply of goods and services capable of meeting demand, derives from this (Comas, 2005; Tynsley e Linch, 2001), and from the proper functioning of the destination. We propose a descriptive analysis of the relational framework existing in a specific peripheral tourist destination, in this case San Vito Lo Capo, a coastal emerging destination in the Tyrrhenian seaside of Sicily. This relational analysis is carried out through the application of the Social Network Analysis (SNA), as methodological tool.

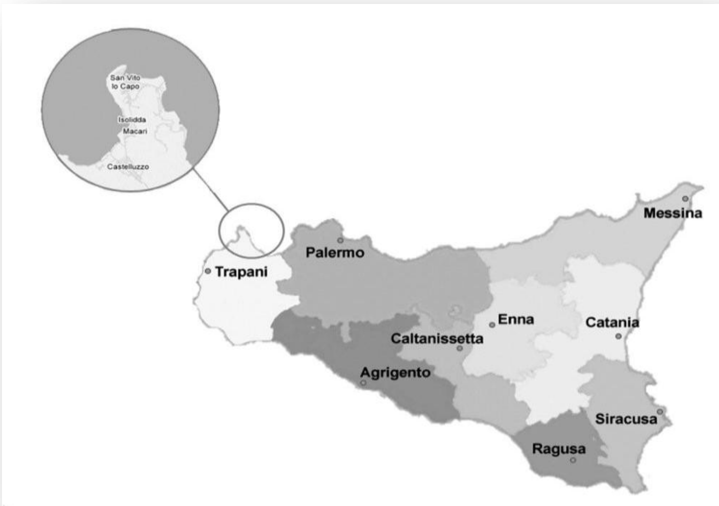
The study is focused on San Vito Lo Capo, a peripheral area in Sicily, a Region with low income, where investments by private businesses are unlikely due to the low returns (Vallejo & Grande, 2003). In this context, it is normal that local opportunities are managed by and for local enterprises which are well acquainted with the existing local tourist resources (Vallejo &Grande, 2003). They are usually family-run businesses, as is the case for the great majority of tourist companies all over the world (Mottiar & Ryan, 2006; Vallejo &Grande, 2003; Getz&Carlsen, 2005; Getz et al., 2005; Jaafar et al. 2010; Hallak, Assaker, O'Connor, 2014; Zapalska & Brozik, 2014).

In the case of San Vito Lo Capo, they are mostly SMEs built on familiar ties, which in this context of low rent could have a role as the configurator of the entire destination, through a wide network of integrated supply. Our SNA has to consider these features and focus on the likely family relationships within the framework of the existing relationships among operators, as well as the entrepreneurial and commercial constraints deriving from these family relationships.

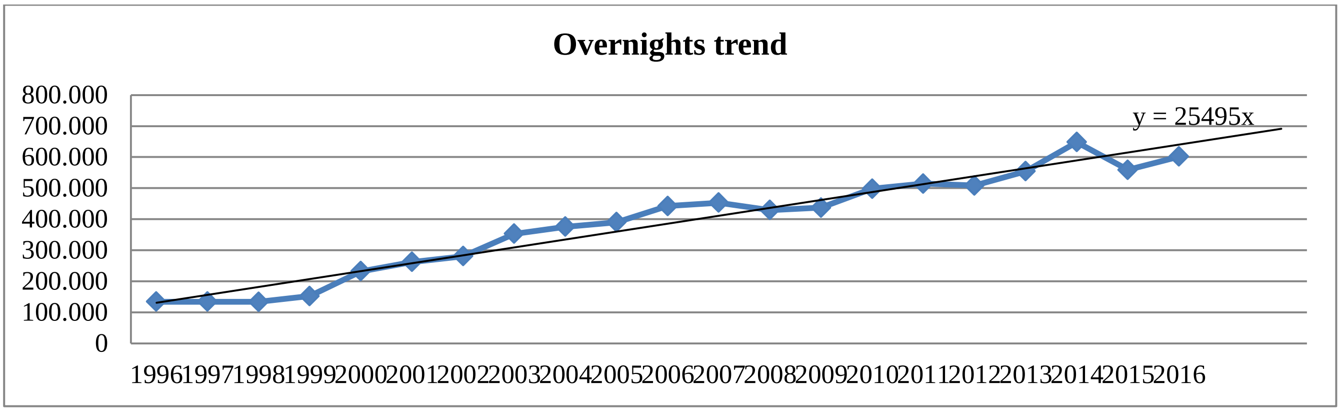
At present, the world economy shows the great presence and importance of family-run businesses, usually SMEs, which include tourist enterprises. Nonetheless, and though tourism represents a fundamental economic issue (Dyer and Handler, 1994; Rogoff & Heck, 2003; Denison et al, 2004; Sharma, 2004; Danes et al, 2008;. 2009; Sánchez Marína et al, 2016), it has not received the attention it deserves from an academic point of view (Gersick et al 1997; Chua et al, 1997). Perhaps, it depends on the prevalence of “micro” enterprises and the peculiarity of their management: profit is not the main aspect of their existence; there is a sharing of responsibility; and children are involved in the family business (not necessarily with success). These aspects, together with the problems linked with succession and inheritance issues (Getz et Al., 2005), have limited the scene for this kind of business.

Likewise, the operational limits of family management, i.e., risk aversion, the low level of professionalization, nepotism, the poor quality of the services offered and so on (Shaw and Williams, 1998; Shaw, 2004), can result in an unprofessional vision of family-run businesses, closely linked with the figure of the “owner operator” typical of the Anglo-Saxon culture.
Moreover, the limitations deriving from the seasonality of tourist campaigns could negatively affect the profitability of the family-run tourist SMEs, which could be considered as a secondary source of income by the owners, thus limiting their development and their improvement in terms of quality (Getz, Carlsen, Morrison, 2005).
San Vito Lo Capo has experienced great growth over the last 20 years, as can be seen in charts further, becoming one of the most breathtaking and renowned seaside tourist destination in Sicily for its beauty, authenticity and quality. It is a place that any traveler coming to Sicily should know and enjoy. So, in order to explore the underlying reasons for this great tourism success, the essential questions to be addressed by research should be on the one hand: How is the structure of the network relations within the destination of San Vito Lo Capo? What is its nature? What is its extension? To what extent are these probable family ties important? In the effort to answer these and other questions, we have structured this paper into three sections.

The case
San Vito Lo Capo is geographically surrounded by a group of mountains and is accessible only through a single road. This means that it can be considered – to a first approximation - as a single point in the regional tourism system and recognized by all tourism segments as a seaside tourist destination. The municipality has taken on the characteristics of a mainly seaside tourist destination, which has evolved over time in terms of tourist offering and tourism flows.

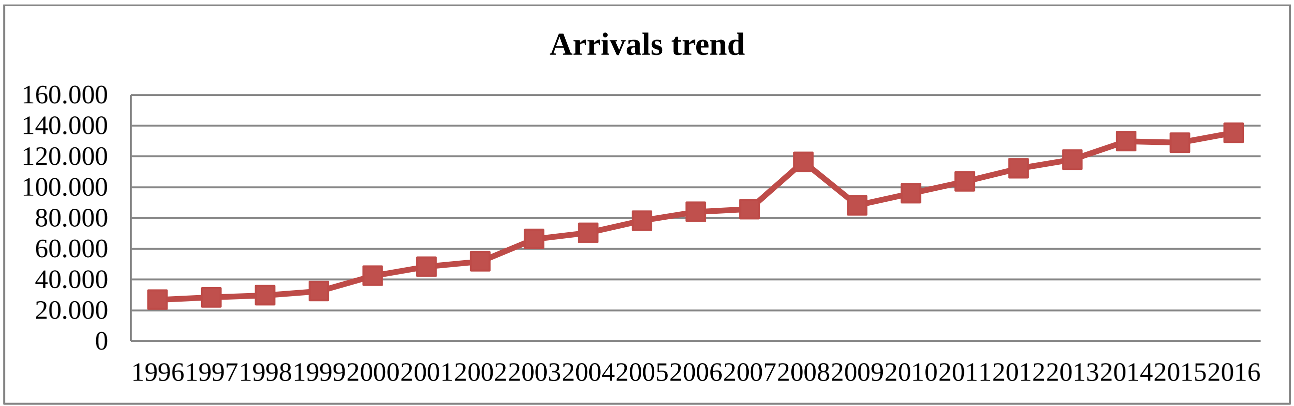


Tourism in this small size destination emerged in a measurable way in the 1990's and since then tourism has grown to the point that the number of overnight stays rose from 134,507 in 1996 to 601,885 in 2016. The growth in demand has been matched by a substantial increase in beds, also offered in private homes and accommodations for rent, thus creating a widespread accommodation capacity consisting of private accommodations, houses and villas owned by residents who are part of a type of hospitality called "non-traditional".



Source: Our elaboration – OTIE Database

Focusing on tourism demand, we can also observe the number of arrivals in the last twenty years and the emerging trend. In 2016, arrivals were five times greater than in 1996, increasing by 400% over the two decades.



Source: Our elaboration – OTIE Database

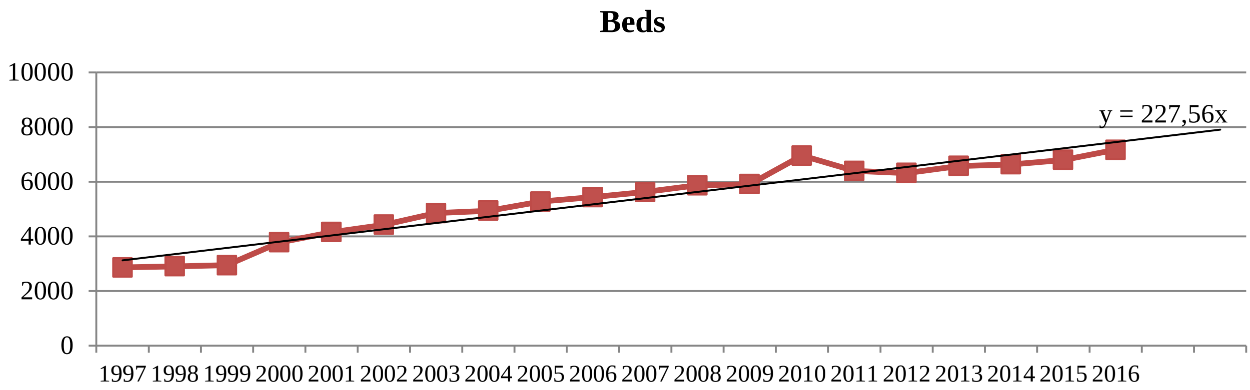
The growth in demand has been matched by a substantial increase in beds, also offered in private homes and accommodations for rent. Hotel accommodations increased by 34 facilities, passing from 16 to 50 units.

The uniqueness of this destination is the presence of a widespread accommodation capacity consisting of private accommodations, houses and villas owned by residents who are part of a type of hospitality called "non-traditional".

This upward trend has been spontaneous and continuous in time, as a result of the ongoing action of groups of small businesses and micro-enterprises, which have played an important role in the development of the location during both the initial and consolidation phases.

Therefore, it is reasonable to assume a bottom-up development not induced by external factors or not triggered by regional or national tourism policies, but rather by a logic of cooperation triggered among micro-enterprises that are essentially family-run.

In our opinion, the study of this tourist destination in terms of its relations appeared to offer interesting insights for the development of appropriate policies to increase the level of integration of the tourism offering also in other territories, provided that the processes leading to this rapid development are understood.



Source: Our elaboration– OTIE data

The social network analysis methodology

The production of goods and services at a tourist destination necessarily implies cooperation between the different stakeholders (Selin & Chavez, 1995; Hall, 1999; Bramwell & Lane, 2000; Selin, 2000). The presence or the absence of these relationships, both formalized and not, represents the network of a tourist destination (Tinsley & Lynch, 2001; Copp & Ivy, 2001; Halme, 2001).

In international tourism literature, a new current of research has emerged in recent years and it analyses destinations by moving from the hypothesis that these are a set of elements strictly connected to each other (*destination mix*) (Leiper, 1990; Carlsen, 1999). This implies the need to find tools and methods that are able to study the destination, focusing on the existing relations between the different elements of the tourist destination.

