

Document Version

Accepted author manuscript

Citation (APA)

Poplin, A., Andrade, B., & Mahmud, S. (2021). Exploring Tangible and Intangible Landscapes of Evocative Places: Case Study of the City of Vitória in Brazil. In D. Edler, C. Jenal, & O. Kühne (Eds.), *Modern Approaches to the Visualization of Landscapes* (pp. 517-545). (RaumFragen: Stadt – Region – Landschaft). Springer. https://doi.org/10.1007/978-3-658-30956-5_29

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

In case the licence states “Dutch Copyright Act (Article 25fa)”, this publication was made available Green Open Access via the TU Delft Institutional Repository pursuant to Dutch Copyright Act (Article 25fa, the Taverne amendment). This provision does not affect copyright ownership.
Unless copyright is transferred by contract or statute, it remains with the copyright holder.

Sharing and reuse

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

Exploring Tangible and Intangible Landscapes of Evocative Places: Case Study of the City of Vitória in Brazil

Alenka Poplin, Bruno de Andrade, Shoib Mahmud

Abstract

This paper explores tangible and intangible characteristics of places. It concentrates on gathering characteristics, emotions, memories and stories related to self-selected evocative places in a city. Evocative places are defined as places that evoke images, memories or emotions. There are two goals identified for this article. The first goal is to study which words citizens use to describe the main characteristics of their self-selected evocative places. The second goal is to map emotions associated with the self-selected evocative places. The case study selected in this research is the city of Vitória in Brazil. We collected 192 evocative places and their characteristics with the help of an online mapping platform that links an online questionnaire with an interactive map. This paper summarizes the main results gathered empirically about evocative places in Vitória, their characteristics and the emotions felt at these places. These places are then mapped in a geographic information system (GIS) in order to understand their locations and concentrations. On the basis of this empirical work in Vitória, and the work accomplished in the cities of Hamburg (Germany), Vienna (Austria), Ames and Grinnell (both Iowa, USA), we also designed and expanded the conceptual model of evocative places presented in this paper for the first time. The conceptual model includes four main categories with which an evocative place can be described including its physical

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

characteristics, experiences, senses and values. We conclude the article with a discussion and further research directions.

Keywords: place characteristics; place experiences; emotions felt at places; conceptual model of evocative places; City of Vitória, Brazil

1 Introduction

People and places interact to form the experience. By better understanding components that contribute to positive place experiences, designers can create spaces that promote comfort, a sense of belonging, and a bond between people and places (Waxman 2006). What are the characteristics of places that may evoke positive emotions and contribute to increased happiness of the citizens? How do these characteristics affect people, the inhabitants of these cities and their affective states? This research aims to contribute to these discussions. The study concentrates on how people feel at certain places and focuses especially on public places that evoke images, memories and emotions. They are called evocative places. Research presented in this article builds on previous literature in this area (de Andrade and de Almeida 2016; de Andrade 2019; Poplin 2017, 2018, 2020). Recent discussions on happiness and happy places/cities have intensified and resulted in the first World Happiness Report being published in 2012 in support of the UN High Level Meeting on happiness and well-being (Helliwell et al. 2019). Happiness has been considered as an important measure of social progress and one of the goals of public policy. The OECD is also committed to put people's well-being and happiness at the center of public policy and governments' efforts (OECD 2017). Paying more attention to emotions, affects, and to happiness should be part of our efforts to achieve both human

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

and sustainable development (Helliwell et al. 2017). The way we design places and our communities plays an important role in how we experience our lives (Walljasper 2017).

This study concentrates on the city of Vitória in Brazil as one of the co-authors of this article studying the heritage and values (de Andrade and de Almeida 2016, de Andrade 2019) of this city initiated this additional research on evocative places for the same city. We explore the image of the place as remembered, memorized, stored by their citizens. What do they recollect and associate with their self-selected places? What are the main characteristics of these places and which emotions and stories can they share in relation to these places?

The research methodology uses an online interactive map-based platform for data collection called maptionnaire (Maptionnaire, 2020). The platform combines an interactive map with a questionnaire and saves the data in the back-end of the platform. This data can then be downloaded and imported in a geographic information system (GIS) which enables to visualize the collected data on maps.

There are two main results of this paper. The first one is the conceptual model for evocative places, places that evoke emotions, images and memories. It is based on a set of experiments conducted by the main author of this article in different cities, countries and continents (Poplin 2017, 2018, 2020). The experiments conducted in Vitória add dimensions to the model from the perspective of South American continent. The second result one are the collected evocative places in the city of Vitória and the intangible landscapes of emotions associated with these places and mapped for this city. Intangible landscapes in this context refer to landscapes to which certain meaning, memory, lived

experience and attachment, in relation to people's connection to locality and landscape, can be traced, detect, and even map and/or analyse (Müller 2008). With the research on evocative places we aim to contribute to a better understanding of intangible dimensions of places including emotions and how are they related to the characteristics of places and activities people perform at these places. It also contributes to the discussion about places and the way we can structure and organize the knowledge and descriptions of places.

