Combining visual and textual data for assessing destination image: Lake tourism example

Ana Isabel Rodrigues[a] ©, Antónia Correia[b,c] © and Metin Kozak[d] ©

[a]Business Department, Polytechnic Institute of Beja, Beja, Portugal; [b]CEFAGE, University of Algarve, Faro, Portugal; [c]European University, Lisbon, Portugal; [d]School of Tourism, Dokuz Eylul University, Izmir, Turkey

CORRESPONDENCE TO Ana Isabel Rodrigues: E-mail ana.rodrigues@ipbeja.pt

ABSTRACT

Lake-destination areas are highly favoured places for tourists due to their aquatic environment as well as areas' rich surrounding regions. Existing literature on marketing lake-destination marketing lacks insights to identify the main image attributes driving visitors and understanding the lake tourism concept. The present study examines textual and pictorial data to generate image variables about Alqueva Lake, Portugal, the largest manmade lake in Europe. Results provide insights to characterize the potential of lake-destinations and to develop a final list of variables specifically related to this destination type. The aim is also to help those involved in marketing the Alqueva Lake as a destination to identify and propose an adequate strategy.

用可视数据和文本数据评估目的地形象——以湖泊旅游为例

本研究探讨了两个主要研究领域：目的地形象和湖泊旅游。目的地形象 (DI) 研究历经了四十多年的调查，目的地营销将目的地形象划定为旅游营销研究的一个下属领域，自20世纪70年代初以来，目的地形象研究领域蓬勃发展，为旅游文献的理论与实践做出了重要贡献。湖泊旅游是旅游研究中一个相对较新的领域，并且采用了多学科的方法。到目前为止，湖泊旅游方面的目的地营销仍相对被开发。

本次研究重点关注目的地形象的性质，旨在使其维度清晰化，提供适用于不论任何研究方面的结构。具体调查了阿尔克瓦湖，欧洲最大的水库，也是葡萄牙新兴目的地。阿尔克瓦湖处于生命周期的最开始，在竞争愈加激烈的世界，形象研究能帮助目的地管理者定位和推广这一地区。研究结果确定了对于营造湖泊目的地形象非常重要的形象维度和属性。这项研究结果也为提升目的地竞争力提供了见解。

与之前的观察和关注相对应，作为新近的旅游类型和旅游研究的新领域，本次研究有助于丰富湖泊旅游。之前的讨论框定了本次研究的主要问题：作为湖泊目的地区域 (LDA)，阿尔克瓦湖处于最开始，作为营销手段的形象如何有助于这一进程？有了这个起点，以阿尔克瓦湖为研究中心，出现的潜在形象变量可能有助于湖泊旅游业的发展，特别是湖泊目的地区域，也提出了以下研究问题：研究问题1：作为开发应用于这种具体目的地类型的未来形象测量尺度的可能基础，湖泊目的地区域形象形成可能涉及什么属性？研究问题2：湖泊目的地区域可能有助于将湖泊旅游归为一种旅游类型的主要特征和尺度是什么？

本阶段的目标是探索可能潜在影响这种目的地类型的主要特征，同时帮助湖泊旅游这一新近研究领域的概念化和定义，这需要一种更加非结构化的技术，如内容分析。因此，文本和图片的内容分析是现在研究的基础。基于此，在协同分布式环境中使用了WebQDA（网络定性数据分析）软件。经过详尽的搜索，选用了一个为湖泊狂热者制作的世界范围数据库在线目录，大约有1695个遍布全球的湖泊和水库（参见 www.lakelubbers.com）。本次研究收集了抽样网站中共40个湖泊描述（文本数据）和124张照片（图形数据），并按照国家分组，构成本次研究的样本。

本次研究和结果从两个角度扩展了目的地形象研究。从地理上的研究结果看，世界上越来越多的地区正在成为旅游目的地，扩大了目的地形象研究的范围。一些关于形象和品牌的研究适用于葡萄牙，然而，前面的研究不代表该国作为旅游目的地的巨大潜力。本次研究抓住机会，专注于西班牙这个国家，特别注重新的人进湖这一个较小的实体。从这方面来说，本次研究通过添加非传统实体如湖泊旅游和湖泊目的地区域，在地理上扩展了目的地形象研究的范围。尽管经历了四十五年的研究，湖泊旅游仍然是一个在研目的地形象专题。其实，本次调查中贯穿的一个关注点就是提高对如湖泊旅游这样相对新颖的学科的认识，并尝试通过探索这个新近的旅游研究下属领域的概念、特点和维度来进一步发展相关文献。这里的目的当然是衡量目的地形象的尝试，但适用于一个具体的旅游环境刚好与派克所得出的结论背道而驰，"相对寥寥几篇文章试图衡量任何具体旅游环境的目的地形象（…）仅是142篇中的23篇。"

按照这种推理和文献综述，本次研究设想并将湖泊旅游和湖泊目的地区域视为功能紧凑的区域整体，具有包含形象和认知的明确的地理实体，旅游业发展主要体现在湖泊本身（自然或人造湖）上。另外，紧密依靠周边地区的资源、活动、设施和基础设施，需要多个利益相关者一起，并且还需要强有力的管理和资源协调。从方法论上讲，这项工作证实了一个基本原理，在单个项目中研究方法的整合能够开创新的巨大机会。而且，本项研究还表明了结合使用体验旅游范式构建的文本和形象数据的好处。

Introduction

The present research examines two main research areas: destination image and lake tourism. Destination image (DI) research covers over four decades of investigation (Rodrigues, Correia & Kozak, 2012). Destination marketing frames DI as a sub-field of tourism marketing studies. Since the early 1970s, DI has been a vigorous research area making important contributions to theory and practice in the tourism literature (Gallarza, Saura & Garcia, 2002; Pike, 2002; Tasci, Gartner, & Cavusgil, 2007). Lake tourism is a relatively new field in tourism studies, and employs a multidisciplinary approach (Hall & Härkönen, 2006). To date, destination marketing in a lake tourism context remains relatively unexplored.