The Social Network Analysis (SNA) is the answer to this need (Baggio, 2008). Social network theory is an interdisciplinary methodology because, though developed in sociology, it has been implemented through the contribution of mathematicians, statisticians and computer scientists who have developed and formalized the technical features, making it suitable to represent relational networks in the economic field.

The application of this technique makes it possible to understand how a network is articulated through the study of the attributes of the players and the composition of the network. The analysis of the differences in the way in which players are connected is used to understand the attributes of the players and their behavior (Scott 2017). The presence of multiple ties implies that people have the opportunity to more easily share the rules that favor economic networking, until conformity with values and institutional rules is achieved (Di Maggio and Powell, 2000; Scott and Meyer, 1992).

The structure of the ties within which each player is inserted could facilitate or constrain their actions (Granovetter 1973; Kogut 2000). If the density of the ties at a destination increases, communication becomes more efficient (Rowley 1997) and this encourages conformity and inclusion and allows the cohesion of a destination (Pavlovich 2003). Instead, a low-density network tends to internally develop a few small core elites with strongly interconnected players and the remaining players with a smaller number of ties (Scott 1992).

The multidisciplinary origin of the SNA has led to the creation of a wide range of quantitative measurements which allow the identification of the main features of the network (Scott, 2000). The main indexes used are:

- **Density** of a graph is the ratio of the number of ties present to the maximum possible number of lines. The formula of density is $\frac{A}{\frac{b(b-1)}{2}}$ where A is the number of lines and b is the number of players in the network. This index varies from 0 to 1, 1 being the density of a graph in which all the players are interconnected

- **1st-order neighborhood.** The neighborhood of an actor is the set of actors they are connected to together with the actors that are connected to them. An ego centered network is the subgraph induced by the set of neighbors. That is the network that consists of all the neighbors and the connections between them. The idea of an ego network can be extended to a group of actors and the neighborhood is simply the union of the neighborhoods of the group.
- **Clustering coefficient** of an actor is the density of its open neighborhood. The overall clustering coefficient is the mean of the clustering coefficient of all the actors.

The weighted overall clustering coefficient is the weighted mean of the clustering coefficient of all the actors each one weighted by its degree. It is calculated as the ratio between the actual number ti of links connecting the neighborhood (the nodes immediately connected to a chosen node) of a node and the maximum possible number of links in that neighborhood: Ci = $\frac{2ti}{ki(ki-1)}$.

- **Geodesic distance** calculates the length of the shortest path connecting two points
- **Average distance** is the average of geodesic distance.

Data collection

The unit of the research analysis is the set of tourist enterprises existing in the municipality of San Vito Lo Capo (*N*), while the unit of observation is the set of relational links (*R*) between the tourist enterprises at the destination.

While recognizing the existence of different links between the local and external enterprises, we chose to focus only on the relationships between local enterprises, by containing the unit of observation.

The local enterprises have been identified through the belonging to the different categories, i.e., accommodation, catering, transport and other categories of tourist services.

Tab. 1 – Tourist enterprises at San Vito lo Capo

Categorie	*Imprese turistiche*
Alberghi e strutture simili	32
Affittacamere per brevi soggiorni, case e appartamenti per vacanze, B&B, residence, alloggio connesso alle aziende	27
Ristorazione con somministrazione	18
Aree di campeggio e aree attrezzate per camper e roulotte	4
Trasporto con taxi, noleggio di autovetture con conducente	2
Noleggio di autovetture ed autoveicoli leggeri	2
Attività delle agenzie di viaggio e dei tour operator	2
Altri servizi di prenotazione e attività connesse	6
Villaggi Turistici	1
TOTALE	**94**

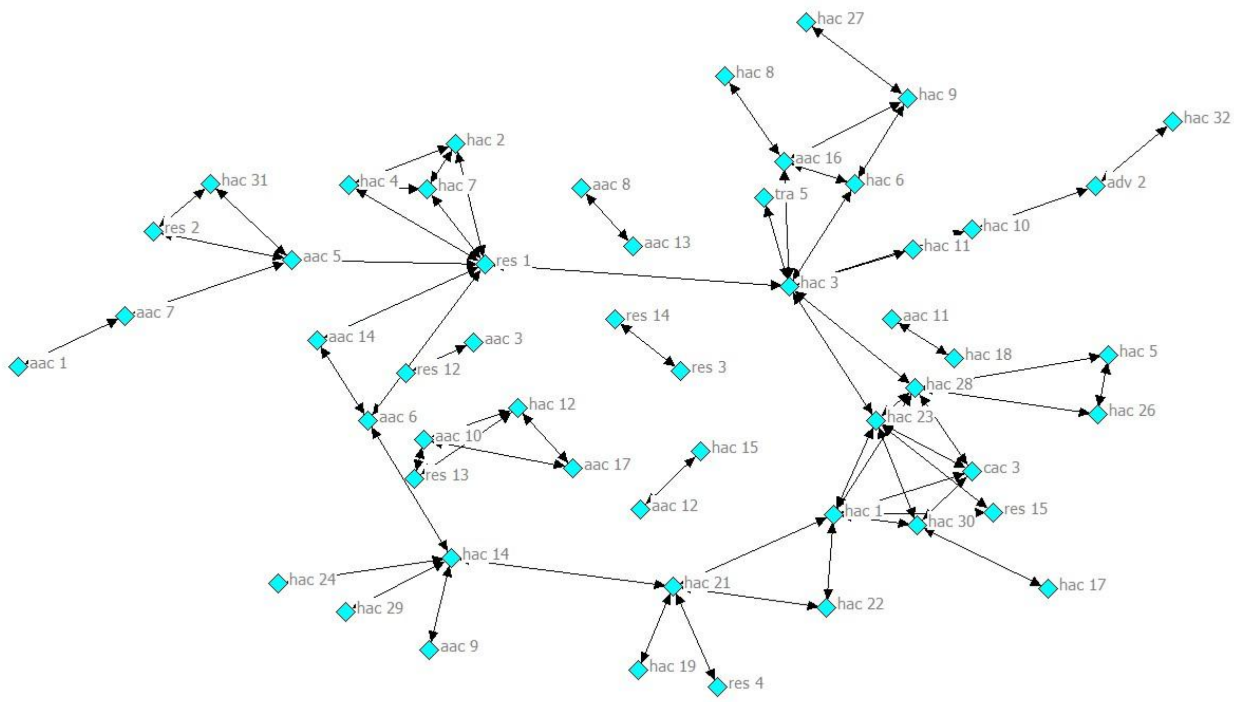
Source: Based on data of the network of Chambers of Commerce

A questionnaire, including, among other things, the following questions, was administered to the actors of the network:

1. **Commercial relationships:** *with which of the following enterprises do you have commercial relationships, during the year, to realize the tourist services provided to your customers (overnights, transfer, excursions, food and beverage, suggestion/advice for other structures, entertainment services…)?*
2. **Family relations:** *with which of the owners of the following enterprises have you a family relation?*
The answers of the interviewed operators were collected and included in two different matrices:
i. the commercial matrix: it elaborates the data concerning question no. 1 to analyze the commercial relationships;
ii. the *relative matrix*: it elaborates the data concerning question no. 2 to analyze the family relations between enterprises.

The Destination Analysis
The analysis was conducted in two steps. The first analyses the structure of family relationships in San Vito Lo Capo, our tourist destination, in order to understand the nature, extent and possible existence of pivotal families who drive and coordinate existing family relationships.
For this end, a *relative matrix* of the different actors at the tourist destination was analyzed.

Fig.1 Network familiare



We can note that 66.25% of actors at the destination feature various family ties. This fact leads to analyze the degree of connection between the existing relationships. The density index helps us in this phase and is equal to 0.0206 (note that the density index has values between zero and one). This low value depends on two factors. The first is related to the existence of 32.75% of actors at the destination, which do not have family ties. The second derives from the existence of not very tight ties (see picture 5).

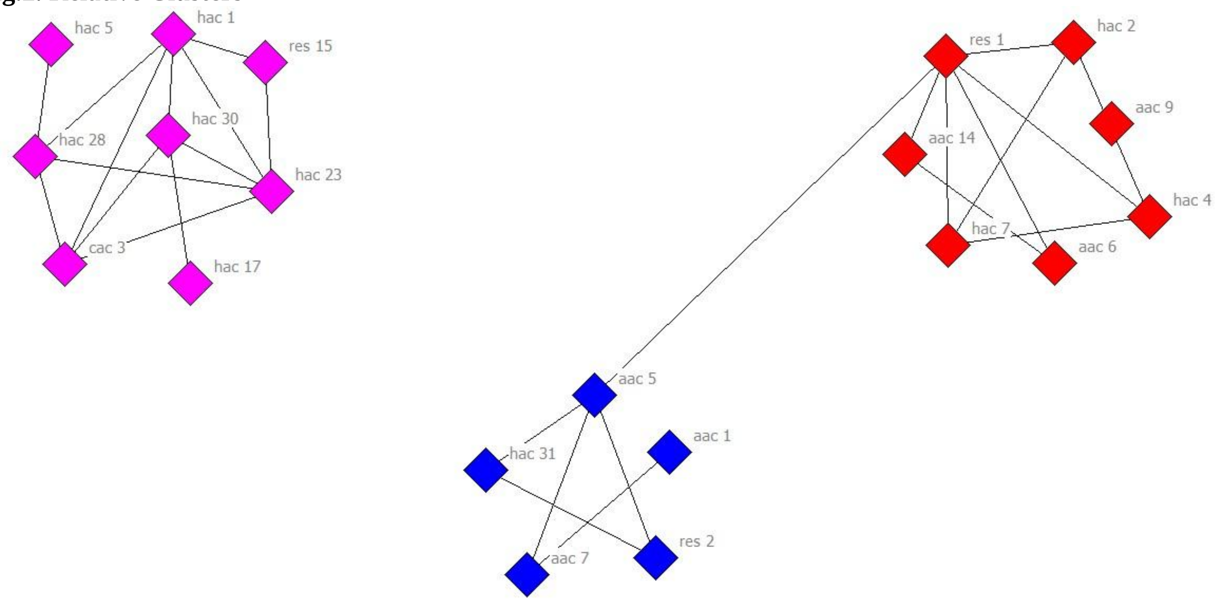
This last factor led us to study the family ties by clustering analysis. In this way, we identified three families in the network which show a high-density value equal to: 0.50; 0.57 and 0.60.

Tab1. Relative Clusters

Description	**Components**
Family 1	HAC 1; HAC 30; HAC 23; HAC 28; CAC 3; RES 15; HAC 17; HAC 5*
Family 2	AAC 6; RES 1; AAC 14; AAC 9**; HAC 7; HAC 4; HAC 2;
Family 3	RES 2; AAC 7; AAC 5; HAC 31; AAC 1;

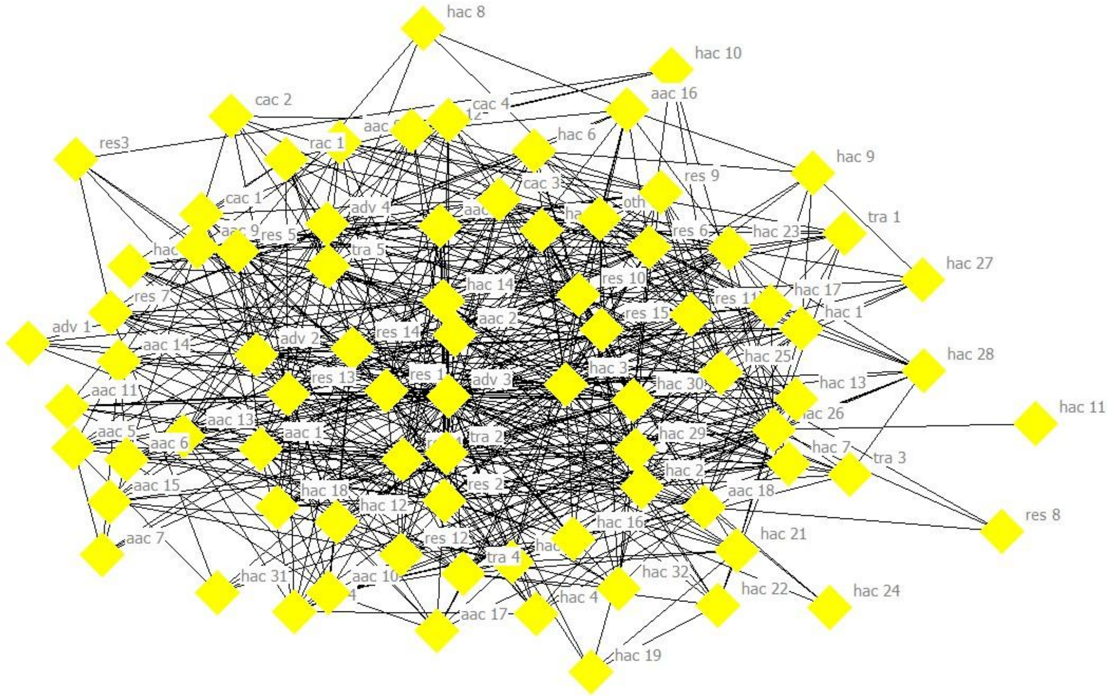
Legenda. HAC= Hotels and similar establishments; AAC= Room rentals for short stays, vacation homes and apartments, B&B, apartments, housing connected to farms; RES= Restaurants with service; CAC= Camping grounds and areas for campers and trailers
* in-law of hac 28; ** in-law of aac 6

Fig.2. Relative Clusters



The second level of analysis led us to study the *commercial matrix* taking into account the existence of three families that are fundamental in the relational context of the tourist destinations (these relationships are indispensable for the realization of one tourist experiential product).
By calculating the *1st-order neighborhood* for the three families in the *commercial matrix*, we noted that these are able to affect the 92.5% of the existing enterprises at the tourist destination San Vito Lo Capo. This value is important but, if we consider that the density of the commercial network is equal to 0.1403, we realize that the three families are central and preeminent at the tourist destination.