2 *Literature review*

2.1 *Defining the notion of a place*

Cresswell (2004) in his book *Place: a short introduction* reviews the concepts and definitions of place and makes a clear distinction to space, landscape and location. According to him, places are “spaces that people have made meaningful” (Cresswell 2004, p. 8); a place is therefore defined as a meaningful location. “As well as being located...places must have some relationship to humans and the human capacity to produce and consume meaning” (Cresswell 2004, p. 8). A place can be described as the intersection of a setting’s physical characteristics, a person’s individual perceptions, and the actions or uses that occur in a particular location (Bonnes and Secchiaroli 1995; Bott et al. 2003; Canter 1977; Pretty et al. 2003).

People establish relationships with places and we may talk about people-place bonding or an attachment to location (Altman and Low 1992). Place attachment can be considered as an interplay of emotions, knowledge, beliefs, and behaviors in reference to a place (Low and Altman 1992; Proshansky et al. 1983; Waxman 2006). The word *attachment*

refers to affect while the word *place* refers to the “environmental settings to which people are emotionally and culturally attached” (Low and Altman, 1992, p. 5). When relationships develop between people and places, the result is often a feeling of place attachment. “Places root us - to the earth, to our own history and memories, to our families and larger community” (Cooper-Marcus and Francis 1998, p. xi). Tuan (1980) suggested the existence of a state of rootedness in which one’s personality merges with one’s place.

2.2 *Place experience and restorative experience*

People and place interact together to form the experience. The experience of place is unique to each individual and is directly related to his or her lived experiences and personal disposition. Yi-Fu Tuan (1977) writes that people construct their reality through their experience. The experience can range from “more direct and passive senses of smell, taste, touch, to active visual perception and the indirect mode of symbolization” (Tuan 1977, p. 8), and is “compounded of feeling and thought”. Steele (1981) distinguishes among immediate feelings and thoughts, views of the world, intimate knowledge of one spot or location, memories or fantasies, and personal identification.

Places can also denote emotional support, restorative experience or fulfill people’s emotional needs (Kaiser and Fuhrer 1996). We may talk about restorative experiences found and felt in specific places when people seek places to recharge or recuperate which may sometimes happen after traumatic, difficult or negative experience in their lives. Restorative experiences of these places may involve positive mood changes, positive sensations, or feelings of being at peace or even experiencing the feeling of happiness.

2.3. *Place and emotions*

In environmental psychology, research on emotions and affect are considered important topics (Kaplan and Kaplan 1989; Kaplan 1995; Korpela et al. 2001; Korpela 2012; Russell and James 2003; Russell and Pratt 1980). “*Affect is central to conscious experience and behavior in any environment, whether natural or built, crowded or unpopulated. Because virtually no meaningful thoughts, actions, or environmental encounters occur without affect*” (Ulrich 1983, p. 85). In addition, the cognitive component is of considerable value in experiencing the physical environment as well (Ittelson 1973, Russell and Pratt 1980). In recent studies by Shoval, Zeile and their collaborators (Shoval et al. 2018; Zeile et al. 2016), researchers study objective and subjective measurement methods for recording emotions in the cities, which is not an easy task. How can you separate body sensations (usually measured) from the emotions and how can you identify those?

Schlosberg's (1954) was the first one that proposed a model which illustrates emotions in a circular form which represent the range of facial expressions. Figure 1 demonstrates the model taken from his original publication. The emotions are indicated on the ordinate with respect to their maximum level of activation (sleep-tension). “The top surface is sloped to show that anger and fear can reach higher levels of activation than can contempt. The other two dimensions are pleasantness-unpleasantness and attention-rejection (Schlosberg 1954).