The present student addresses this gap in the literature. This study proposes that due to a lake-destination area's (LDA) complexity the DI's simplicity, versatility and capacity represent a key a system component for destination development and management. Simultaneously, this study posits that image as a marketing variable might actually influence the tourism development of a certain destination. Correia and Kozak (2010) propose that different attributes relating to destination characteristics strongly affect the tourist's probability of choice. Notable milestones include Hunt's (1975) study demonstrating tourists' perceptions strongly affect tourist-recreation areas (see also Crompton, 1979; Echtner & Ritchie, 1991). Font (1997, p. 123) concludes "a tourist destination's image is one of the most important strategic tools for creating and sustaining tourist destinations". Image analysis and management are key tools for destination competitiveness. Pike and Ryan (2004) suggest that image is a key construct in destination positioning, and destinations should target position their image as part of their competitive advantage (Kozak & Rimmington, 1999). These themes outline the DI construct's research territory over the last forty-five years and highlight topics of academic and practitioner interest and relevance.

The present study focuses on the nature of destination image, aiming to clarify the dimensions to offer a structure that applies regardless of the research context. Specifically, this study investigates the Alqueva Lake, the biggest reservoir of Europe and an emerging destination in Portugal. Since Alqueva Lake is at the very beginning of the life cycle, an image study helps destination managers to position and promote this locale in a growing competitive world. Study findings identify which image dimensions and attributes are important for the creation of a lake-destination image. These results provide insights to improve the destination's competitiveness. Indeed, a "successful lake-destination area marketing is tied to a strong destination image" (Erkkilä, 2006, p. 211). Presently, the regional DMO is defining a vision and a strategy for the Alqueva Lake until 2020, adding justification and validation to the present study. A preliminary SWOT (Strengths, Weakness, Opportunities and Threats) analysis of the Alqueva Lake concludes this lake has in fact potential for tourism (Entidade Regional de Turismo do Alentejo e Ribatejo [ERT], 2015).

Responding to the previous observations and concerns, this study contributes to enrich lake tourism as a recent typology of tourism and as a new field of tourism studies. The previous discussion frames this study's primary question: Since the Alqueva Lake is at the very beginning as an LDA, how can image as a marketing tool contribute to this process? With this starting point, potential image variables emerge that might contribute to the development of lake tourism, particularly LDAs, with the Alqueva Lake as the study site. In fact, an image assessment study of a recent tourism destination type (i.e. lake tourism) presupposes a deeper understanding of the characteristics and dimensions of this particular typology.

The present research process follows several stages. Inherently, the research path is a grounded and nonlinear process. By design, the process undergoes continuous reconsideration, redefinition and reformulation. The research process's iterative nature (Blessing & Chakrabarti, 2009), works ideally for combining textual and pictorial data.

Literature review destination marketing and destination image

Despite all the valuable resources that a place can have which might contribute to their competitiveness in the world market, a "strategic place marketing" serves as the "most adaptive and productive approach to the problems of places" (Kotler, Haider, & Rein, 1993, p. 20). The challenge with this "fresh approach", according to the authors, is building capacity of regions to adapt to a changing marketplace, embrace opportunities and sustain their vitality. This approach serves as a milestone in marketing research and brings "destination marketing" to the stage as a new field of marketing studies. For example, recent works such as Pike and Page (2014) are able to provide a narrative analysis of the first 40 years of destination marketing literature.

For tourism studies, destination marketing is at the core of tourism marketing (e.g. Middleton & Clarke, 2001; Seaton, 1996). In the late 1980s and 1990s, researchers recognized "destination marketing" as a new subfield of tourism marketing studies. Middleton (1989) defines the tourism product as a combination of all the service elements which a tourist consumes that influences a new line of investigation regarding marketing countries as tourism destinations. Central to Middleton and Clarke's (2004) proposition is the need to understand not only the common characteristics, but also the unique features of a tourism product in order to develop the best marketing strategies and actions. The rationale here is that marketing a destination is not exactly the same as marketing goods or even other types of services. Seaton (1996) also corroborates this line of thinking by highlighting the need to understand destination marketing's distinctive features. Seaton (1996, p. 351) begins his approach by discussing some fundamental characteristics of destinations (i.e. "destination is not just something that actually exists; it is also what is thought to exist, a mental concept in the minds of tourists").

Buhalis (2000) seminal research develops a comprehensive framework for destination marketing that integrates the complexity of local stakeholder relationships. According to him, before promoting a destination, marketers should first analyse and understand the

type of destination (e.g. urban, rural, alpine, or lake tourism), and identify the life cycle's stage of development. In the case of lakes as a part of a destination product, the lake's geographical location is central to the tourism development process. Lakes situate near mountains (e.g. Switzerland, Northern Italy), on distant islands (e.g. Iceland), cross different countries (e.g. the Great Lakes). They also exist as a single lake (Lake Balaton in Hungary) or a Lake District (in the UK), suggesting different types of lakes require distinctive strategies for tourism development.

These variables suggest Butler's (1980) life cycle servers as a useful guide for formulating a destination's strategic marketing plan (Buhalis, 2000). The destinations are totally in different stages of the life cycle. Framed by the rationale that tourism in general and a destination in particular is a distinctive product, marketers that needs to comprehend that perceptions and image are important elements to be considered in any tourism development process (Morgan & Pritchard, 1998).