Fig.3 network commerciale



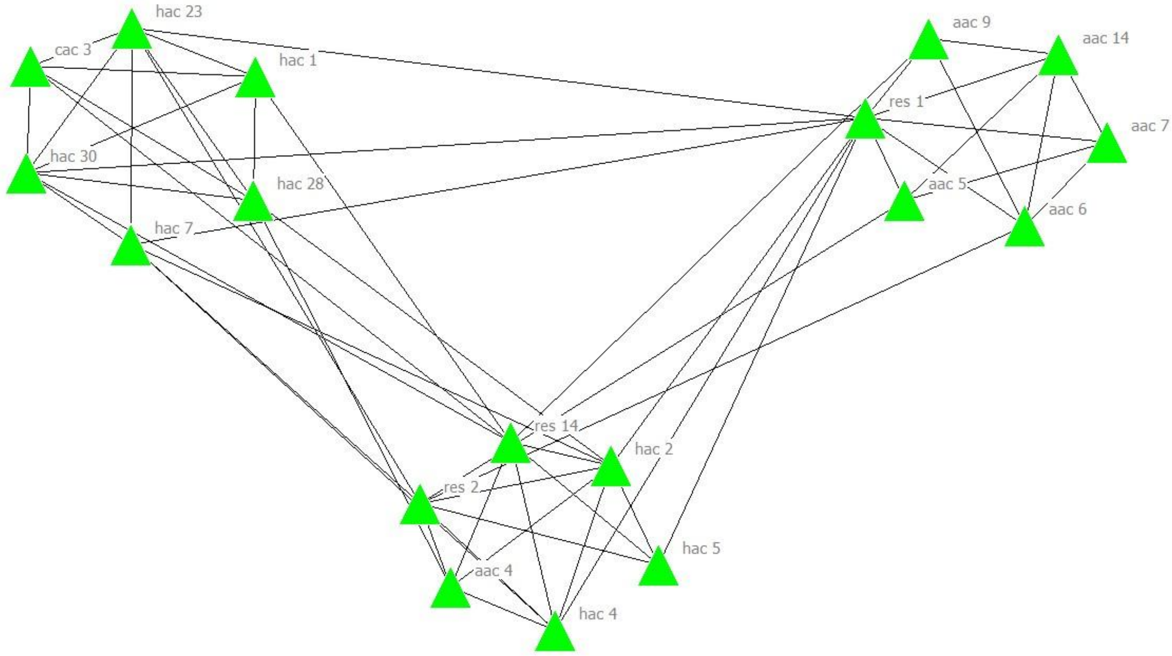
Moreover, the analysis of the sub-structures of the commercial network allows us to discover that three clusters with a high internal density exist (equal to 0.80) and that the elements included are the three families previously identified.

Tab. 2. Commercial Clusters

Description	**Components**
Cluster 1	HAC 1; HAC 30; HAC 23; HAC 28; CAC 3; HAC 7
Cluster 2	AAC 6; RES 1; AAC 14; AAC 9; AAC 7; AAC 5
Cluster 3	HAC 4; HAC 2; RES 2; HAC 5; RES 14; AAC 4

Legenda. HAC= Hotels and similar establishments; AAC= Room rentals for short stays, vacation homes and apartments, B&B, apartments, housing connected to farms; RES= Restaurants with service; CAC= Camping grounds and areas for campers and trailers

Fig. 4 Commercial Clusters



So, these 3 clusters with a high density of relationships are both located within a network that has a low density and is in contact with all the other actors of the system by representing a point of reference. In addition, the data show that the existence of this structure provides a system of mutual assistance and exchange of commercial relations that are extended to all the players even if these did not fall within the sphere of kinship.

The existence of three central families at the destination that are able to affect almost the entire system, implies that, within the network, the enterprises share rules endogenously produced in the network. This behavior holds out to maintain a stability for a long time (Hayek,1973). These cultural rules, based on the mutual trust deriving from the family relationships, bring to compliance and set the interactions between the individuals (Bernheim, 1994).

Therefore, the social network, based on a widespread family system, generates reliance. The confidence implies the creation of social capital through which the local enterprises compare each other, cooperating in the development of the system.

Considerations for destination analysis

The study provides a three-dimensional image of the tourist destination San Vito Lo Capo. At the first level, which could be considered as the basis, there are the family interactions, which become economic and commercial flows in the second level. The third level, that of local economic development, derives from these economic interactions: the economic local development, thanks to the tourist activities taking place in the destination. The positive result of these ones allows to reach the feedback which triggers another cycle for the destination.

As it concerns the results, the study specifically analyzes the structure of the San Vito Lo Capo tourism industry, showing:

1. that 66.25% of all actors of the destination have many family ties. Within this network, there are three clusters of families with a high density.

2. These three clusters of families are able to influence 92.5% of all tourism companies at the San Vito Lo Capo destination through their commercial ties.
3. The analysis of the sub-structures of the commercial network allowed us to find that there are three clusters that have a high density and that the components are the three families previously identified.
4. So, these three clusters with a high density of relationships are both located within a network that has a low density and are in contact with all the other actors of the system thus representing a point of reference. In addition, the data show that the existence of this structure provides a system of mutual assistance and exchange of commercial relations that are extended to all the players even if these did not fall within the sphere of kinship.

From the obtained results, it is possible to draw following conclusions. On one hand, this study highlights the importance of cooperative networks for the competitiveness of the destination and their fundamental contribution to the development of this destination. In our case, strong commercial ties between the enterprises are the fruit of a climate of trust resulting from the presence of family ties. On the other hand, the presence and centrality of some enterprises implies that, within the network, the enterprises share rules of conduct established endogenously in the system and by the system and that these behaviors tend to be relatively stable over long periods of time (Hayek, 1973). These cultural rules, centered on mutual trust supported by the system of kinship, are the result of the evolution of trust systems, produce compliance and regulate the interactions of individuals (Bernheim, 1994).

Therefore, borrowing some theories (Putnam), the social network based on a common kinship system establishes trust. Trust involves the creation of a social capital fabric in which the businesses of San Vito Lo Capo interact, cooperating in the development of the system.

The previous paragraphs allow us to consider the existence of a sort of Kinship Model or Kinship Network at the destination San Vito Lo Capo, which works as an engine for the destination, bringing it to expansion, development and continuity over time. This is a very relevant element, because the family business is usually considered not to be a positive factor, thus negatively affecting the development of a tourist destination. It seems that this latter consideration does not work in the case of San Vito Lo Capo.

As it concerns the limitations of this analysis, first, it should be observed that the quantitative tools and methods used here are not completely sufficient to give a complete range of outcomes. Further investigation may therefore be set up. A logical step in extending the research described in this paper is to supplement the network analysis indexes with econometric tools.

Second, the results are valid for one destination and could reflect the idiosyncratic behavior of individuals in a local culture that is different from those in other destinations.

Third, the research in this paper reflects only a point in time. No longitudinal data are available.

An important area of future research will be to simulate past and future destination networks, based upon their current characteristics. This will help to address the perceived drawback of the static nature of the network architecture

Last but not least, we consider that our work can prove to be of interest to the peripheral tourist destinations, located in territories characterized by difficulties in local development (such as islands, mountain sites, frontiers and so on), or to those ones situated in areas characterized by structural underdevelopment and to Third World countries. It is about places where family-run businesses and their kinship networks can perform a relevant role in the creation and configuration of new tourist destinations. The latter can make a great contribution to the economic development and social improvement of these territories, by providing an economic foundation to build a new future for an economically weak land (or at least to try to).

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Málaga brand from the residents´ point of view (Spain)

Elena Cruz Ruiz[1], Elena Ruiz Romero de la Cruz[2], Francisco Calderón Vázquez[3]
[1]Profesora de la Universidad de Málaga, Departamento de Economía y Administración de Empresas - ecruz@uma.es
[2]Profesora Titular de la Universidad de Málaga, Departamento de Teoría e Historia Económica - emruiz@uma.es
[3]Profesor Asociado de la Universidad de Málaga, Departamento de Economía Aplicada - fjcalderon@uma.es

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Territory brand, residents´ perception, city brand identity, Malaga tourism**.**

Abstract: The brand might create a position of the territory that could be useful for the development of geographical spaces. It oculd also become a solid basis upon which to make decisions about the tourism planning of a city. This paper deals with the features which are recognised by residents as those that are involved in the creation of Málaga brand.
In order to achieve the goals set in this research, a descriptive methodology has been used. This study has been carried out using a questionnaire in which 200 residents have participated. The findings have corroborated the hypotheses. Indeed, the results show that Malaga brand is being built under the concept of culture and that some places of the city are vital in the making of the territory image. This also encourages economic growth and hence employment. This paper offers important implications and tolos to both public and private institutions insofar as they promote tourism promotion campaigns.

Introduction

Territorials brands represent a useful tool that could favor the touristic dynamic of territories Belloch, & López Lita, (2006), hence their need and opportunity is questioned. Some authors acknowledge that it can reinforce both the identity of a place, (San Eugenio, 2012) and its competitiveness (Elizagárate, 2008). Since this perspective, an approach to the residents' perception is necessary, and could offer great advantages, becoming a fundamental piece in the strategies of "place branding" (Compte-Pujol, et al., 2017).

In contrast to the perception offered by visitors, the residents' vision is always more complex and closer to the sense of identity (Zenker, et al., 2017; Manyiwa, et al., 2018), therefore, territorial identity is the basis on which to build, to improve and even polish, if possible, the existing brands or remodeling of brand structures of a territory, which is called "rebranding" (Olins, 2002, Hankinson, 2004, Anholt, 2007; Pasquinelli, 2010).

The coexistence of several brands around a territory (city) determines the need to start up that rebranding's process (Bennet & Savani, 2003), in order to implement new strategies on existing city brands (Herstein, et al., 2014).

The present paper deals precisely with the residents' perception in the opinion of Braun et al., (2013) the most forgotten aspect of place branding studies. In our case on Málaga's city brand.

Regarding this work, the territory brand will be considered, and therefore the city brand, as a set of elements that will be analyzed for Malaga, a reference point for Mediterranean tourism. In the past, the territory brand was identified with the sun and the beach, occupying a privileged place in the tourist sector, where the Costa del Sol brand was a claim for touristic flows who crossed their borders, in the times when mass tourism prevailed. Nowadays Malaga has diversified its tourist offer, based on culture, trying to avoid the saturation of the destination. As Tourism is a very important cultural component of globalization, *Cultural Tourism,* in its various manifestations, is a phenomenon of great relevance in the urban environment MacCannell (2003).