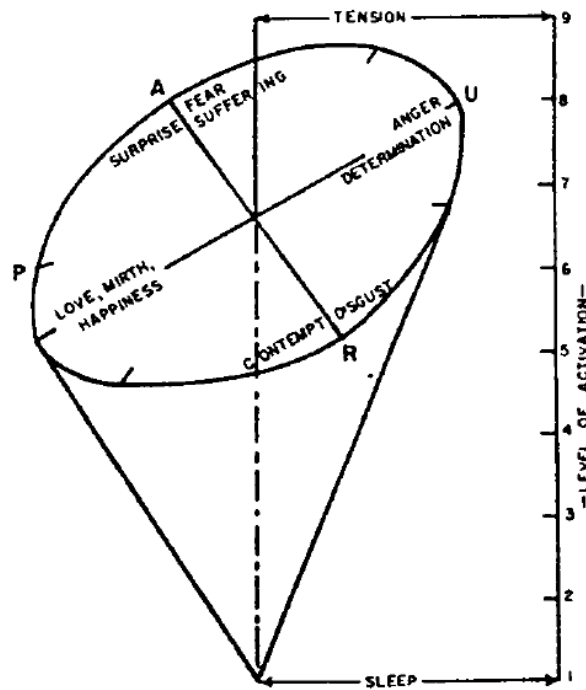


Figure 1. Schlosberg's model of emotions from 1954 (Schlosber 1954)

Inspired by Schlosberg's work Russell (1980) proposed *A Circumplex Model of Affect* that includes a two-dimensional space with eight variables arranged in a circle (Figure 2). The horizontal, east-west dimension is the pleasure-displeasure dimension. The vertical, north-south dimension is arousal-sleep dimension. The diagram introduces four quadrants. On the north-east we find excitement and the polar opposite is depression on the south-west. Distress is located on the north-west with its polar opposite, contentment, on the southeast. This model is still used today in social psychology to assess affect (Russell 1980).

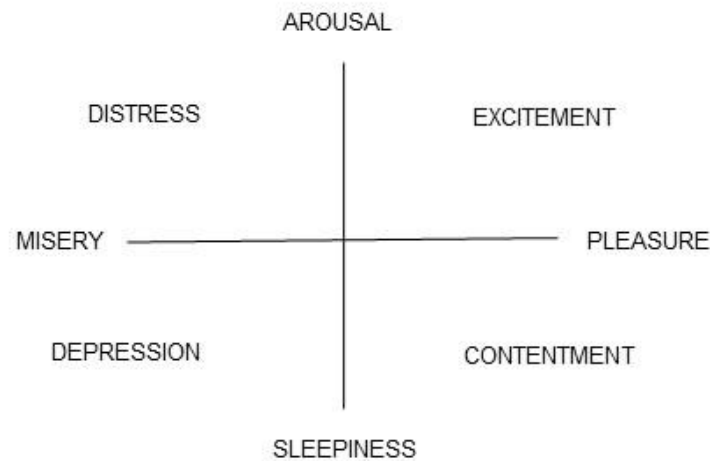


Figure 2. Russell's (1980) Circumplex model of affect, representing eight affect concepts in a circular order

2.4. *Place and values*

Place can also be looked from the perspective of values and memories. The division comes from the tangible perspective addressing the use of place and its material characteristics vs. its intangible nature of storing the memories, sense of belongings and collective values (Geddes 1949; Magnaghi 2005; Poli 2013; Poli 2015; Rossi 1982). The place as a collective heritage has a value of existence of an intangible dimension that concerns the transmission of the legacy of past generations towards the future, and a value of use as a resource that must support local development and ensure the reproducibility of historical narrative and active memory (de Andrade and de Almeida 2016, de Andrade 2019; Ecléa 1994; Pierre 1996). The collective values may encompass stories and memories attached to this place. We follow the distinction of the values of use from the values of existence. Values of use are material sediments, legacy objects of

morphology, physicality of place, and landscape. Values of existence are cultural and identities sediments, legacies of collective memory, symbolic values and characters of belonging (Magnaghi 2005). The moment a place and its utility (of use and of exchange) is revealed socially, it enters the collective memory and acquires a value of existence (Poli 2013). The value of use can be altered over time, but the value of existence remain because they relate to the symbolic representations of the place that are stored as an active memory in the narratives of everyday life and keeping the collective imagination alive.

3 *Research Focus and Methodology*

3.1. Research Goals: Evocative Places and their Characteristics

This study concentrates on positive places, places that evoke images, memories and emotions at which people can recharge, relax and recuperate. We call them *evocative places*. The definition of an evocative place is grounded in the conceptual literature on places (Tuan 1974, Tuan 1977, Tuan 1980, Cresswell 2004). An evocative place is defined as a meaningful location (Cresswell 2004, Authors' references), and by giving emotional/affective meanings to this place, people form place attachments (Low 1992). They construct places – and their reality – through experience (Tuan 1977) and their affect (Russell 1980). Therefore, evocative places are meaningful locations with which people associate meaning and affect as a result of their experience of this place.