Destination image: Concept, dimensions and measurement

The literature contains many contributions about the destination image construct including terms such as "organized representations", "sum of beliefs, ideas", "complex combination", "overall impression or attitude" and, "visual or mental impression" (e.g. Crompton, 1979; Dadgostar & Isotalo, 1992). Rodrigues et al. (2012) illustrate fundamental definitions of DI between the 1970s and the 1990s. Recently, more researchers agree that image is an "overall impression" or a "combination" (Boo & Busser, 2005; Kim & Richardson, 2003; MacKay & Fesenmaier, 1997). Table 1 lists these some recent efforts to define DI. Nevertheless, several authors (e.g. Gallarza et al., 2002; Tasci et al., 2007) still recognize (after 45 years of research) the lack of theoretical framework and stress the difficulty in operationalizing this construct.

In order to investigate DI's complex construct, the main attributes require examination. Rodrigues et al.'s (2012) a meta-analysis provides a comprehensive review of DI research

Table 1. More recent definitions of destination image in the 2000s.

Authors (date)	Definition
MacKay and Fesenmaier (1997)	A composite of various products (attractions) and attributes woven into a total impression. Differences in meaning, number, and importance of dimensions may occur (p. 538)
Murphy, Pritchard, and Smith (2000)	A sum of associations and pieces of information connected to a destination, which would include multiple components of the destination and personal perception (p. 45)
Kim and Richardson (2003)	Totality of impressions, beliefs, ideas, expectations, and feelings accumulated towards a place over time (p. 218)
Boo and Busser (2005)	Refers to the manner in which the perceptions of numerous individual attributes are integrated to become the image of an entity (p. 56)
Tasci et al. (2007)	An interactive system of thoughts, opinions, feelings, visualizations, and intentions toward the destination (p. 200)
Martin and Rodriguez del Bosque (2008)	Destination image should be considered a multi-dimensional phenomenon that includes not only beliefs or knowledge about the place's attributes, but also the individual's feelings toward the tourist destination (p. 265)
Rolo-Vela (2009)	
King, Chen, and Funk (2012)	An interactive construct of objective knowledge, subjective impressions, prejudice, imaginations and emotional thoughts toward a destination, held by individuals, which will influence their behavioral intentions (p. 6)

Source: Rodrigues (2015).

since the construct's emergence in the 1970s. Having a base line, the list of the most common DI attributes (Gallarza et al., 2002), an extension of the period was examined (2000-2012). Table 2 shows results from the 24 additional studies. These results reveal that resident's receptiveness, price, value and cost, culture attractions, landscape surroundings and various activities are the most cited attributes, providing groundwork for further study (e.g. Correia & Pimpão, 2008; Obenour, Lengfelder, & Groves, 2005; among others). In fact, both attribute types seem to be important, functional and psychological.

Despite the growing number of DI studies, little is known about destination marketing and images apply to the lake tourism context (Tuohino, 2006). Most studies assess DI in general, but few attempt to measure the concept for a specific context (Pike, 2002). Moreover, research investigating image attributes specifically relating to LDA is limited. For this reason, the present study focuses on this particular type of destination, depicting image attributes more related to lake tourism and LDAs.

This study offers deep insights to the nature of DI applied to LDAs as a new study object. Results identify a set of variables forming the image of this type of tourism. Based on the study's aim and exploratory nature about DI structure (Boo & Busser, 2005) or nature (e.g. Martín & Rodríguez del Bosque, 2008), a combination of two DI theories and scales help surface the attributes - specifically Echtner and Ritchie (1991, 1993) and Beerli and Martín's (2004). The former helps to understand that LDA assessment occurs through tangible versus intangible attributes (a cognitive component including functional and psychological attributes), common versus unique attributes that really can differentiate the destination and a more holistic, or gestalt image versus an image more focused on particular attributes; the latter because Beerli and Martín (2004) propose a comprehensive framework that includes every aspect of the destination of DI based on nine image categories or dimensions (natural resources; general infrastructure; tourist infrastructure; tourist leisure and recreation; culture, history and art; political and economic factors; natural environment; social environment; and atmosphere of places).

Table 2. Attributes used in DI studies between 2000 and 2012.

Authors (year)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1. Chen and Hsu (2000)	x	x	x				x				x	x	x	x				x		
2. Chaudhary (2000)			x	x		x	x		x			x				x		x		
3. Baloglu and Mangaloglu (2001)		x		x	x		x				x	x	x			x		x		
4. Chen (2001)	x	x	x				x				x	x	x	x		x	x	x		
5. Rezende-Parker et al. (2003)	x	x	x	x		x	x		x				x	x						
6. Hsu et al. (2004)	x	x		x		x				x	x	x	x	x				x		x
7. Pike and Ryan (2004)	x	x					x	x		x	x	x	x					x		
8. Bonn et al. (2005)	x								x		x	x	x			x	x	x		
9. Kim and Morrison (2005)	x			x												x				
10. O'Leary and Deegan (2005)		x		x	x		x				x	x	x					x		
11. Obenour et al. (2005)		x	x	x			x		x		x			x				x		
12. Boo and Busser (2005)	x		x			x			x	x	x	x						x		
13. Hernandez-Lobato et al. (2006)	x	x		x				x	x			x	x							x
14. Grosspietsch (2006)	x		x						x			x			x	x	x			
15. Castro et al. (2007)				x	x	x				x	x	x				x		x		
16. Tasci and Holecek (2007)		x	x						x			x				x				
17. Alcañiz et al. (2009)	x	x	x	x	x	x	x		x	x	x	x	x	x	x			x		x
18. Prayag (2008)	x	x	x	x	x		x		x	x	x	x	x	x	x			x		x
19. Correia and Pimpão (2008)		x	x	x	x	x	x		x			x	x	x	x			x		
20. Rolo-Vela (2009)		x		x		x		x				x	x		x			x		
21. Tasci (2009)		x	x	x	x		x		x			x	x			x		x		x
22. Alaeddinoglu and Can (2010)	x	x	x	x	x	x	x		x		x	x	x			x	x	x		
23. Shani et al. (2010)	x		x	x	x	x	x		x			x	x	x	x			x		
24. Jeong and Holland (2012)	x	x	x	x	x	x	x		x				x	x		x		x		
Total	15	16	14	16	10	13	12	6	14	7	13	18	15	9	11	12	2	20	0	6