The divergence that could exist between the image that the expert has about the city, and the one that the citizen might have is disappearing as that geography of perception is analyzed, with studies that allow to understand the vision of the users (Insch & Walters 2018; Braun, et al., 2013; Zenker & Petersen, 2013; Merrilees, et al., 2009; Blasco López, et al., 2018; Vollero, et al., 2018). Although it is important to clarify that interest and pressure groups have expectations and demands on the tourism agenda, which can be completely divergent (Zamarreño, et al., 2017: 545).

It is also very important to take visibility. In the Malaga's case, as in many other cities of the world, this tool has gained a special interest (Vila López, et al., 2016; Kuster, et al., 2009), as evidenced by this research through the perception of residents and the positioning of the city of Malaga brand.

Literature review

According San Eugenio (2012: 197) the evolution of the territory brand situates us in the era of the "branding places", what supposes to emphasize the mark and its capacity to position a territory, acquiring therefore a own dimension in front of others.We must take into account the identifying attributes whether tangible or intangible. The beliefs, attitudes and experiences can contribute to the positioning of a brand, in relation to the territory it identifies (Govers, & Go, 2009, 2016, Sáez, et al., 2011).

According to Merrilees et al., (2009) the creation of a city brand should contemplate the perception of residents in a city, whose attitudes are capable of influencing the consolidation of a city through its brand. This recent line of research is progressively gaining more value, followed by a group of authors, whose studies deal with the relationship between the residents of a place and the city's own brand (Kavaratzis, 2012; Insch & Stuart; Kavaratzis & Kalandides , 2005, Zenker & Petersen, 2014, Zenker & Seigis 2012, Braun et al., 2013 and Insch & Walter, 2017).

The most frequent indicators contemplated in the definition of positioning brand's territory and consequently in the city brand will be identity, culture, heritage, traditions and events, among others (San Eugenio, 2013), elements that duly nuanced will shape our research questions.

Brand and identity

Users perceive images obtained from places, symbols and representations, which construct meanings, on the basis of which a specific place can be identified and this is critical for both visitors and residents (Zenker, et al., 2017: 15).

The process of building a strategic brand identity could maximize the benefits in the same image that it projects, so that on a practical level "Branding of place" will link identity and the image of a space, as well as the experience of site consumption (Govers, & Go, 2009).

Citizen participation improves the sense of belonging to a place and can contribute to the involvement in organizations and clubs that favor the process of identifying with the specific city (Anton and Lawrence, 2014).

The image must be built and maintained over time not invented. Hence the importance of citizen participation in its formation. The brand identification by residents represents a benefit for the city itself (Insch & Walters, 2018), by reinforcing, in some way, their own identity, which suggests the interest of formulating the following hypothesis:

QUESTION [1]. Resident citizens identify themselves with the brand that represents the city

Brand and new cultural image

If residents identify with their city, a set of cultural activities may be offered, affecting the ability of the destination to attract tourists, new residents or investors, (Insch & Walters, (2017)

The city brand encourages tourism activity, influencing the quality of life of all inhabitants in a territory (Fernández de Cavia, 2011), as well as generating business opportunities for the city in question, claiming its "market share" (Seisdedos, 2007: 157, Cruz Ruiz, et al., 2017).

Overall, leisure and entertainment activities favor the construction of a tourist destination, representing a way to authenticate destinations (Govers & Go, 2009), for those who visit and those who live there.

Culture is basic for city brand and literature review gives us the general recognition that culture has as an identifying element for cities, which has led us to formulate a new question.

QUESTION [2]. The resident perceives the new image of Malaga as a cultural city

Brand and events

The events strengthen the city brand that promotes the destination, improving its own attitude towards the brand that sponsors it among the attendees (visitors and residents) (Merrilees, et al., 2009).

The big events or those that have a great projection, can become generators of satisfaction's feelings (Kao, et al., 2007), reverberating in the city brand.

The differential characteristics of marketing of events exhibited by Vila López (2016: 195), show from the offer side, the capacity of a destination to attract visitors, but also converts them into a better place to live, from the residents' perspective. Observation through the perception of residents for some mega-events can be seen in (Chian & Cheng, 2013; Boo, et al., 2011).

The Málaga's brand has an impact on the events, as it has the capacity to promote tourism and to modify the attitude of residents towards the city brand itself. It does so through the events that are organized in it, which leads us to ask the following question.

QUESTION [3]. The emotional experience lived through the events modifies the attitude of the resident and affects the city brand

Methodology

The methodology applied is based on a quantitative opinion survey. Closed questions were used and the participants were selected using the snowball sampling technique (Sadler, et al., 2010), identifying individuals who responded to the desired profiles for our research.

This procedure may show some shortcomings (Mathers, et al., 2007), but it is also true that snowball sampling allows sending questionnaires through social networks, such as Facebook (Chu, 2011) and LinkedIn (Chiang, et al., 2013), email and whats' up via telephone, what will allow us a fast, low cost and highly effective survey. Additionally, Baltar and Brunet (2012) consider that the virtual response rate is higher, when these procedures are used, on the traditional snowball technique.

The questionnaire focused on the city of Malaga, serving a variety of entrepreneurs, whose activity is developed in different economic sectors. The questionnaire was also sent to university students and families located in different city's neighborhoods, groups of individuals from different ages and economic professional conditions, quite representative of the economic reality of Malaga city.

Sample

The survey would be carried out in the months of May to July 2018 with the technical specifications shown in Table 1. It was conducted in the 3 most important languages, in terms of the population resident in the province of Malaga; Spanish, English and German. Although, 96.6% was answered in Spanish and the remaining 3.4% in the other two languages.

A pretest was carried out with 20 residents of different ages and professional categories, highlighting that in the pilot test the most relevant items were selected. Through this test, it was possible to verify which were the items / answers that best collected the impressions of the respondents, thus leaving the items in the questionnaire well selected.

Table 1. Technical specifications

CHARACTERISTICS	POLL
Geographic area	Residents of the city of Málaga
Universe	Total population Málaga
Sample size	202 valid questionnaires
Sample error	4.62%
Confidence level	95.50%
Sampling procedure	Snowball technique
Previous questionnaire	Pretest 20 residents
Field work	May, June and July 2018

Source: The authors

The survey was divided into blocks. The first of them recognizes the sociodemographic characteristics of the population consulted: Gender, age, nationality, level of studies completed, work activity, income level and, also, the number of years that had been residing in Malaga.

In the next block we focused on the questions related to the perception of residents of the Malaga brand, structured in 14 questions, of which 6 were answered through a Likert scale of 7 points, specifying the level of interest, importance or significance of the issues raised, being 1 the response that represents the least interest, importance or significance and 7 the score awarded to the best valued. The rest of the questions were closed questions, which we will analyze in the results in relation to the hypotheses proposed.

Table 2. Sample profile

Characteristics	Percentage N=202
Gender	
Woman	52,20%
Man	47,80%
Age	

18-25	7,50%
26-35	11,20%
36-45	19,90%
46-55	11,80%
56-65	25,50%
> 66	24,10%
nationality	
Spanish	96,60%
Another nationality	3,40%
Education	
Primary	1,20%
Secondary	11,80%
Vocational training	6,90%
Graduate	44,10%
Postgraduate / Master	21,10%
Doctorate	14,90%
Occupation	
Autonomous	18,60%
Employee	21,10%
student	6,80%
Retired	26,10%
Unemployed	5,00%
Official	13,00%
Others	9,40%
Income level	
0-15,000 euros	24,30%
15,001-25,000 euros	19,70%
25,001-40,000 euros	32,90%
40,001-60,000 euros	14,50%
60,001 euros or more	8,60%

Source: The authors

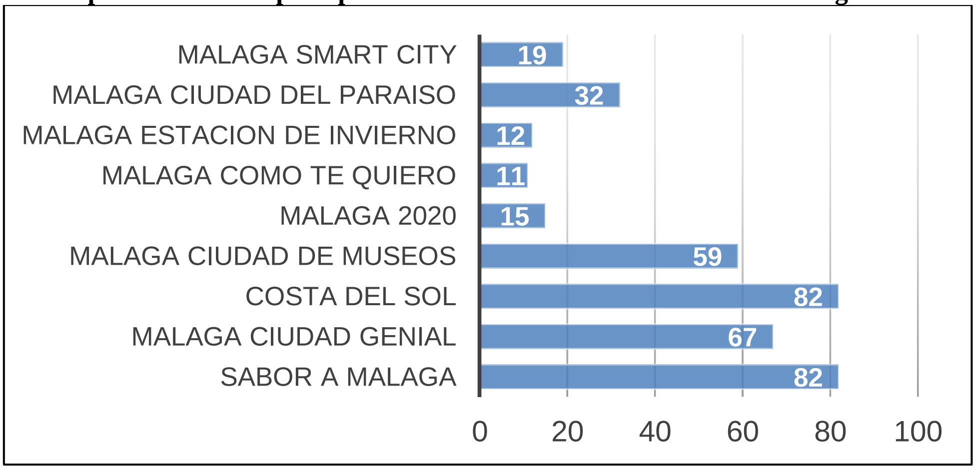
The choice of items (places) that best represent Malaga and identify cultural elements that have been raised, noting that possible words that identify the brand Málaga and what products or services must be identified. In addition, the survey includes a series of questions related to the perception that residents have of certain "emblematic" events, developed in the city, such as Holy Week or the Film Festival, among others, in order to measure whether the same they are welcomed by residents, to the extent that such events can sometimes lead to a mass tourism in certain urban areas, affecting the city brand.

Analysis of results

The study was based on a sample of 202 respondents, of whom 47.8% were women and 52.2% were men. A high percentage of responses is among those over 56 years old. Mainly citizens of Spanish nationality 96.6%.

The educational level and the level of income can be seen in table 2. The number of respondents who have university studies stands out (44.1%), primary studies (1.20%) and secondary (11.80%). The distribution by activity is quite dispersed, from the unemployed (5%) to the retired (26.1%) and the spectrum of self-employed and employed workers are represented by 18.6% and 21.1%. The level of income was shown in a higher proportion in the intermediate categories, bringing together 42.6%, compared to 32.9% that showed the higher category.
The knowledge of residence time has been valued very positively, since the categories "lifelong" and "more than 20 years" account for 82%, so we understand that the assessment of the answers is of high significance in this theme.
It is important to transfer the impressions that are related to the identification of the Málaga Brand and we will do it with a basic question: the perception of the residents in relation to the recognition of the city brand and the points that are annexed to it.
The first issue is to consider that, if the city brand has its own identity, to which 56.4% responded affirmatively while those who understood that they did not suppose 43.6%. But residents believe that the Malaga brand is not well managed, because in this case the answers are concentrated on the scale used between 1 and 3. Residents express the brand brings benefits to business, since most of the answers place it in the sections of the Likert scale 5 to 7, adding up to 69.4%.
But brand's management is somewhat questioned as it is scored with 1 (11.4%) and 2 (11.4%). Therefore, it is a reason for institutional reflection.A Malaga's brand that residents perceive as valid for the whole of the province (67.8%) and only for the city (32.2%).
It was found that among the most significant brands that identify with Malaga would be, as shown in Figure 1: "Taste to Malaga" relating to tradition and gastronomy and the brand "Costa del Sol" linked to the see & sun coastal destination.
It was also recognized in a significative way "Málaga genial city", within the framework of the leisure & tourism chapter. And "Malaga city of museums", related to the new image of Malaga and culture was very present in the answers given by the residents.