There are two main research goals set for this article: a. to better understand locations and characteristics of evocative places in a city and to construct a universal model of an

evocative place that can be used across continents, countries, cultures, languages and cities; and b. gather and map the intangible landscapes of emotions associated with the self-selected evocative places. The result of the first goal is the conceptual model that aims to provide the so called “image of the place” a tool that provides categories with which an evocative place can be described. We call it The Conceptual Model of an Evocative Place. It not only includes the location of the place, but also its characteristics, experience, and values. The result of the second goal are maps of the selected city with locations of evocative places and analysis of the most commonly expressed emotions associated with these self-selected places.

3.2. Research Material and Methodology

The research methodology is concentrated around online data collection. The data collected are self-selected evocative places, their characteristics and emotions felt at these places. The main question asked for the self-selected evocative places was “Select a place in the city at which you can relax, recharge and at which you feel at peace”. The survey participants were given the link to the online survey and asked to respond to the online questions related to their self-selected evocative places. The online map-based survey consisted of the following main parts:

- a. Identify the location of self-selected evocative places and mark them on the online interactive map

- b. Describe the characteristics of the self-selected evocative places with your own words; choose up to three words that best describe your self-selected evocative place
- c. Choose the words that best describe the emotions felt at these places from the list of emotions; select up to three words for emotions from the list of emotions given to you in the survey
- d. Communicate which transportation mean is used to access the self-selected evocative places; choose among feet/walking, bike, car, public transportation or other
- e. Share personal stories, memories and values connected to the self-selected evocative place

The survey was implemented in Maptionnaire (Maptionnaire, 2020) environment, and can be accessed via the following link: The link to the online survey can be found at the following address <https://app.maptionnaire.com/en/3690>. This platform enabled to link a questionnaire with online interactive maps. The data collected was then stored in the back-end of the platform and accessible to the researcher for download. After the completion of the survey, the data collected had to be exported into the form of shape files or/and Excel spreadsheets.

3.3. Study Example: The City of Vitória

The selected study case for this research was the city of Vitória in Brazil. There are several reasons for this selection. The main reason was that we would like to expand research on evocative places to different continents and explore how people describe their

places and emotions in different continents, states and cities. This selection contributes to the expansion of the conceptual model of an evocative place that embraces the notions coming from different cultural backgrounds. The other, minor, reason is that one of the co-authors of the paper, at the time of writing this paper, lived and worked in this city.



Figure 3. The location of the city of Vitória (left) and a closer look into the city (©google maps)

The city of Vitória is the capital of the State of Espírito Santo state in Brazil (Figure 3). It is located on the eastern coast region of Brazil, with a 96,536 km² area, and 327.801 inhabitants according to the last census of the Brazilian Institute of Geography and Statistics in 2010 (IBGE 2010). The states of Rio de Janeiro borders on the south, Bahia borders on the north, and Minas Gerais borders on the west side of the city. The

history of the city goes back to the 16th century, when the king of Portugal, D. João III, divided the Brazilian lands into hereditary captaincies, and designated the nobleman Vasco Fernandes Coutinho to the Espírito Santo captaincy. In 1551, the Portuguese won a fierce battle against the Goytacaz Indians at the island across the bay where they first settled, and began to call the place Victoria, to honor this achievement/conquest.

There are several additional reasons for studying Vitória, including its history, its unique geographic configuration as an island surrounded by a bay and the sea, the increased altimetry as one approaches the center of the island, the currently forming extensive areas for the preservation of vegetation cover, as well as the raise of the informal settlements in the city. The iron ore industry, the agricultural products of the state's interior, and two important ports have been supporting the local economy. The city expanded in the last decade, including the emerging new green and public spaces on the waterfront making it increasingly attractive as a tourist destination.

3.4. Survey Participants

Table 1 summarizes the characteristics of our participants. Altogether, 73 inhabitants of the city of Vitória responded to the online survey. The majority of the participants (52 all together) were of the age group between 19 and 25 years old. If we add 11 participants in the age between 26 and 35 we understand that the survey mostly captures the responses of a young population of this city. This is comparable with other studies by the authors of this articles (Authors' references) which concentrated on interviewing the students. The majority of the participants were students (47) and part-time employees (12). The majority of the participants lives in Vitória since their childhood (34) or more than 5

years (12). This means that they know the city quite well and are suitable to participate in our online survey. The distribution among the gender groups is not completely equal; there are more female participants (50 all together) than male participants (18 participants). In the next data collection for the same city we will particularly target more male participants to get approximately equal number of both genders. For the purpose of this study, this inequality does not represent a problem.