Attributes: A. Various activities; B. Landscape surroundings; C. Nature; D. Culture attractions; E. Nightlife and entertainment; F. Shopping facilities; G. Information available; H. Sport facilities; I. Transportation; J. Accommodation; K. Gastronomy; L. Price, value and cost; M. Climate; N. Relaxation vs. Massification; O. Accessibility; P. Safety; Q. Social interaction; R. Resident's receptiveness; S. Originality; T. Service quality.

Source: Rodrigues (2015)

A DI study should comprehensively examine the destination's characteristics under study. In other words, an image study should explore image attributes relating destination as well as the type of tourism under investigation.

Lake tourism and lake-destination areas

Lakes include open water bodies, dams, or reservoirs that potentially representing a valuable resource for a variety of human activities. In addition, lakes potentially serve as important resource for tourism development, based on their landscape features, flora, fauna and cultural attractions. Lakes offer a naturally defined core resource for tourism development (Hall & Härkönen, 2006). This term tends to be categorized by the lake's location. Therefore, some authors prefer "water-based tourism" since the term relates to any activity or experience undertaken in or in relation to water (Jennings, 2007). However, this thesis adopts lake tourism which circumscribes a composite of meanings. Table 3 demonstrates that this is a type of tourism that takes place on the lake as well as the surrounding region.

The previous definitions demonstrate that the body of water is the core resource for developing lake destinations. The surrounding region's resources and infrastructure enhance the lake destination. In fact, the lake's natural and cultural resources are important elements to promote. Even communities located on the lakeshore or near the lake add an important value to lake-destinations because they often serve as a base-camp or a starting point for visiting the lake. Services and infrastructures such as accommodations on the lakeshore, available vacation packages, marinas, ramps or slips, rental services (e.g. fishing or boating), or signed trails around the lake also contribute to strengthening the lake's potential for tourism.

Lake tourism also highlights the importance of product development and promotion for tourism in general. To achieve a successful marketing strategy for LDA, defining a strong destination image is essential. Therefore, need exists to understand the dynamic image formation process (Gartner, 1993). A geographical expansion of image studies to non-traditional entities (e.g. lake-destination areas) addresses this need.

Although insufficient, the existence literature reveals that the attributes relating to LDAs strongly tie to the water intertwined with outdoor activities (Sievänen, Neuvonen, & Pouta, 2006). Other authors (e.g. Erkkilä, 2006) highlight psychological attributes (e.g. relaxing, peaceful, closer to nature). To extract image items specifically relating to LDAs, depictions from textual and pictorial analysis offers a more holistic methodological approach. The qualitative phase combines texts and pictures in order to investigate the nature of lake tourism and to identify a set of image variables that forms the image of LDAs.

Visual methods in destination image studies

The underlying foundation of this study is that, given the evolution of DI conceptualization into a more hedonic and emotional perspective of consumption acts in tourism, new challenges emerge for marketers in order to develop the most suitable positioning strategy for their destinations. In fact, alternative ways of image assessment, such as the qualitative approach and techniques, lies in a shift of consumer behaviour theory regarding information processing. The discursive or descriptive information processing mode gave birth to a form of imagery processing that is characterized as a mode in which multisensory information

Table 3. Selected definitions of lake tourism and lake-destination areas.

Definition/Author/Date
From a viewpoint of the tourist, a lake as a destination is a place with a definite location situated away from home, and having a number of services for the tourist. Before making a travel decision, the tourist has formed an image of the lake destination when studying the promotional material of the destination, say, on an Internet site. (Ryhänen, 2001, p. 4)
A lake as a tourist destination is finally constituted only when tourists come to it from somewhere else. Before that, every LD is an unknown blue spot on the map, which is only significant as a piece of the physical environment and as a social and cultural dimension of the local community unconnected to tourism structures elsewhere. (Ryhänen, 2001, p. 4)
A neutral lake environment becomes meaningful once the tourist links images and feelings born from experience of it. (Tuohino & Pitkänen, 2004, p. 80)
(…) lake tourism is tourism that occurs not only on the lake itself, but also in the surrounding area. Lacustrine tourism systems therefore include the lake, the foreshore and those amenities, facilities and infrastructure in the surrounding region that support the role of the lake as a tourist attraction. (Hall & Härkönen, 2006, p. 4)
(…) the idea of lake tourism reinforces the idea that there are certain geographical entities that, because of their particular environmental characteristics are often designated as a separate type of tourism in which the specific environment serves to attract particular activities and which serve to convey certain environmental images as part of destination promotion. (Hall & Härkönen, 2006, p. 5)
As well as natural features, lakes are also critical in supporting human life and have a social significance dating back thousands of years; indeed, lakeshores are significant archaeological resources, having supported settlements for centuries. (Cooper, 2006, p. 27)
Taking the lead of the WTO, we can think of lake destinations as being (1) cultural appraisals, comprised of images and perceptions; (2) perishable and vulnerable to change; (3) used by multiple users or stakeholders; (4) complex amalgams in need of management. (Cooper, 2006, p. 28)
To be considered a true tourism destination, a lake attraction needs to be complemented by support services for tourism (such as accommodation, retailing, and food and beverage), access and, ideally, a strong organization at the destination level. (Cooper, 2006, p. 34)
In the case of lake-destination tourism, other influential groups frequently come into play, suggesting that successful development and marketing of lake-destination areas may be more complicated, requiring careful attention to all stakeholders' needs and obtaining adequate information to make sound decisions. (Erkkila, 2006, p. 207)
Introducing the concept of 'sense of place' into the mental landscapes connected with the lake allows the development of lakes as a tourism resource and the touristic development of a region. Raising the 'sense of the lake' to the ranks of traditional tourism images increases the value of lake tourism and lake landscapes. (Tuohino, 2006, p. 102)
A lake as a tourist destination is generally a functionally compact regional whole with clear geographical limits. A single lake destination is sometimes surrounded by a compact cluster of tourism activities. A lake destination in some cases is a part of a larger region (lake district destination) inside which there are several small lakes, and the whole region is connected. (Ranade, 2006, p. 543)