Graph 1. Resident's perception of the marks associated with the Málaga brand

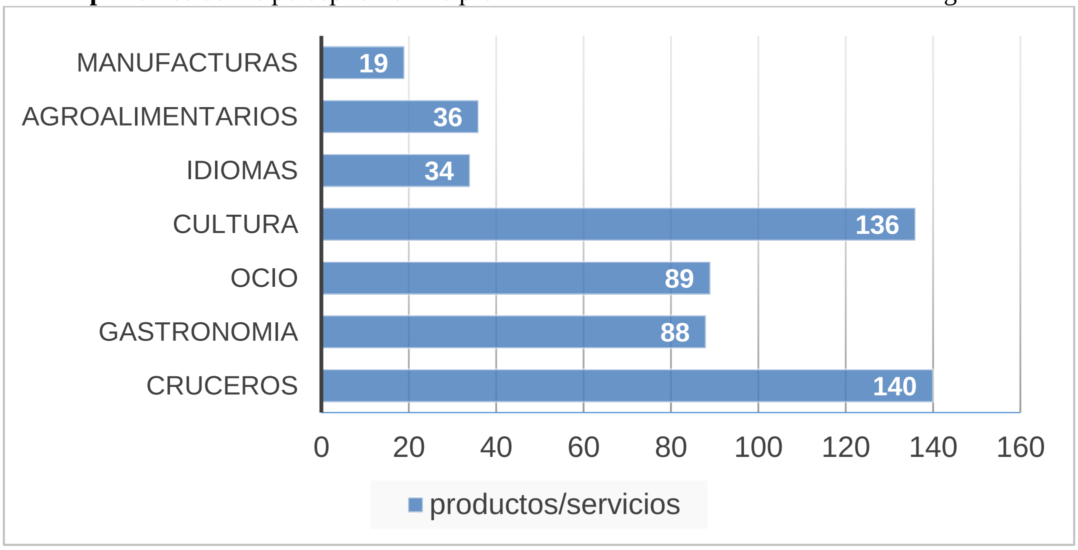


Source: The authors

Regarding the whole image that is projected from Malaga on a national and international level, the resident pronounced himself with satisfactory but in different levels, because if we add the categories from 5 to 7 of the scale used, in the first case it would be 76.4 % and in the second case 55.4%.

Regarding the question of what products or services should be associated with Malaga brand, the response has allowed observing, from the perception of the resident, a priority led by the cruise sector and by culture, with a proportion of informants similar 140 and 136 respectively (graph 2)
They also say almost identically as highlights leisure and gastronomy, 89 and 88 informants respectively and with a certain interest in wine (48 informants).

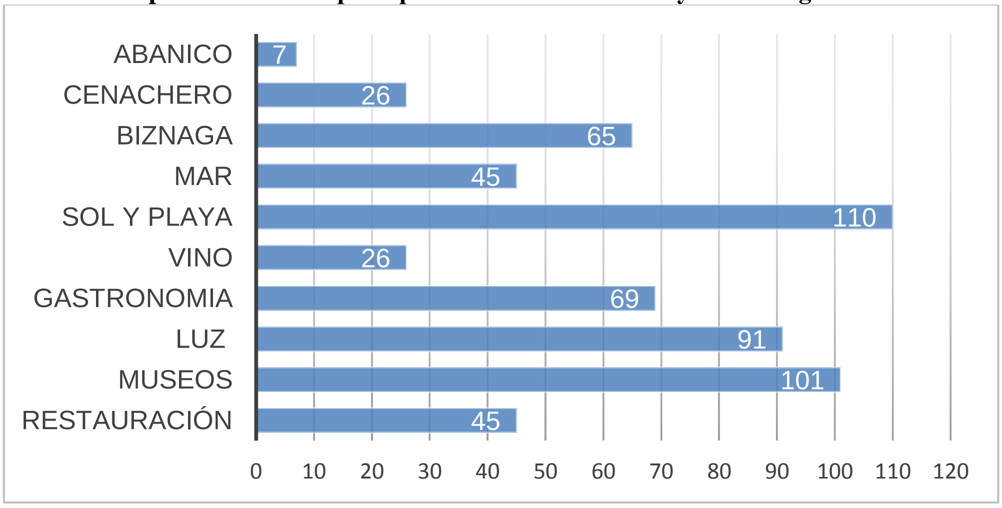
Graph 2. Resident's perception of the products or services associated with the Málaga brand



Source: The authors

Although, in a collateral way, it should be pointed out that residents perceive that the Málaga brand is important, if we add the Likert scale on the 6 and 7 by 24.3% and the "Costa del Sol" brand (under the umbrella of the brand). Malaga) would be 53.5%.
The study of the senses has come to offer very significant nuances, about what the resident thinks of the colors, smells, sounds and places associated with the Malaga brand, as well as the image that best represents it, allowing in this case a maximum of three answers.
Regarding to the colors the most recognized were green and purple, by 97 and 96 informants, followed by the range of blues, were pronounced by the lightest, representative of the sky and the sea 80 and the dark blue 32.
Relative to smells, is the flower of the biznaga the element that best represents the Malaga brand, in particular was mentioned by 55.9%, followed by the *espetos* and sea saltpeter, with similar percentages of 18.3% and 17.3% respectively.
With regard to sounds, the Malaga brand is associated with sea noise (42.1%), verdiales (party music and local dances) (40.1%) and finally the bells of the Cathedral (10.9) %). The places that best represent Malaga, in the opinion of the resident, are in this order: Larios Street, the Cathedral, the Port of Malaga, the Alcazaba and the Lighthouse (Call “farola”), with a number of residents giving their perception of 142, 121, 105 , 92 and 66 respectively.
The new image of the city of Málaga that wants to be projected must be linked to culture, through a hypothesis that can be verified if the resident perceives the new image of Málaga as a cultural city.

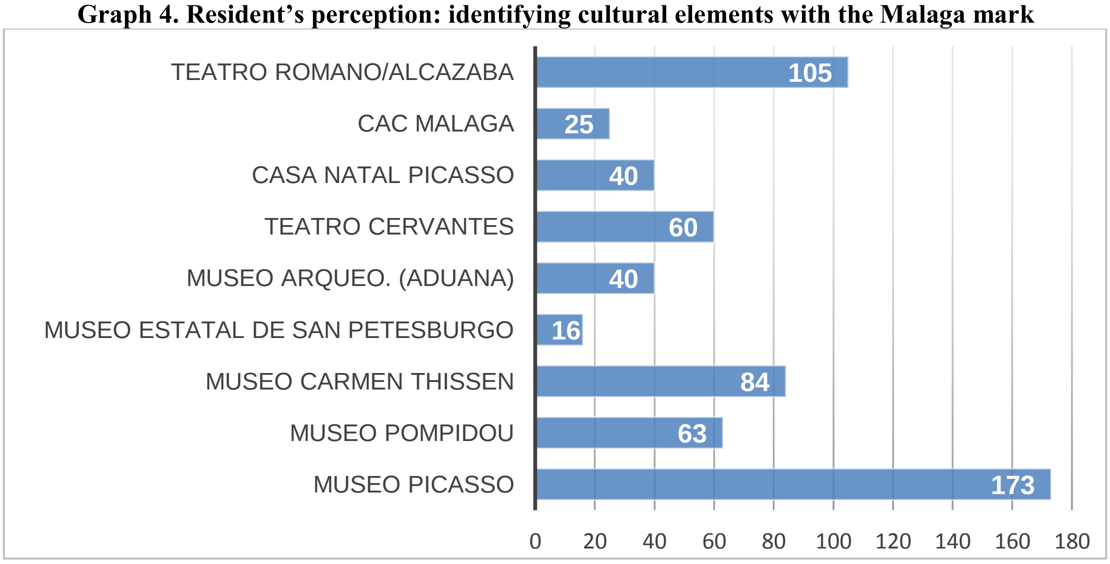
Graph 3. Resident's perception: words that identify the Málaga brand



Source: The authors

First thing that was asked was words that identify the Malaga brand, as shown in figure 3, with two very significant responses: *Sun* and *Beach* 110 *informants* and *Museums* 101, followed very closely by *Luz (light) and Gastronomía* with 91 and 61 respectively.
The cultural elements identified with the Málaga brand, (giving the option to indicate a maximum of three responses), are shown in figure 4, highlighting the Picasso Museum as the most representative, followed by the Teatro Romano / Alcazaba as the main ones (173 and 105), followed by the Carmen Thissen museum and the Pompidou Museum (84 and 63 respectively).

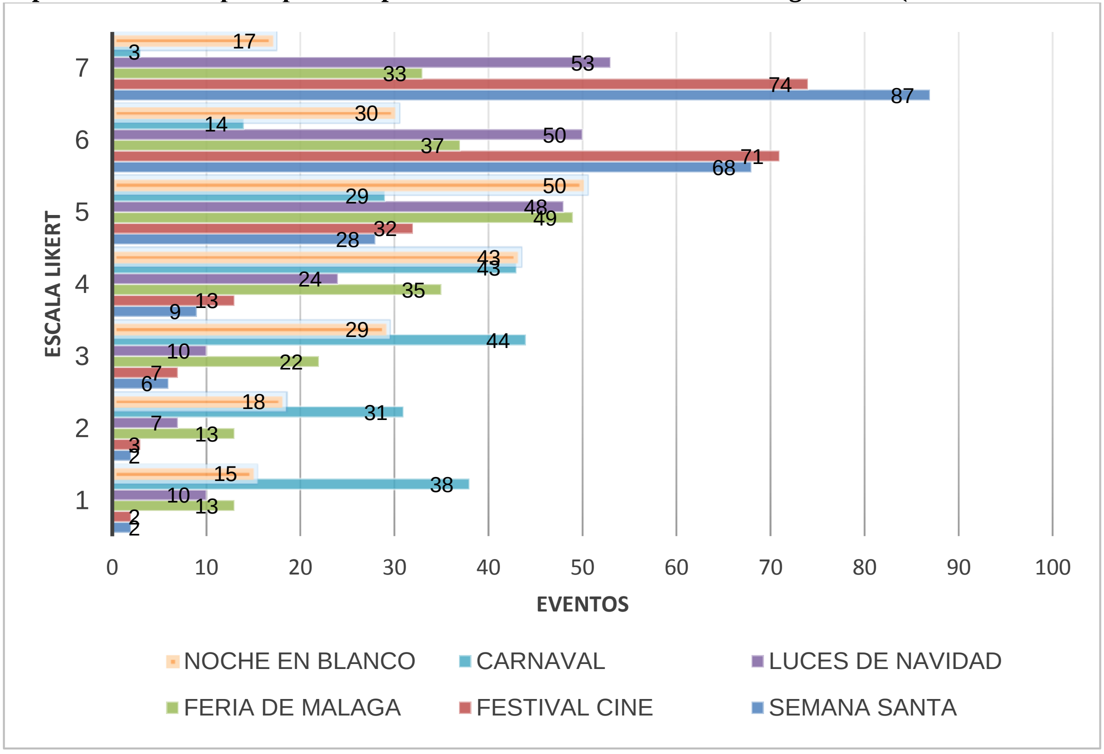
Graph 4. Resident's perception: identifying cultural elements with the Malaga mark



Source: The authors

In relation to the third research question, we observe the perception that residents have of the events analyzed, offering each and every one of them a reflection reflected through the Likert scale of 7 points.

Graph 5. Resident's perception: repercussion of the events in the Málaga brand (1 = little 7 = much)



Source: The authors

The Malaga Fair and Holy Week are important to analyze. The highest rating (7) is given to the Fair by 16.7% and Holy Week by 41.1%. If we add the 2 levels of maximum repercussion (6 + 7) then they show a figure of 34.6% and 76.8%. Therefore, we verified the decisive repercussion of the Semana Santa event in the Málaga brand, as the most significant among all the proposals.

With regard to the Carnival of Malaga, a tradition interrupted in the city several times in the history of the last century, we can see the impact is lower, in terms of residents' perception who believe in minors 1 and 2 (34.1%).

In the group of newest events for the city, we distinguish Christmas Lights, White Night and Malaga Film Festival. Maximum impact on the brand on the Likert scale (7), which vary from 26.2%, 8.4% and 36.6% respectively, making the Film Festival one of the events with the greatest impact on the brand, by far if we add the categories (6 + 7), in which case we would be talking about 34.6%, 23.3% and 71.7%.

Therefore, we understand that the emotional experience lived through the events modifies the attitude of the resident and affects the city brand, although it is Holy Week with the greatest impact and the carnival with the lowest incidence in the Malaga brand.

Conclusions and reflections

The coexistence of several brands around a territory (city) determines the need to start a rebranding process, on a well-founded basis and this research has contributed elements with which to face this challenge.

In relation to the first research question, it is observed that Málaga brand has its own entity and is identified by a significant part of the residents, a little more than 50%, but still remain a high percentage of residents not convinced yet. So we understand that is critical to overcome this obstacle by generating mechanisms that facilitate residents' identification with the Malaga brand.

Also, it was observed that, if the resident identifies the brand Málaga, does not a priority. The residents' opinion shows that we are not facing a single city brand, but that there is a variety, which can become a problem, if an adequate strategy is not structured.