Category	Count	Percentage
Age		
19-25	52	71.23%
26-35	11	15.07%
36-25	3	4.11%
46-55	2	2.74%
Not answered	5	6.85%
Total	73	100%
Gender		
Male	18	24.66%
Female	50	68.49%
Not answered	5	6.85%
Total	73	100%
Employment		
Student (Estudante)	47	64.38%
Full-time (Tempo Integral)	5	6.85%
Part-time (Tempo Parcial)	12	16.44%
Unemployed (Desempregado)	1	1.37%
Not Answered	8	10.96%
Total	73	100%
Years of living in the city		
Since Childhood (desde a infância)	34	46.58%
More than 5 years (mais de 5 anos)	12	16.44%
Between 2-5 years (entre 2-5 anos)	11	15.07%
Less than 2 years (menos de 2 anos)	7	9.59%
Not Answered	9	12.33%
Total	73	100%

Table 1. The main characteristics of the survey participants

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

4 Characteristics of Places: Conceptual Model of an Evocative Place

4.1. Locations and Concentrations of Evocative Places

Each participant of the online survey on evocative places could mark up to three self-selected evocative places. Figure 4 shows the locations of 192 collected evocative places in and around the city of Vitória. Each of the indicated evocative place is represented by a black dot.

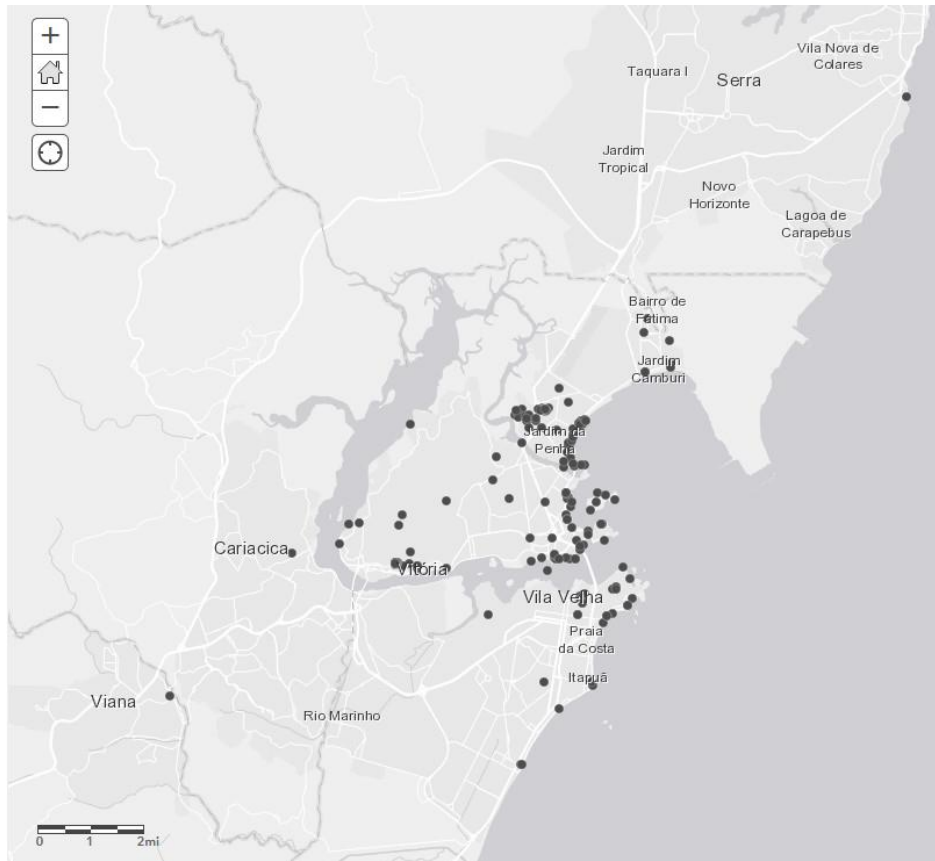


Figure 4. Locations of evocative places in Vitória, Brazil

The majority of the evocative places in Vitória is located at the waterfronts, in the southwest around the old town, in the southeast where the bay meets the ocean, in the northeast in the seashore, and at the university. Some evocative places can be found in

the hill's belvederes or homes with sea views. Some additional evocative places can be found on the south of the main city, in Vila Velha city. They mainly include the locations on the coast and a few of them in the nearby hills. These locations show a preference for the east region of the island close to the beaches, in contrast to the west region of the island. The eastern side is the richer part of the city, with well-functioning infrastructure and pleasantly arranged public spaces, in contrast to the poorer west part of the city, with precarious infrastructure and low quality public spaces.

The density analysis shows high concentrations of evocative places in darker colors (Figure 5) with a zoom-in into the most dense areas. It suggests one very highly concentrated area and four emerging areas with high concentrations of evocative places.