Source: Rodrigues, 2015.

is represented in a more gestalt form in the working memory, where imagery is evoked by sensory experiences (MacInnis & Price, 1987). Holbrook and Hirschman (1982) named it as the "experiential view", the consumption act or the "hedonic consumption" (Hirschman & Holbrook, 1982), where images are assumed as an important stimulus in a multisensory consumption act. Walle (1997, p. 535) argues "the field of tourism needs to embrace a general recognition of the legitimacy of a variety of research tools".

Given the above, alternative methods of DI measurement based on qualitative techniques were recognized as useful because it captures the holistic impressions associated with a destination. By the mid-1990s, researchers started to be sceptical about the validity of attribute lists, demonstrating the benefits of using a qualitative approach (Reilly, 1990). As a result of this new approach, pictorial materials as a visual medium were used progressively in qualitative studies.

In fact, a number of academics adopt photography as a research method (e.g. Caldarola, 1985; Schwartz, 1989).This stage marks the beginning of employing photographs to extract information from people, particularly the use of photographs to provoke a response, which became known as photo-elicitation technique (Harper, 1988, 2002). Photography and tourism are widely considered to be inherently linked (Garrod, 2009) and techniques such as reflective photography and photo-elicitation started to be adopted in tourism research, specifically in destination image studies (MacKay, 2005 for more detailed information).

Based on this assumption, visual stimuli such as travel photography have been used as a methodological approach (e.g. Greaves & Skinner, 2010; MacKay & Fesenmaier, 1997). In fact, the employment of photographs has been widely recognized as a valuable analysis method, particularly in DI studies (Jacobsen, 2007).

Methodological procedures

This study's general objective is to explore the cognitive image of LDA, analysing both functional and psychological attributes, and also investigating the nature of the lake tourism concept. The following research questions address this general objective. RQ1: What attributes might be involved in the image formation of LDA, as a possible basis for developing a future image measurement scale applied to this particular type of destinations? RQ2: What are the main characteristics and dimensions of LDA that might contribute to conceptualizing lake tourism as a type of tourism?

As the objective in this stage was to explore the main attributes that might potentially influence this type of destination, but simultaneously contribute to conceptualizing and defining lake tourism as recent research area, a more non-structured technique was needed, such as content-analysis. Therefore, content-analysis of text and pictures is the foundation for the present study. The combination is used as a research technique for making replicable and valid inferences from data to their context (Bardin, 1979; Krippendorf, 1980). In fact, Miles and Huberman (1994, p. 240) argue, "Photographs, videotapes, or any other item that can be made into text are amenable to content analysis".

The analytic procedure was based on the general stages of content-analysis procedure in Krippendorf (1980) six steps (design, unitizing, sampling, coding, drawing inferences and validation). The goal here was to adopt a mixed interpretative-quantitative approach of content analysis, in order to measure the information (in this case extract the sub-categories and image items of text and photos), as well as the nature of the topic under study (lake tourism in this case).

Based on this, WebQDA (Web Qualitative Data Analysis) a very recent Portuguese software for use in collaborative distributed environments (www.webqda.com) was used.

This software follows the design of the most used proprietary software - Nvivo, Atlas.ti, MaxQDA - with the difference that is possible to work collaboratively online in real time (Souza, Costa, & Moreira, 2011).

Therefore, a set of image variables that formed the image of LDAs were extracted. In this stage a selection was made regarding the source of the data sample, the data sample itself, data collection, software selection for data analysis, etc. After an exhaustive search, an online directory for lake enthusiasts containing a worldwide database of about 1695 lakes and reservoirs spread throughout the world was selected (cf. www.lakelubbers.com). This source was considered an appropriate database since the aim was to generate a sample of image attributes specifically related to the lake tourism context. Table 4 displays the result of the unitizing and sampling procedure of content analysis. A total of 40 lake descriptions (textual data) and 124 photos (pictorial data) from the sampled website were collected and grouped by country to constitute the sample of this study.

Table 4. Unitizing and sampling procedure of content analysis: Sampling units of text and photos.