The projection of Malaga through its brand, should continue to conform an institutional will, because while at the national level a very high percentage of conformity is indicated with regard to the international level, only slightly more than half of the Residents consider that the image projected is "the best image".

Very revealing is the residents opinion about which products or services that must be associated with the Malaga brand, the Cruises and the Museums are considered priority. Therefore, these tourist typologies are understood to be present in marketing strategies in the city.

The study also shows the preponderance still exists in the residents about the Costa del Sol brand compared to the Málaga brand, which is somehow the umbrella under which it is sheltered, but people gives more relevance to "Costa del Sol". This suggests the need to open a new positioning strategy for the Malaga brand, as a basis for existing brand structures.

The sensory study has given us an excellent view of the resident's perception, being able to conclude the attributes related to the perception from the senses and the Málaga brand have been recognized as those that are best associated and identify the informants.

These opinions, when taken into account, favor the identification process of residents and can be translated into a better combination of interests from residents and from visitors. This is a priority nowadays when there are voices opposed to continue growing in based on the tourism sector and its problems correlated touristification and gentrification, which are taking place in many cities.

The image occupies an essential position in the processes of building a city brand. It is also very important in the rebranding process of a city, given that one objective of the rulers is to promote their territories. Precisely, culture has become an attribute of great importance, in recent times, in the supply of numerous cities.

The residents perceive a new image of the Malaga brand in relation to the words that identify it, as culture is present through the term "Museums", accompanying the traditional perception of the brand linked to the destination of sun and beach. And it is precisely the Picasso Museum followed by the Alcazaba Teatro Romano, the cultural elements that best identify with the Málaga brand.

We understand that these elements are referents of the new image of Malaga and should continue to be part of that imaginary identity, built in the minds of residents, collaborating in the rebranding process put in place by the institutions, where the binomial of Malaga and culture becomes in an indissoluble tandem, which results in the reformulation of a more powerful Malaga brand.

The affirmation that the emotional experience lived through the events modifies the attitude of the resident and affects the city brand, has been another research question and here the study offers a wide spectrum of events, traditional and novel, that "make a mark". "In the opinion of the residents.

The affirmation that the emotional experience lived through the events modifies the attitude of the resident and affects the city brand, has been another research question and here the study offers a wide spectrum of events, traditional and novel, that "make brand", in the opinion of the residents. In this sense Holy Week is the one that best responds to the

resident's perception as a brand impact, together with the Film Festival. They were also significant the Malaga Fair and the Christmas Lights, being the Carnival the worst valued
It is necessary to carry out policies to improve the Málaga brand, which link the residents' perception with emotional sensations that build brand and help their positioning, since they must be related to marketing strategies that bring visitors. The combination of both is what will build a city with a better quality of life.
Finally, we conclude that the diversity of brands that the resident perceives as the unique Málaga city brand should contribute to the implementation of new strategies, coordinating the conjunction of existing brands, proposing a city marketing policy, in line with the position that Malaga occupies as a city of relevance in the national context and as a big tourist destination, as the residents think. This process of coordination should be led, according the residents, by the two institutions that can best address this commitment the Hon. City Council of Málaga and the Hon. Provincial Council of the city.

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Characterization of Senior Tourists Visiting the Islands of the Azores: A Pilot Case Study

Carlos Santos[1], Teresa Medeiros[2], Ana Isabel Moniz[3], Licínio Tomás[4], Osvaldo Silva[4], Virgílio Vieira[5], Sheila Furtado[6], Joaquim Ferreira[7]
[1]Tourism Observatory of the Azores and University of the Azores
[2]University of the Azores, IPCDSH – University of Coimbra
[3]University of the Azores, CEaplaa research center
[4]University of the Azores, CICS.NOVA
[5]University of the Azores, GBA/cE3c
[6]University of the Azores
[7]University of Coimbra, IPCDSH – University of Coimbra

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Senior tourism, Sustainability, Azores destination, Islands tourism, Senior Tourists characterization.

Abstract
The Azores are an emerging tourism destination attracting both European and North American senior tourists, thus contributing to a decrease in seasonality and a growth of bed nights (Tourism Observatory of the Azores, 2017). This research paper analyses the profile, travel motivations and travel behaviour of senior tourists who visited the Azores between May 2017 and April 2018 in order to formulate useful recommendations to the local tourism stakeholders allowing them to turn the Azores into a competitive senior tourism destination. A sample with 470 questionnaires including sociodemographic, health perception and interest activities variables was implemented. The results allow a characterization of senior tourists profile highlighting that senior tourists visiting the Azores included in the sample are mostly females, in the 55 to 64 age bracket, retired, staying in the region for 8 to 20 days and also that senior tourists motivations to visit the Azores are mainly to enjoy nature, to get to know the Azorean traditions, to visit new places, to experience new activities, to relax and to pursuit well-being. They look for activities in nature, cultural heritage and thermal experiences and highlight nature, climate, local population, culture and gastronomy as strong points of the Azores destination.

Introduction
Senior tourism is a growing segment in the world tourism market mainly due to the increase in the average life expectancy and the aging of the population. A large percentage of incoming tourists are senior tourists (age ≥ 55 years) - the baby boom generation - which will be responsible for profound changes in markets, especially in the tourist market (Losada, Alén, Domínguez, & Nicolau, 2016).
The senior population is mostly retired, with high incomes and time to travel and that´s why seniors are travelling more and more and travelling became an important element of a healthy ageing. We know that the senior tourist profile is changing and this will become clear in the near future because older people´s health condition is improving, allowing senior tourists to travel more during their lives (Albu, Chasovschi, Muristaja, Tooman, & Patiar, 2015). Besides the fact that different generations look for different types of vacations senior tourists will be more active and versatile, although the great majority of senior tourists still keeps a more psychocentric than allocentric attitude, being more conservative and less open to

innovations (Buckley, 2011; Cavaco, 2009). This new paradigm represents countless opportunities to destinations due to the size of the senior tourism market and its buying power. But it also includes many challenges to both tourism product providers and to tourism authorities as well as to researchers due to the different needs and preferences of the various senior market segments which are in constant change.

There is a change of paradigm in the dynamics, mentalities, habits and lifestyles of the elderly, who traditionally used to spent their income with their children and grandchildren and who started spending for their own benefit in leisure activities (Ashton, Cabral, Santos, & Kroetz, 2015; Vígolo, Simeoni, Cassia, & Ugolini, 2017) and to travel.

For a long time, the Azores were a gateway for people and goods between Europe and North America, strategically located in the North Atlantic. The Azorean emigration to North America in the 19th and early 20th centuries originated a second and a third generation of Azorean descendant's emigrants and their new families feed important tourist flows from the USA and Canada to the Azores. Nowadays, the Azores are an emerging tourism island destination attracting both European and North American senior tourists.

The number of bed nights in this Portuguese archipelago of the Azores has grown by more than 20% since 2014 (Azores Tourism Observatory, 2017). The increase in the number of tourists has a significant impact on the local economy contributing to job creation and an increase in revenues and tourism became the most important export sector in the Azores. However, there are concerns about maintaining the sustainability of the destination, the well-being of local populations and the fragile ecosystems of the island.

This study aims at analysing the profile of senior tourists who visited the Azores in order to support strategies and policies capable of creating high quality experiences valued by senior tourists as well as by the local population.

Literature Review

Tourism is considered an important industry, mainly for developing countries as well as some islands, particularly for those which have few products to export and facing scarcity of raw materials, skilled labor and technology necessary to compete in the global export markets (García-Almeida & Hormiga, 2017). It should be noted that islands focus their attention on sustainable tourism in order to preserve their nature and cultural heritage attracting senior tourists since these are two of the biggest motivations for elderly to choose the islands as their tourism destination (Nascimento & Santos, 2016; Rodrigues & Mallou, 2014; Seyanont, 2017).

Regarding islands tourism it is often mentioned in the literature that tourists are looking for some specific characteristics present in islands tourism destinations such as a more personal experience in a natural setting with minimal development and this represents a challenge to tourism policies (Chen & Shoemaker, 2014; Spasojevic & Bozic, 2016). Islands also benefit from being able to create new tourist offers on their coasts, as well as maintain their ecosystems inland. For that purpose it is necessary to develop products adapted to tourists specific characteristics and needs, as well as managing the negative impacts of tourism (Bojanic, Warnick, & Musdante, 2016; Nafi & Ahmed, 2017).

Along with the population aging worldwide trend the tourism sector increasingly recognizes the importance of elderly people by paying more attention to the senior tourism segment (Choi & Fong, 2017; Lisbon, 2015; Nascimento & Santos, 2016).

Tourism is considered a source of well-being, since it implies novelty, joy, relaxation, self-determination, occupation of free time and moments of interaction with the environment and

with others, constituting itself as a vehicle for access to culture, knowledge, communication and social interaction (Ashton et al., 2015; Lisbon, 2015).
Although senior tourism has not been considered important in the past, its recognition as a relevant market segment is growing and it has been established as a priority in tourism policy, especially for its contribution to the reduction of seasonality (Alén, Domínguez, & Losada, 2012). In this sense older tourists represent a growing market segment with different characteristics from the younger tourists and bringing great benefits for the tourism sector due to their higher education, good economic conditions, greater purchasing power and free time, good health and physical conditions, preference for low season and traveling with someone else and also more likely to repeat their destination (Albu et al., 2015; Ashton et al., 2015; Huber, Milne, & Hyde, 2018; Lisbon, 2015).
Senior tourists can be segmented according to their age distinguishing among people in pre-retirement or early retirement (55-64 years) retirees (65-74 years) mature adults (75-84 years) and the elderly (age of 85 and above). Senior tourists share some characteristics such as being retired, having more time flexibility, being more likely to exhibit health problems and showing a greater interest in heritage and traditions. However it is important to know the specific characteristics of senior tourists in order to deliver better experiences (Sniadek, 2006, as referred in Albu et al., 2015).
In Germany, for example, most of the national tourists who visit the city of Freising are female, retired, single, are between 60 and 75 years old and usually travel with frequency (Huber et al., 2018). In Italy, foreign tourists visiting the country are especially women, aged between 60 and 69 years and from Germany and the United Kingdom (Vígolo et al., 2017). In Thailand, the majority of European tourists visiting this destination are male, married, aged between 65 and 74 years, coming from the United Kingdom and who had already visited the country in previous years (Seyanont, 2017). In Brazil, the largest share of the national tourists visiting the municipality of Cordisburg are female, single, aged between 51 and 60 years, retired and with higher education (Faria, Faria, Araújo, Flecha, & Silva, 2017). In Serbia, the majority of foreign tourists visiting the country are female, aged between 55 and 64 years, retired, who travel once a year and who perceive their economic level as sufficient and their health as good (Spasojević & Božić, 2016).
In the Autonomous Region of the Azores the tourists who visit the region are mostly female, aged between 45 and 64 years, married, with higher education and coming from mainland Portugal, Germany and Sweden (Rebelo, 2016).
In the case of Portugal senior tourism is an increasing type of social tourism partly due to the diversification of local supply and to the aging process in the Western World implying a more selective tourism and with another level of demands (Cavaco, 2009).
The travel motivations of senior tourists include a diversity of behaviours mainly oriented towards self-realization, love, social belonging, health and good shape (Albu et al., 2015). There are similar findings in other international studies, according to which older people travel to have new life experiences, to socialize with others, to rest and to engage in physical activity (Cf. Chen & Shoemaker, 2014; Seyanont, 2017; Vígolo et al., 2017). Also, Choi and Fong (2017) found that senior tourists are more interested in "convenient shopping facilities" located in a casino hotel.
The senior tourists travel motivations are different from those of other age groups, since this population group seeks rest and relaxation, social interaction, physical exercise, learning, nostalgia and emotion - contrary to younger generations who want to test their limits and have adventure experiences (Esichaikul, 2012; Spasojevic & Bozic, 2016).

