



Research paper

Visual landscape preferences in Mediterranean areas and their socio-demographic influences



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ARTICLE INFO

Article history:

Received 5 June 2016

Received in revised form 10 April 2017

Accepted 20 April 2017

Available online 1 May 2017

Keywords:

European Landscape Convention (ELC)

Perception

Scenic beauty

Mediterranean landscape

Socio-demographic characteristics

ABSTRACT

The European Landscape Convention (ELC) suggests the population's perception is the main factor in landscape assessment and planning. As a result, this subjective approach assumes differences among the population's visual perception according to their personal factors, e.g. socio-demographic characteristics, which have to be studied in several areas in order to improve landscape management. In this regard, the goal of this paper is to know if the population's visual perception of Mediterranean landscapes is similar to other environments previously studied. In addition, we sought to determine whether certain socio-demographic characteristics of the respondents (age, gender and education level) influenced their visual preferences. We assessed the population's landscape preferences through several photographs of representative Mediterranean landscapes shown in an online survey. We then evaluated the average score of each photograph according to the landscape shown and the socio-demographic characteristics of the population. The final results demonstrate that water bodies and vegetation fundamentally contribute to a positive evaluation of whole landscape scenes. In contrast, human impact on landscapes (industrial or mining areas) reduces their scenic beauty. Despite the fact that these findings are consistent with previous research with respect to people in Mediterranean areas that have the same visual preferences as those in other locations, we did not find that any respondents' socio-demographic characteristics significantly influenced their general landscape perception. However, for certain landscapes several differences under the same socio-demographic characteristic were found.

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1. Introduction

1.1. Mediterranean agricultural landscapes and the European Landscape Convention

Mediterranean landscapes are a fundamental feature of territorial identity as a result of the historical human's interaction with the environment (Blondel, 2006; Blondel et al., 2010; Zeder, 2008). This interplay has produced very heterogeneous features where agricultural landscapes represent the main "cultural landscape", i. e. a clearly defined landscape which combines works of nature and humankind, into the Mediterranean Basin (UNESCO, 1992). However, over the last decades of the 20th century, in Spain agricultural landscapes have been declining due to rural exodus (Gómez-Limón and de Lucio, 1999) and entering an intense transformation and degradation process due to other uses – mainly the construction of new buildings and infrastructures (Sayadi and Calatrava, 2001; García and Ayuga, 2007). In fact, according to Morales Gil (2001), in

the Region of Murcia more than 50% of agricultural landscapes have been urbanised and the rest is threatened by the same process. As a result, agricultural environments have compromised their conservation and continuity due to their lack of economic and social roles (Mata and Fernández, 2010). Inside these cultural landscapes, the traditional orchard must be highlighted as one of the historical, ethnographic, urban, cultural, and irrigated Mediterranean landscape references (Mata and Fernández, 2004) characterized by a mosaic of regular small parcels of a green colour palette due to intensive horticultural crops (Mata and Fernández, 2010).

According to the European Landscape Convention (ELC) (Council of Europe, 2000), landscape is "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors". In this regard, we have to forget the individual influence of landscape's intrinsic attributes (e.g. Arriaza et al., 2004; Kaltenborn and Bjerke, 2002; Otero Pastor et al., 2007; Sayadi et al., 2009) and start to assess it and to determine priorities for conserving and maintaining the significant and characteristic features of a landscape, according to the population's perception (Sevenant and Antrop, 2009). On the other hand, despite the representativeness and importance for the cultural and natural heritage of the

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traditional orchard within the Mediterranean Basin (Meeus et al., 1990), it has to be managed equally instead of as an outstanding landscape, due to the fact that the ELC considers all the landscapes equally (urban, peri-urban, rural and natural areas) regardless of their current state (article 2).

1.2. Landscape assessment, from physical to socio-demographic approach

In a review of the different methodologies for assessing landscape (e.g. Briggs and France, 1980; Daniel and Vining, 1983; Zube et al., 1982), we found two main paradigms: objective or physical, beauty is an inherent quality of the landscape, and subjective or psychological, beauty is the product of the multisensory composition of the visual receptor (Lothian, 1999). However, according to the democratic view of landscapes established by the ELC (Gulinck et al., 2001; Sevenant and Antrop, 2009, 2010), they have to be evaluated by the general public (e.g. Arriaza et al., 2004; Brown and Brabyn, 2012; Dramstad et al., 2006) instead of by a group of experienced observers (e.g. Amir and Gidalizon, 1990; Bishop and Hulse, 1994) or its physical attributes (e.g. Otero Pastor et al., 2007).

This participative or psychophysical approach (Svobodova et al., 2012) evaluates different landscape types according to the people's preferences. Despite this a landscape is a product between their biophysical features and the human observer's response (Lothian, 1999; Daniel, 2001; Sun et al., 2001), we have to consider that, in the same way there are differences between people, there are also differences in their visual preferences according to their economic, sociological, physical, and psychological characteristics (Daniel, 2001; Lothian, 1999; Sevenant and Antrop, 2010; Tveit et al., 2006). Shafer and Brush (1977) were one of the first to evaluate the scenic perceptions of Adirondack's landscapes (USA) through 100 black and white photographs. Their survey was conducted with a random sample of 250 campers which had to score their landscape preferences on a scale ranging from 50 for the "least preferred", to 250 for the "most preferred".