Country	Lake	Code	N° of photos	Country	Lake	Code	N° of photos
Austria	Lake Attersee	AU01	5	Macedonia	Lake Ohrid	MA21	5
	Hallstätter See	AU02	5		Lake Prespa	MA22	1
Bulgaria	Smolyan Lakes	BU03	0	Netherlands	Lake IJssel	NE23	2
					Lake Marker-meer	NE24	3
Croatia	Plitvice Lakes	CR04	5	Norway	Homindalsvat-net Lake	NO25	3
Finland	Saimaa	FI05	5	Poland	Sniardwy Lake	PO26	0
	Päijänne	FI06	5		Ilawa Lakeland	PO27	0
France	Lac d'Hour-tins-Carcan	FR07	0	Portugal	Alqueva Lake	POR28	5
	Lake Bourget	FR08	3				
Germany	Lake Con-stance	GE09	5	Russia	Lake Ladoga	RU29	0
	Lake Muritz	GE10	2		Rybinsk Reservoir	RU30	0
Greece	Lake Kerkini	GR11	0	Slovenia	Lake Bohinj	SL31	5
	Lake Volvi	GR12	0		Lake Bled	SL32	6
Hungary	Lake Balaton	HU13	5	Spain	Las Salinas de Torrevieja	SP33	5
	Lake Heviz	HU14	1		Lake Sanabria	SP34	4
Iceland	Lake Thingval-lavatn	IC15	4	Sweden	Vanern	SW35	4
	Lake Skorra-dalsvatn	IC16	2		Vattern	SW36	3
Ireland	Lough Foyle	IR17	2	Switzerland	Lake Geneva	SWT37	4
	Lough Corrib	IR18	5		Lake Neucha-tel	SWT38	4
Italy	Lake Garda	IR19	5	United Kingdom	Lough Neagh	UK39	4
	Lake Maggiori	IR20	5		Lough Foyle	UK40	2

Source: Own elaboration. Data from Lakelubbers website Retrieved January 20, 2015, www.lakelubbers.com/.

Analysis of textual data

A sample of the texts was used for content analysis from the Lakelubbers website regarding the two research questions (to extract image attributes most related to lake tourism and LDA and simultaneously to identify the characteristics and dimensions of this type of tourism). Firstly, a holistic method of coding was used "as a preparatory approach to a unit of data before a more detailed coding or categorization process" (Saldaña, 2009, p. 118). Using WebQDA the coding procedure used two free nodes and it was possible to identify the following two main themes directly linked with the lake tourism concept with the corresponding segments: (i) the lake itself and lakeshore (178 coded segments) and (ii) the destination/surrounding region (157 coded segments) as shown in Figure 1.

This approach allowed the text be broken into broad topics, which contribute to identify basic elements of lake tourism and gave a first glance at important attributes destination image. From here, a direct approach was undertaken and a codebook based on Beerli and Martín's (2004) schema. In fact, the goal was to conceptually validate or extend a theoretical framework of DI by using Beerli and Martín's (2004) scale, but applied to the lake-destination context. Table 5 shows the results of a direct coding procedure. Results show "Tourist Infrastructures" and "Natural Resources" are the most coded categories (with 231 and 223 segments, correspondingly).

Simultaneously, a more inductive procedure to generate sub-categories was implemented. This procedure identified 23 sub-categories, through a process of defining categories and
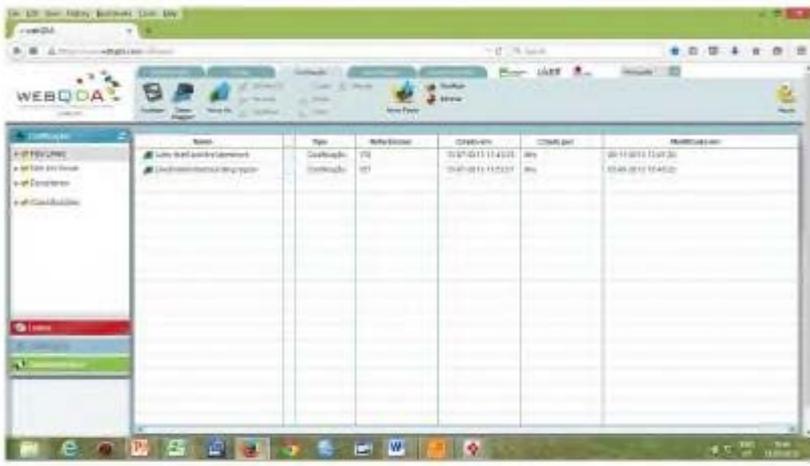
Figure 1. Results from WebQDA coding procedure with free nodes. Source: WebQDA web-based computer application.

Table 5. Results of the coding procedure from WebQDA software.

Category	N° of segments	Category	N° of segments
Natural Resources	223	Political and Economic Factors	37
General Infrastructure	37	Natural Environment	108
Tourist Infrastructures	231	Social Environment	7
Tourist Leisure and Recreation	219	Atmosphere of the place	114
Culture, History and Art	134	Total of segments	1110

Source: Own elaboration.

sub-categories and development of the corresponding survey items as the first task in content-analysis. Each reference, sentence or a block of sentences was assigned to the corresponding sub-category. Next, a descriptive method was employed that "summarizes in a word or short phrase - most often as a noun - the basic topic of a passage (Saldaña, 2009, p. 70).

Analysis of pictorial data

Figure 2 illustrates the procedure adopted for pictorial content analysis, where 124 photos were content analysed by *motif* and then by terms of *themes* (Albers & James, 1988).

In the first instance all the *motifs* (objects or appearances) shown in every image were identified using WebQDA software. The *motifs* were then isolated, registered, and freely described without any constraints through the use of colourful boxes which encircle them, each one with a spontaneous comment (Step 1). The method follows the principles of iconography (Panofsky, 2006; Sternberg, 1997) and is consistent with prior studies (e.g. Albers & James, 1988; Markwell, 1997). Based on this methodology, all the *motifs* were first listed, and only after this were they submitted to a process of filtering, clustering or cut-off. An
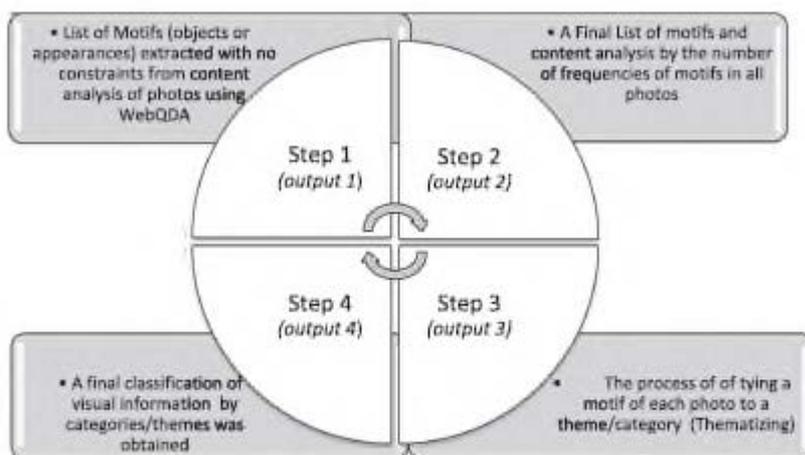