These five emerging high concentration areas include:

- Northeast – the highest concentration (the top of the map, Jardim da Penha). Jardim da Penha is a university neighborhood, predominantly residential. Many students that study and work at the Federal University of Espírito Santo, a big campus to the west, live in this area.
- West – the second highest concentration (next to the name Vitória). This is the old center/town of Vitória, where the city was first built. There is a “lower city” with reclaimed land and an “upper city” containing the eldest architecture ensemble. It is a predominantly commercial area.
- East along the coast (central). From south to north: Curva da Jurema, Praia do Canto and Jardim da Penha. The two islands (predominantly residential) are Ilha do Boi (south) and Ilha do Frade (north). They represent the main beachside area full of parks and infrastructure for recreation.

- Southeast (Vila Velha). This neighborhood is called Praia da Costa and it is the most often visited place in Vila Velha city. It is also located near the Convent of Penha. Praia da Costa includes a hill called Morro do Moreno; a place for the citizens to hike, walk the trail, or climb. It has an amazing view of both cities Vitória and Vila Velha.
- Northeast (Jardim Cambury). Jardim Camburi is predominantly residential area, with a lot of green areas between Jardim da Penha and the airport.

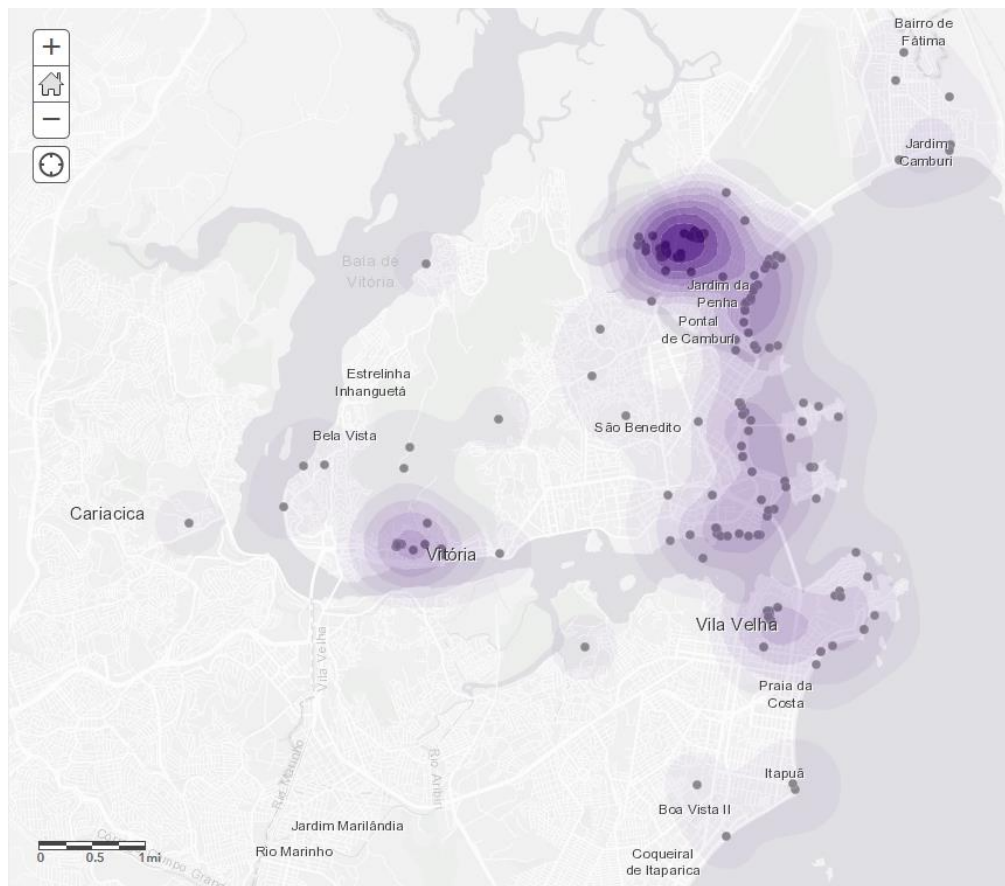


Figure 5. Density analysis of the evocative places in Vitória (authors' analysis)

4 *The Conceptual Model of an Evocative Place*

4.1. *Descriptions of evocative places in Vitória*

The participants of our online survey were free in choosing three words that best describe their self-selected evocative place; there was no taxonomy for these descriptions available to the participants. They were given the freedom of inspiration to choose up to three words of their choice that best describe their self-selected evocative place in Vitória. We ended up with more than 800 words for characteristics of evocative places. Studying the collected words we searched for similarities and possibilities to form categories. The result of our study was a definition of four main groups of characteristics, which included Characteristics, Experiences, Senses and Values. The category Characteristics includes the physical characteristics of an evocative place. In the case of the City of Vitória, the different objects (benches, buildings, fountains, etc.) of places play an important role. The next categories are blue and green spaces in which the blue spaces represent the presence of the sea and the element of water, and the green spaces include the nature and parks.