There are two types of motivational factors, namely pull factors and push factors. The first ones refer to destination attributes (such as novelty on pursuing new knowledge, rest, emotions, adventure and socialization) and the second ones are related to personal or social motives (such as climate, hospitality, shopping, leisure activities, nature and culture, social environment) (Bagus, 2014; Choi & Fong, 2017; Patuelli & Nijkamp, 2015; Rodrigues & Mallou, 2014; Seyanont, 2017; Wijaya, Wahyudi, Kusuma, & Sugianto, 2018). The authors concluded that senior favour the following aspects: intellectual enrichment, new cultures and lifestyles, knowledge, new places, people and interests, stress relief, routine escape, relaxation, adventure, emotions and sensations, doing different things (push factors) and landscape, natural environment, cultural attractions, safety, hospitality, climate, relaxing atmosphere, accommodation, gastronomy, accessibility, social environment, beaches, standard of living, transport, distance, nightlife, sports equipment and shops (pull factors). For Choi and Fong (2017), pull and push factors has similarities, such as ego enhancement, self-esteem, knowledge seeking, relaxation and socialization.

Based on this model of push and pull factors Seyanont (2017) developed a study on the motivations of senior tourists and concluded that older people travel in search of knowledge, personal enrichment and socialization - push factors - and cultural activities, leisure activities and relaxation activities - pull factors. Wijaya et al. (2018) studied the motivations of senior tourists according to the push and pull factors model and they identified three motivational push factors, namely Personal Development, Relaxation and Relationship enhancement and five motivational pull factors, namely: Facilities and Hygiene, Destination familiarity, Value for money and proximity, Local attractions and supporting travel facilities. Bagus (2014) found that older people feel more satisfied whit their trip when they choose places they had never visited before, when they want acquisition of new knowledge and experiences and when they look for a routine escape (motivational push factors) and when the destination has good conditions in terms of health infrastructures, quality of travel agency services and good tour guides (pull motivational factors).

In 2016, Nascimento and Santos found that the reasons most likely to induce seniors traveling were to dance, to walk with friends, to meet new people, to swim, to go to the beach, to visit natural and cultural tourist sites, to shop and to go to restaurants.

Today, tourism is characterized by shorter trips, but also more frequent throughout the year, motivated by the emergence of low-cost airlines and where senior tourists, especially women, represent the most attractive segment, which travels more frequently and that therefore deserves more attention (Losada et al., 2016). According to the National Institute of Statistics (2017), the main reasons for tourists to travel are visiting family and friends (44.1%) leisure, recreation or holidays (43.8%) and other reasons (8.2%), with an increase in leisure travel compared to previous years.

Along with the increase in the number of elderly tourists (over 55 years of age) there are some market trends that should be taken into account in the study of senior tourism, such as: vacation search based on experience and different purposes of the trip; greater demand in terms of quality and sophistication; financial and temporal availability and awareness about environmental issues and sustainability (Alén et al., 2012; World Tourism Organization, 2001b). In addition, it is important to know that senior tourism is characterized by frequent trips during the year in part due to the emergence of low-cost airlines and that senior tourists, especially women, are the most attractive segment for destinations, traveling more frequently and deserving more attention (Huber et al., 2018, Losada et al., 2016).

Methodology

This study is part of a wider research project entitled "Tu Senior 55+", which is an ongoing EU funded project at the University of the Azores 2020. The study analyses the profile of senior tourists who visited the archipelago of the Azores between May 2017 and April 2018, using a survey of 470 questionnaires, applied to selected respondents using the multisite method. This profile includes their travel motivations, expectations, needs and travel behaviour, and also life satisfaction and well-being. The study's objective is to support a strategy for the Azores aimed at creating high quality experiences valued by senior tourists as well as by the local population, based on the surveyed tourist profile.

We analyse the profile of senior tourists who visited the Azores using a questionnaire with the following dimensions: Sociodemographic variables, Health perception and Interest Activities variables, in the sense of setting up host programs and creating content for this specific audience that is the senior segment. A pre-test of the two versions of the questionnaire (Portuguese and English) was applied to a small sample of tourists in order to test the validity of their content followed by an interview to gauge the respondents' level of understanding of the questions and to introduce the necessary corrections.

The questionnaire was applied to a random sample covering 470 participants, aged between 55 and 89 years (M=65.38 years; SD=7.36 years). It was applied personally to each tourist at the end of his stay in the Azores (in hotels, in the street, in local accommodation and other places) after explaining the objectives of the project and obtaining their freely given consent term.

For a preliminary analysis of the data collected from the sampled senior tourists who visited the Azores the analysis of multiple answers and the descriptive statistics were used, with particular emphasis on the graphic visualization. This allows, in a quick way, to highlight the most relevant characteristics of the senior tourists visiting the Azores, their reasons for visiting this region and the activities that the tourists have developed or not, and their degree of satisfaction in carrying them out.

The Sample

The general methodology of this study is multistage.

In the first stage a sample was designed with a proportional distribution according to the age and nationality quotas method.

In a second phase, tourism agents, operators and decision-makers (local tourism players) participating in the regional tourism management process were interviewed, as for example, restaurant managers, directors of local and national associations, presidents of municipalities and regional directorates or organizations that supervise tourism by questioning them about their perceptions of the senior segment as far as its potentialities, opportunities and challenges are concerned.

In the second phase a qualitative research approach was used in the interviews conducted with tourism entities and tourism businesses focus on the tourist circuit complement.

The selection of variables to be included in the survey implemented to respondents in the first phase was made based on multi-site personal in-depth interviews covering hotels and other lodging units or transit places of tourists, as well as senior associations outside the region, contacting a person held responsible for applying and collecting the questionnaire in each site. The contacts were random guided by the quota method in order to obtain the complete sample.

The sample surveyed 470 tourists who had recently visited the archipelago or were visiting the Azores during the survey period, 56.4% of whom were Portuguese nationals and 43.6% foreign tourists and at the same time it adopted a breakdown by two large age groups (55 to 64 years old

and 65 or more years old). In this sense the sample reflects the normality of the distribution of these two previously known attributes which makes it possible to know the remaining associated characteristics as we can see next.
In the sample (470 senior tourists who visited the Azores) 56.4% of the surveyed tourists are national tourists and 43.6% are foreign tourists. Most of the participants are female, are retired and live with someone. A large proportion of the surveyed tourists are in the 55-64 age bracket and possess a higher education degree and are/were engaged in intellectual and scientific activities.

Study Results

Most of the elderly people who travel to the Azores stay in the Region between eight and twenty days, lodged in a hotel. Also, foreign tourists who visit the Azores are mostly coming from Canada and USA, as shown in Table 1.
Also the majority (56.6%) of foreign senior tourists had visited the Azores more than three times, while a large percentage (43.3%) of the Portuguese tourists had not yet made a trip to the Azores before.

Table 1. Composition of the sample N= 470

Variables		Percentage (%)
Gender	Male	45.0
	Female	55.0
Age bracket	55 to 64 years	46.0
	65 to 74 years	42.6
	75 years and above	11.5
Education Level	Up to basic education (primary school)	25.6
	Secundary Education (High school)	25.6
	Higher Education (College)	48.8
Profession	Armed forces, legislative power and leadership	9.0
	Experts in intellectual and scientific activities	43.1
	Intermediate, administrative, personal services, security and sales professions	27.2
	Primary sector and unskilled workers	20.2
Marital Status	Living with a companion (a)	73.6
	Living Alone (a)	26.4
Retired	Yes	64.0
	No	36.0
Lenght of Stay	Up to 5 days	22.5
	6 to 7 days	28.5
	8 to 20 days	38.4
	More than 20 days	10.6
Previous Visits to the Azores	None	37.6
	Between 1 to 3	19.5
	More than 3	42.9
Country of residence of foreign tourists	Germany	7.3
	Brazil	4.9
	Canada	17.6
	USA	33.7
	Denmark	9.8
	Nordic countries	8.3
	France	3.4
	Holand	2.4

England	4.4
Switzerland	2.4
Others	6.0

With regard to their needs the majority of senior tourists visiting the Azores do not have any physical limitations and among those that have physical limitations a majority have either motor or joint difficulties or bone problems or they underwent a surgery (Table 2).

Table 2. Limitations and Needs of the Senior Tourists

Variables		**Percentage (%)**
Presence of physical limitations	Yes	12.6
	No	87.4
Existing physical limitations	Bone problems/surgery	46.2
	Motor/joint difficulties	53.8
Presence of dietary restrictions	Yes	12.7
	No	87.3
Existing dietary restrictions	Allergy/intolerance	60.8
	Healthy food care	39.2

It is important to note that only one in eight (12.6%) senior visitors declares having physical limitations and even this is not an obstacle to making the trip and moving relatively autonomously. This study also found that the experiences of a tourist during his visit to the Azores contribute to the well-being of someone who would otherwise be excluded from the possibility of enjoying new experiences and sensations, sources of well-being.
It was also found that the majority of senior tourists surveyed do not have any food restrictions and among those who have food restrictions they experience food allergies or food intolerance or they follow food safety measures, as we can see in Table 2.
According to Table 3 they were very satisfied (65,3%) or quite satisfied (24.5%) with the trip to the Azores, and they perceive their own health status as being good or excellent and their social status as being high or very high.

Table 3. Degree of satisfaction of the senior tourists surveyed

Variables		**Percentage (%)**
Degree of Satisfaction with the trip to the Azores	Very Satisfied	65.3
	Quite Satisfied	24.5
	Satisfied	9.8
	Poorly Satisfied	0.2
	Very Unsatisfied	0.2
Self-perceived Health Status	Bad and unsatisfactory	5.4
	Satisfactory	26.2
	Good	42.3
	Excellent	26.2
Self-perceived Social Status	Low or very low	4.7
	Intermediate	39.6
	High or very high	57.5

In the opinion of the senior tourists surveyed the main reasons for visiting the Azores, according to their degree of importance (see Figure 1) were the following:

- *Very important* (VI): M3 - To know the natural beauties (60.9%) and M11 - From hearing that it was a beautiful region (48.2%);
- *Important* (I): M1 - To learn about the everyday life habits of the local inhabitants (55.7%); M2 - To know new places (52.4%); M5 - To experience different activities and new emotions (52.9%); M6 - To have fun (52.8%); M7 – To enrich my knowledge (48%); M8- For vacations (53.2%); M9 and M12 - Escaping from the daily routine (45.7%) and M16 - Seeking well-being and happiness (39.8%).
- *Indifferent* (Ind): M17 - Religious reasons / religious festivals (60%);
- *Not Important at all* (NI): M4 – Avoid staying alone at home (31.4%) and M15 - Knowing family roots (30.9%).

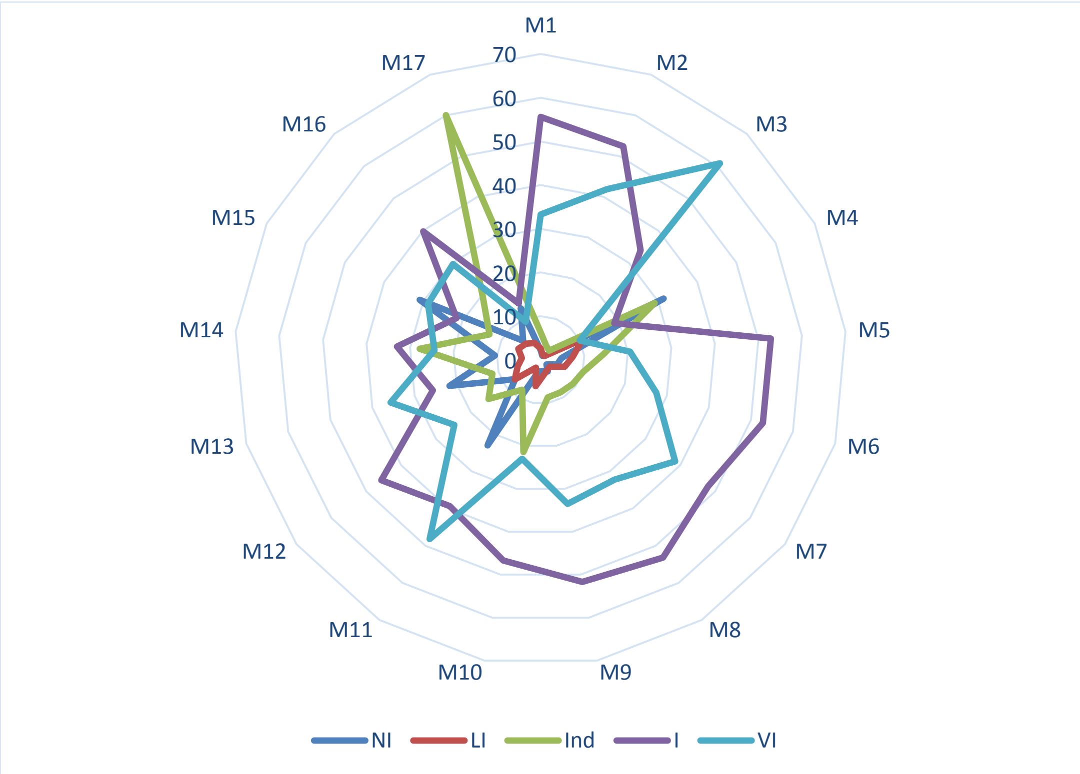

Figure 1. Radar chart of the distribution of the surveyed tourists' answers regarding the degree of importance assigned to each of the reasons for visiting the Azores

It was shown that the most relevant reasons for visiting the Azores pointed out by the surveyed senior tourists were those related to Knowledge and Personal Enrichment (M1, M2, M3, M5, M7) and Sociability and Fun (M6, M8, M9, M10, M11 and M12).