Figure 2. Procedure of pictorial data content analysis. Source: Own elaboration.

organized list of motifs was created (42 in total) in order to measure the frequency of each motif/object present (or not) in all photos (Step 2). Next, for each photo an object count indicates whether or not a specific object appeared in the picture. The process of tying each motif to a theme (thematizing) was conducted (Step 3). In sum, this visual method identifies 42 motifs relating to LDAs, and organizes them into five categories. Lastly, the visual information creates a final classification (Step 4).

Results

The content analysis of text and pictures was conducted separately. Nevertheless, the findings are eminently similar. Textual analysis answers the two initial research questions and pictorial data verify the findings. *Research Question 1:* What attributes might be involved in the image formation of LDA, as a possible basis for developing a future image measurement scale applied to this particular type of destinations? Regarding the results from textual information, a set of nine categories/dimensions of lake destination image were explored and 21 sub-categories emerged for the category "natural resources" three sub-categories emerged: "natural features of the lake", "richness of nature", and "weather"; for the category "touristic infrastructures" four subcategories were defined: "accommodation and catering facilities", "available packages", "signed trails and paths" and "tourist services and information"). Further, each subcategory includes several image attributes most related to LDAs, generating a set of over 100 potential image items based on the methodology explained in the previous section. Some attributes are illustrated based on the functional-psychological continuum in Echtner and Ritchie's (1991, 1993) model (see Table 6).

This continuum may be perceived from functional to psychological attributes about individual characteristics or more holistic impressions of a LDA. As illustrated, the upper level contains individual attributes which are more directly observable (e.g. physical features of the lake, water and land activities, nautical infrastructures; accommodation); the lower level includes individual attributes more intangible and based on sensations and feelings that essentially described as the atmosphere or mood of a lake-destination area (e.g. simplicity, relaxing, peaceful scenery). Conclusively, the combination of findings from an analysis of image attributes found in the literature review for other types of destinations with content analysis of a specific lake-related website provides a more complete picture of lake image variables.

In respect to the findings from pictorial data and still related to the first research question, the visual method obtained a set of 42 motifs comprising five main categories or dimensions of lake destination image. The motifs range from water, sky, landscape, vegetation on the lakeshore, flora and fauna to nautical infrastructures, villages, culture, monuments, activities (swimming, fishing), among others, very similar to the textual analysis results. After listing and analysed all the motifs of the photos, it was necessary to add meaning to the photos by a classification into five categories as depicted in Figure 3.

Research Question 2: What are the main characteristics and dimensions of LDA that might contribute to conceptualizing LT as a new form of tourism research? The content analysis revealed three spatial levels in terms of tourism development: (i) development on

Table 6. An example extracted from the final list of image attributes with potential influence on the formation of lake-destination areas (from content analysis).

FUNCTIONAL (Physical, measurable)

Surface
Origin
Topography
Lake season
Protected areas
Flora and fauna
Islands
Temperature
Location/ territorial boundaries
Circular drives
Transportation
Marinas/ports/ramps/berths
Boardwalks
Accommodation/restaurants
Available packages (tours, cruises)
Trails and paths
Information maps
Visitor/information centres
Rental/charter services
Picnic areas
Water activities (swimming, sailing)
Land activities around the lake
Sport competitions (regattas, races)
Themed events
History of the lake
Monuments/Museums
Lakeside villages
Hospitality/friendliness
Simplicity
Tranquility
Relaxing/quiet
Peaceful scenery
Picturesque
Outdoor destination

PSYCHOLOGICAL (abstract)

Source: Own elaboration. Adapted from Echtner & Ritchie, 1991, 1993.

the lake itself as the main resource of this type of tourism; (ii) development on the lakeshore, intertwined with the (iii) development of the surrounding region. In addition and corroborating Ryhänen (2001) five main dimensions of lake tourism were extracted. (1) *Resource Dimension*, including all the natural, cultural and social resources; (2) *Supply Dimension*, referring to all the services, facilities and infrastructures which not only allow access but also add value to resource dimension; (3) *Logistical Dimension,* referring to the existence of means of connections between lakes, lakes and lakeside villages, and lakes and main cities; (4) *Organizational Dimension,* referring to lakes as a geographic and administrative entity that crosses different territories; (5) *Representational/Meaning Dimension,* conceiving lakes as a meaningful place to which the tourist links mental images and feelings formed through

experience. In sum, the existence of lake tourism conceptualization was established which undoubtedly requires more investigation on a theoretical and practical level.