Although several studies suggest similarities between observers' visual preferences regardless of their personal factors (e.g. Cañas et al., 2009; De La Fuente de Val and Mühlhauser, 2014), there is a general consensus that socio-demographic characteristics influence people's perception of a landscape (e.g. Misgav, 2000; Strumse, 1996; Tveit, 2009). However, in both aspects (dependent or independent of personal factors), we have to consider that due to the influence of cognitive motives (Webster and Kruglanski, 1994), variations between landscapes are generally greater than between observers (Daniel, 2001). Galloway (2002) split the different socio-demographic characteristics related to perception into two main groups: push factors, which included needs, personal values, and personality, and pull factors, features of the world, external to a person, which determine their behaviour. Among all the socio-demographic characteristics previously defined, e.g. place of residence (Misgav, 2000), place of birth (Dramstad et al., 2006), nationality (Buijs et al., 2009), occupation (Svobodova et al., 2012), social class (Howley, 2011) or motivational needs (Kaltenborn and Bjerke, 2002), in this paper we only consider age, gender and education owing to them being the main factors which influence personal landscape preferences (Aoki, 1999). In fact, these three socio-demographic characteristics are the most considered in studies related to people's landscape preferences (e.g. De La Fuente de Val and Mühlhauser, 2014; Muñoz-Pedrerros et al., 1993; Filova et al., 2015; Kalterbong and Berje, 2002; Sayadi et al., 2009; Svobodova et al., 2012; Tveit et al., 2009).

1.3. Landscape attributes, scenic beauty, and its evaluation

Assuming that visual preferences depend on personal characteristics, literature also indicates that there are several general landscape attributes related to scenic beauty in a positive way – e.g. water features (Arriaza et al., 2004; Wu et al., 2006), vegetation (Misgav, 2000; Dramstad et al., 2006), cultural man-made elements (Bulut and Yilmaz, 2008; Arriaza et al., 2004; Tempesta, 2010), slopes (Bulut and Yilmaz, 2008; Bishop and Hulse, 1994) – or in a negative way – e.g. man-made elements (Bulut and Yilmaz, 2008; Wu et al., 2006). However, these studies related to the landscape's human activities, physical attributes, and biotic attributes (according to the categories established by Otero Pastor et al., 2007) have three main weaknesses: (1) the influence of each attribute on visual preference is not clear (Williams et al., 2007), (2) attributes can describe landscape but do not reflect human perceptions (Schirpke et al., 2013), and (3) most importantly, its influence depends on the location (Bulut and Yilmaz, 2008).

Regardless of the importance and composition of the different attributes within a landscape, in this work it will be evaluated according to the people's preferences expressed by scenic beauty. In this way, we understand scenic beauty as "a particular response to the effect of the observed landscape scenes"; it is a measure of agreeableness, or how much the subject likes the scene (De La Fuente de Val and Mühlhauser, 2014). Despite the fact that several studies have evaluated in situ (e.g. De La Fuente de Val and Mühlhauser, 2014; Sevenant and Antrop, 2009; Bulut and Yilmaz, 2008) the relationship between a landscape's scenic beauty and socio-demographic factors, planning, doing, and analysing face to face surveys is an expensive and time consuming process which requires more specialist skills (Lothian, 1999). On the other hand, some papers (Bishop, 1997; Roth, 2006; Wherrett, 1999) have shown that the Internet is a valid substitute for conducting studies of perception with similar results to face-to-face surveys (Lindhjem and Navrud, 2011). However, even though the Internet is an appropriate medium to undertake visual preference surveys, and one which has improved over time (Roth, 2006), there are still several issues which should be considered: (i) effects of monitor resolution and colour resolution can distort the image quality (Wherrett, 1999), (ii) the sample profile is more related to Internet users than general public (Roth, 2006; Wherrett, 1999), (iii) people which score landscape images after having visited them probably overestimate their scores because they remembered their on-site experiences instead of judging the photographs (Roth, 2006).

According to Tahvanainen et al. (2001), when a survey is carried out, it is better to use visual presentations than verbal questions, because the image shown can be different to the respondent's mental composition and, by extension, can condition their visual preference. Although representing a landscape through photographs has some limitations (Daniel, 2001; Palmer and Hoffman, 2001; Steinitz, 2001), it is the most frequently used and valid methodology for the aesthetic evaluation of a landscape (Barroso et al., 2012; Daniel, 2001; Palmer and Hoffman, 2001; Steinitz, 1990). In fact, photographs of landscapes have been applied as perceptual stimuli in different locations with different landscapes and respondents' socio-demographic characteristics (e.g. Sevenant and Antrop, 2010; Svobodova et al., 2012; Schirpke et al., 2013), including the Mediterranean area (e.g. Arriaza et al., 2004; Gómez-Limón and de Lucio, 1999; De La Fuente de Val and Mühlhauser, 2014; Sayadi et al., 2009; Muñoz-Pedrerros et al., 1993). However, in Mediterranean areas the studies are more focused on evaluating the visual preferences of the observers and their relationship with different landscape attributes such as water, vegetation or man-made elements (Arriaza et al., 2004), landscapes' scenic beauty (Muñoz-Pedrerros et al., 1993), agricultural crops (Sayadi et al., 2009), or land use (Gómez-Limón and de Lucio, 1999), than with the socio-

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