The second category is Experience. Other mapping experiments executed in Hamburg, Germany and Ames, Iowa USA confirm that *experiences* are very important characteristic of an evocative place (Poplin 217, 208, 2020). They seem to be the most important across cultures and continents, which is a significant finding. It is not just the objects, or infrastructure that makes up an evocative place. It is the experience with its variety consisting of the activities that can be performed at an evocative place (paddling,

yoga, meditation, jogging, socializing), experience of healing and restoration (...the square offers an opportunity to contemplate about life), emotions expressed and felt as part of the experience (a place without worry and for pure pleasure), and different stimulations experienced at a place.

The participants in Vitória used the most words (38.6%) to describe the experience of their self-selected evocative place. This additionally communicates how important experience of a place is. Tables 2-5 show some examples of such experiences combined with the information from the stories shared with the experimenters by the inhabitants of the city of Vitória.

Original examples in Portuguese	Translated into English
<p><i>Costumo fazer Stand-up na praia e vislumbrar a incrível paisagem de Vitória, a água, as ilhas, as áreas verdes, os edifícios e as pessoas relaxando, fazendo esportes ou socializando. Costumo correr na orla também, e encontrar os amigos.</i></p>	<p>I usually stand at the beach and glimpse the incredible landscape of Vitória, the water, the islands, the green areas, the buildings and people relaxing, doing sports or socializing. I often run at the waterfront, and meet friends.</p>
<p><i>Costumava ir até o Parque da Pedra da Cebola para grupos de meditação, yoga, e de estudos. Ia também para namorar e encontrar amigos, por exemplo, para um pique-nique.</i></p>	<p>I used to go to the Pedra da Cebola Park for meditation, yoga, and study groups. I go there to date and meet friends, for example, for a picnic.</p>

Table 2. Category Experience- Activity

Original examples in Portuguese	Translated into English
<p><i>Minha mãe trabalhava no décimo segundo andar de edifício, de onde se avistava a praça. Cresci experimentando as sensações de vivenciá-la na rua e do alto. Hoje, está circunscrita no perímetro de minha pesquisa de mestrado. A praça traz oportunidade à contemplação da vida da cidade, concentrada em um espaço atrativo e de qualidade ímpar.</i></p> <p><i>Compartilho conversas com pessoas especiais e recarrego as energias quando vou sozinho.</i></p>	<p>My mother used to work on the twelfth-floor of the building, from which the square was visible. I grew up experiencing the sensations of the street and of their healing effects. Today, it became part of my master's thesis research. The square offers an opportunity to contemplate about the life of the city, concentrated in an attractive space of a unique quality.</p> <p>I share conversations with special people and recharge my energies when I am alone.</p>

Table 3. Category Experience – Restoration/Healing

Original examples in Portuguese	Translated into English
<p><i>O lugar não é importante para mim, mas as emoções proporcionadas por ele sim. A possibilidade de contemplar a paisagem de Vitória e Vila Velha, sem preocupação e por puro prazer, transformou o local numa espécie de "espaço seguro", um espaço onde em momentos em que muitos sentimentos vem à tona recorro à ele para que possa refletir e buscar a tranquilidade para retomar os rumos e objetivos com clareza.</i></p>	<p>The place is not important to me, but the emotions provided by it are. The possibility of contemplating the landscape of Vitória and Vila Velha, without worry and for pure pleasure, transformed the place into a kind of "safe space", a space where in moments when many feelings come up I turn to it so that it can reflect upon them and I can seek the tranquility to return to my courses and objectives with clarity.</p>

Table 4. Category Experience – Emotions felt at the place

The third category are Senses. *Senses* can be visual, they can include sounds, smells, or tastes. We added tastes after conducting experiments in Vienna (a study not yet published) where people would often mention food as something that is memorable and they can associate an evocative place with. Sometimes people sense and notice temperatures that affect them in certain ways. An example of the expressed senses:

- “*Gosto de lembrar do cheiro da maresia associado aos peixes dos pescadores, gosto de contemplar a bela vista, fotografar*” [I like to remember the smell of the sea associated with the fish of the fishermen, I like to contemplate the beautiful view, to photograph];

- “*É um local onde sento pra desacelerar e ver a vida passar*” [It's a place where I sit to slow down and watch life go by];
- “*Por ser próximo à praia, normalmente há vento, o que me ajuda ainda mais a respirar fundo e diminuir a velocidade da vida*” [Being close to the beach, usually there is wind, which helps me to breathe deeply and slow the pace of life].