The activities considered as potentially chosen by the senior tourists were analyzed considering whether or not they were carried out and if so whether they were satisfied with their performance or not. They were aggregated taking into account their contents thus giving rise to the following five thematic areas:

- *Contact with nature* (1- Walking in gardens, 2 -Visiting landscapes, 3- Walking and trekking, 11 - Contemplating and feeling nature);
- *Experiencing the sea* (4 - Diving, 6 - Going to the beaches, 7 - Fishing, 8 - Boat trips, 9 - Whale Watching);
- *Thermal experiences* (10 - Thermal experiences);
- *To get to know the tangible and intangible cultural heritage* (12 - Visit churches, 13 - Visit museums, 18 – Get to know the traditional cultures, 20 - Visit places with handicrafts);
- *Festivals/Fun* (14 - Festivities, 19 - Festivals, 21 - Nightlife).

Considering all the activities offered in the destination the results of the study confirm that the majority of the surveyed senior tourists (77.3%) engaged in these activities and they were very satisfied with them, as shown in Figure 2. As a matter of fact 19.9% of the respondents said that they did not engage in the proposed activities, but they showed interest in experiencing them in the future. On the other hand, the results show that 2.8% participated in the proposed activities but were not satisfied with them.

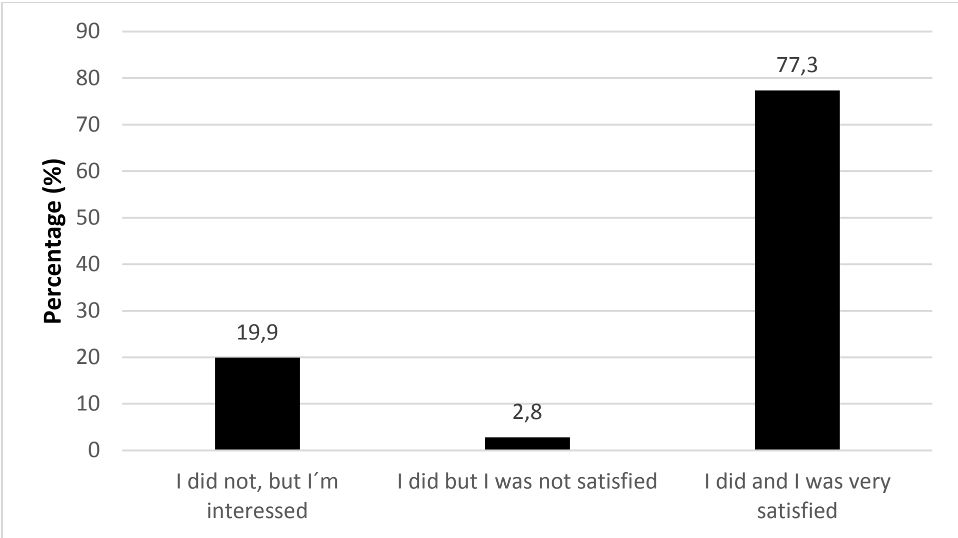

Figure 2. Overall assessment of the activities developed by senior tourists

Among the activities accomplished by the surveyed senior tourists that were rated with a high level of satisfaction (very satisfied) it is important to highlight the following: Contact with nature (89.4%), cultural heritage (86%) and thermal experiences (74.6%), as it is shown in Figure 3. There is a higher percentage of respondents who did not participate or show any interest in participating in activities experiencing the sea (45%) and parties/entertainment (36.6%).

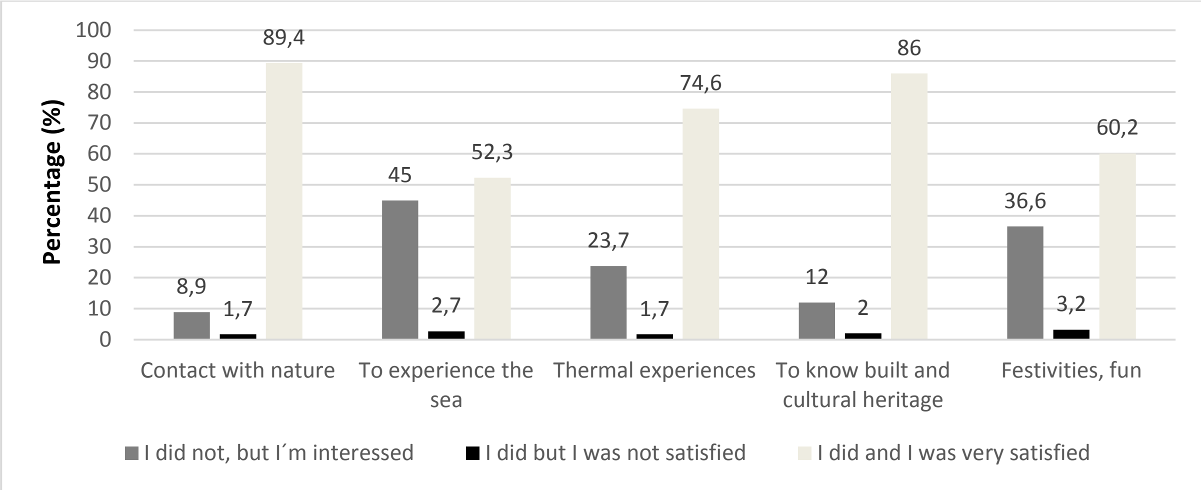

Figure 3. Activities developed by surveyed senior tourists in the Azores by thematic areas.

Finally, the following items were considered as the most positive aspects of their trip to the Azores, mainly: Nature/Climate (43.1%); Local Population and Culture (30.2%), Heritage and Gastronomy (19.4%). They presented the following main suggestions for improving senior tourism in the Azores according to their perceptions: to improve accessibilities (47.9%), training/quality (24%), more information about adapted activities (19%) and destination conservation/maintenance (9%).

Conclusions

The majority of senior tourists in the sample are Portuguese national tourists who are residents in Portugal mainland and foreign tourists who are residents mainly in the United-States of America and in Canada belonging to the Portuguese-American and Portuguese-Canadian communities in these countries. There are some tourists from emerging source markets as well, particularly those from the Nordic European countries. Our sample represents senior tourists possessing average or higher academic qualifications, living together with someone else, having a high self-perception of their social status and having a good self-perception of their health status.

Senior tourists who visited the Azores prefer the following activities: visiting landscapes; contemplating nature; strolling through gardens; experiencing traditional gastronomy; getting to know the traditional cultures and factories (e.g., tea and liqueurs, etc.) and visiting churches and convents.

The knowledge of the profile of senior tourists allows drawing sectoral strategies and policies (transportation, health, and safety policies) and address specific services and cultural issues to ensure the sustainability of local tourism through the growth of the senior tourism segment. In this sense, it is possible to adapt the Azores tourism products to the special needs of this market segment, taking into account their social and academic profile in order to promote new specific cultural experiences targeting their preferences. It is also important to consider their specific needs in terms of mobility and healthy food in order to offer accessibility for all and appropriate gastronomic experiences in the Azores and thus contributing to the well-being of senior tourists while staying in the region.

Based on the preferences for nature and landscape of the senior tourists surveyed, it is recommended the adoption of sound environmental sustainable tourism policies, namely: management of overcrowded natural sites; control of tourism flows in order to prevent the negative impact of over tourism on the fragile island ecosystems, implying a coordinated intervention among all tourism players and promotion of more and better information about the natural and cultural assets of the region.

Based on the special needs of the senior tourists surveyed we suggest the adoption of health and safety measures, namely: streamlining the process of bureaucratization in accessing the regional health services; elimination or adaptation of existing physical barriers; improving the health security levels of senior tourists, for example, in the prevention and follow-up of atypical situations of illness, death or other similar situations; to ensure safety at all levels to the senior tourists; promotion of health and wellness activities (e.g., thermalism, yoga, etc.); diversifying the food supply, according to elderly tourists' specific needs; optimizing the Azores natural and heritage resources to promote the health and well-being of senior tourists.

As far as transportation is concerned the following strategies are suggested: provide transports which are more adapted to the mobility limitations of the elderly tourists and encourage the supply of customized transportation services for senior tourists.

As far as tourism services are concerned the following tourism strategies should be implemented: more awareness for the inclusion of the diversity of tourists visiting the Azores; the provision of more services with specialized attendance for tourists with special needs; increase and adjust the training of employees in the tourism sector to the elderly tourists' specific needs.

At the cultural level the following tourism strategies are recommended: bigger interaction between the tourists and the local population; creation of diversified and differentiated cultural products adjusted to the profiles of the senior tourists visiting the Azores; structuring activities with a local cultural content, keeping the traditions and heritage; promoting the participation of the tourist in the region's typical activities, such as tea picking and artisanal production (co-production); to turn the senior tourists into ambassadors of the destination.

Recommendations for future studies

Tourism is a field impacted by social and economic changes, very sensitive and exposed to cyclical fluctuations. However, senior tourism is the most stable segment because it covers people who are already in an uncommitted stage of life.

We believe that our study has highlighted some of the characteristics and specificities of the senior tourist segment visiting the Azores, namely: the availability of time for oneself, the search for fulfilment or personal enrichment and an intrinsic requirement with the quality of services and leisure contents. But it also shows a clear motivation to get to know the cultural traditions of the places visited and what they have of most authentic and genuine, escaping from the common places and massive entertainment or performing shows.

The present study leaves clear clues for future research in the area. It points out to the need for an approach more in line with the specificity of the segment under study. In particular, further research about their travel motivations and the possibility of destination promotion through word-of-mouth.

The research carried out in the present study shows that the more lasting memories are related to the personalized attention that was dedicated to them. Therefore it is important to understand the content of this motivation since they are people who require a special type of personal care. Another area of further research is the necessary skills and labour force qualifications which are necessary to fulfil their preferences and needs. Also it is necessary to do research on the promotion and diversification of local activities which are more demanded by this type of public.

The research also revealed that this segment looks for tranquillity and self-realization linked to nature and its contemplation, involving the minimum of risks. It would be important to find out how they evaluate their affinities or not with the places visited in order to improve visit contents and implement the adequate programs to promote well-being and quality of life during the tourist visits to the different places and also to find out in more detail the existing obstacles to the practice of the activities offered.

We conclude that the offer of well-being and quality of life in the destination must be a constant concern and in the case of the Azores it must always be a competitive advantage. Therefore, for future studies we recommend the study of the travel motivations and welfare requirements of senior tourists during the trip; the comparison of the level of satisfaction, expectations, activities performed and the wish to return, according to the senior tourists' nationality; and finally increasing the sample size as well as extending the sample period.

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[i] VOC: Vereenigde Oostindische Compagnie – Dutch East India Company

[ii] Source : Geophysics station Winangun in Manado cited in "Provinsi Sulawesi Utara dalam angka 2018, Badan Pusat Statistik Provinsi Sulawesi Utara, Katalog : 1102001.71"

[iii] MICE : Meetings, Incentives, Conferences, Exhibitions

Observatory on Tourism for Islands Economy

38, Via Emerico Amari, 90139 Palermo, Italy

Tel/Fax: +39 091 6117527

www.otie.org

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