Conclusion and implications

The objective of this study was to define a set of image variables that create the image of LDAs, in order to enhance the understanding of this recent sub-field of tourism studies. This research and the results expand DI research from two perspectives. Geographically speaking to the findings extend the range of DI studies since more places in the world are becoming travel destinations. Some research relating to image and branding apply to Portugal (e.g. Kastenholz, 2002; Oliveira & Panyik, 2015; Pereira, Correia, & Schultz, 2013; Silva, Kastenholz, & Abrantes, 2013; Silvestre & Correia, 2005), however, prior studies do not representative the country's vast potential as a travel destination. This study seizes the opportunity to focus on Portugal as a country, particularly on a smaller entity as a new manmade lake. In this sense, this study both geographically extends and adds to the scope of DI studies by including a non-traditional entity such as lake tourism and LDAs. Lake tourism remains an understudied DI topic despite forty-five years of research. Actually, one of the concerns throughout this investigation was to raise awareness of a relatively new subject like lake tourism and try to take the literature further by exploring the concept, characteristics and dimensions of this recent sub-field of tourism studies. The purpose here was definitely an attempt to measure DI, but applied to a specific travel context diverging from what Pike (2002, p. 542) concludes that "relatively few papers attempted to measure the destination image for any specific travel context (...) only 23 from the 142 papers".

Following this line of reasoning and the literature review, this study conceives and defines lake tourism and LDA as a functionally compact regional whole with a clear geographical entity comprising images and perceptions. Tourism development is manifested predominantly on the lake itself (natural or manmade). Also, intensely based on the resources, activities, facilities and infrastructures located in the surrounding region require a complex amalgam of stakeholders as well as strong management and resource coordination (Rodrigues, 2015).

As far as attributes involving image formation of LDAs, limited research examines this topic. The literature offers a generic set of attributes and does not incorporate all salient attributes for LDAs. Therefore, prior research provided in the first stage a set of more than 100 variables that potentially influence the image formation of LDAS, categorized into nine categories and 23 subcategories accurately related to lake tourism through a content analysis procedure. This study goes further and proposes a five-factor LDI scale encompassing

Category 1 "Natural Elements": physical characteristics directly related to the lake.

Category 2 "Infrastructures": Facilities and infrastructures which allow access to and navigating on the lake.

Category 3 "Activities and Recreation": different types of sporting and recreational activities that take place on the lake and surrounding region where the lake is located.

Category 4 "Culture and Heritage": Cultural and historical attractions that provide insights into the history of the territory.

Category 5 "Natural Environment": Includes communities with visible natural elements creating an atmosphere on and around the lake.

Figure 3. Photographs used in content analysis representing the five sub-categories/themes. Source: Rodrigues, Correia, Kozak, and Tuohino (2015). Retrieved January 2014, from https://www.lakelubbers.com.

natural resources, infrastructures, tourist leisure and recreation, culture and heritage and atmosphere. These dimensions help determine the structure of LDI and show consistency with Beerli and Martín's scale (2004) mixed with lake destination theory (Ryhänen, 2001). Prior studies relate to lake tourism image extracted some attributes, but they were not based on a proposed scale.

From a more theoretical perspective, this research attempts to move forward in three ways: (i) increasing understanding and awareness of lake tourism and LDAs as a recent topic in tourism studies (Tuohino & Lorant, 2012); (ii) advancing DI research by exploring non-traditional destinations and previously under-investigated tourism types; and (iii) demonstrating the benefits of combining textual and pictorial data to assess a destination's image.

Lastly, there is an additional observation to be made regarding methodological issues: the use of imagery such as photographs, in addition to textual data, to extract image attributes in both approaches, structured and unstructured. Although this imagery technique was not the primary stimulus to elicit perceived DIs from the respondents, it enriched the procedure. In fact, it allowed a broadening of the range of image attributes of LDAs. As stated by Heisley (2001, p. 45) regarding the discussion about scientific legitimization of the usage of visual work for scholarly purposes, "a product that combines the visual with the textual (...) should be considered superior in disseminating knowledge".

At the managerial level, these results may bring useful implications for tourism management authorities (regional DMO), since image building, brand creation and marketing positioning might be set up. A strategy focused on selling "waterscapes" as a totally new landscape and reality could be implemented. This is a new lake that did not exist until 2002 and, as results have demonstrated in this thesis, telling the story of the lake ("culture, history and art", "history of the lake and surrounding region" can be viewed as a potential attribute to be explored in the context of lake tourism. In fact, it is believed that key ideas such as "water that didn't exist before", "new landscape and a totally new territory", "blue spots of water in the driest and hottest region of Portugal" as a consequence of the Alqueva dam construction might constitute a powerful combination and a unique opportunity for developing environment, historical, cultural and contextual themes for storytelling related to tourism (Mossberg, 2008). New experiences and tourism products regarding the Alqueva Lake can be created around these themes and stories. In addition, since this is a new territory that is in the very beginning, it will be interesting to carry out in the future longitudinal studies, exploring the behaviour of the market

(e.g. long and short-hall markets).

Lastly, as far as strategic implications are concerned this study confirms there is a need for DMOs to pay more attention to visual representations of the destination that is being promoted. Further, the results indicate a set of image dimensions which form the image of LDAs such as the ones studied: "natural resources", "tourist leisure and recreation", "infrastructures", "culture and heritage" and "atmosphere" and that "atmosphere" were the most important dimensions in explaining lake destination image, which is in line with a tendency in DI literature of strengthening the psychological (more intangible) attributes. The results also provide information about the items that constitute these dimensions, which might help destination managers to define not only the image that should promote the Alqueva Lake, but also contribute to decisions related to the creation and development of destination experiences and products.

Methodologically speaking this study corroborates the rationale that integration of research techniques within a single project opens new and huge opportunities (Bryman, 2006; Sieber, 1973). Further, this research demonstrates the benefits of a combined use of textual and pictorial data framed by the experiential tourism paradigm.

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No potential conflict of interest was reported by the authors.

ORCID
Ana Isabel Rodrigues © http://orcid.org/0000-0001-9140-9722
Antónia Correia © http://orcid.org/0000-0002-6707-8289
Metin Kozak © http://orcid.org/0000-0002-9866-7529

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