Original examples in Portuguese	Translated into English
<i>Primeiro lugar que conheci no Centro Histórico de Vitória, fiquei impressionado com a variedade de épocas refletidas nos edifícios e em outros elementos do bairro num espaço relativamente pequeno</i>	First place I met in the Historic Center of Vitória, I was impressed with the variety of times reflected in the buildings and other elements of the neighborhood in a relatively small space.
<i>Gosto de caminhar no calçadão, sentar no banco e ficar contemplando com gratidão a Deus esse lugar lindo.</i>	I like to walk on the sidewalk, sit on the bench and contemplate with gratitude to God this beautiful place.

Table 5. Category Experience – Stimulations

The last category are Values. **Values** can be associated with attachment, memories and stories, an intangible dimension that makes a place. An example of values as expressed by the inhabitants of Vitória:

- *Levo minha filha para brincar. Meus pais me levavam quando criança. Um lugar lúdico e histórico, carregado de simbolismos e de memórias* [I take my daughter

here to play. My parents took me when I was a child. A playful and historical place, loaded with symbolism and memories];

We summarize the number of responses for all 192 evocative places captured for the city of Vitória in Table 6. The numbers in the table indicate how often each of the categories were mentioned on the first, second or third level in the online survey and summarizes the percentage of each of the categories used in the inhabitants' descriptions.

	Char 1	Char 2	Char 3	Sum	Percentage	Sub-total
CHARACTERISTICS						
Green Space	40	24	10	74	14.9%	
Blue Space	31	7	4	42	8.5%	
Object	16	6	2	24	4.8%	
Subject	0	5	1	6	1.2%	
Infrastructure	5	17	11	33	6.7%	
Openness	1	2	3	6	1.2%	
Accessibility	1	0	2	3	0.6%	
						38.0%
EXPERIENCES						
Activities	15	28	20	63	12.7%	
Healing/Restoration	1	0	1	2	0.4%	
Emotions	42	48	30	120	24.2%	
Stimulation	1	2	3	6	1.2%	
						38.6%
SENSES						
Visuals	17	13	10	40	8.1%	
Sounds	1	2	4	7	1.4%	
Smells	2	1	1	4	0.8%	
Temperatures	3	15	11	29	5.9%	
						16.2%
VALUES						
Memories	0	1	1	2	0.4%	
Attachments	10	8	7	25	5.1%	
Stories	4	4	1	9	1.8%	
						7.3%
SUM	190	183	122	495		100%

Table 6. Descriptions of evocative places gathered for Vitória, Brazil

The physical characteristics and experiences are almost equally important to the citizens of Vitória. The most important category are Experiences and in this category the emotions that the citizens can feel and experience at their self-selecting evocative places. Among Characteristics, green and blue spaces are the most valuable to the citizens of Vitória. Experiencing positive visual impressions is also very valuable to the citizens.

4.2. *The Conceptual Model of an Evocative Place*

The conceptual model as presented and discussed in this section is based on the experiments in the City of Vitória, Brazil presented in this article, and additional experimental work on evocative places in Hamburg, Germany (Poplin 2017, 2018), Ames, Iowa, USA (Poplin 2018, 2020), Grinnell, Iowa and Vienna, Austria (by Poplin, studies not yet published). It is designed by the main author of this article and may serve as a useful tool that can help researchers and practitioners describe evocative places. It also contributes to a better understanding of how evocative places can be described and what constitutes a place that may evoke positive emotions. What are the noticeable and felt elements of a place? How people describe evocative places. The conceptual model summarizes categories with which evocative places can be described on different continents taking into account different cultures and languages. The categories listed were added as a result of conducting experiments on evocative and power places in Europe, North America and South America. This is also the current limitation of the model as it has not yet been tested in other regions and/or continents.

It is the result of our numerous experiments on evocative places and our attempt to provide a taxonomy for the descriptions of evocative places. A structure that can be used

by other researchers and practitioners while referring to evocative places. It is also useful for researchers on places and place-making as the majority of such places can be categorized as evocative places. Figure 6 summarizes this effort. We entitled it *The Conceptual Model of an Evocative Place*.

The descriptions starts with a geographic location. Every place has a location. The location is the only physical and rational dimension of a place that can be mapped and described with coordinates representing a location on Earth. All other elements of a place – including characteristics, experiences, senses and values – are subjective and depend on the human being observing, sensing and remembering.

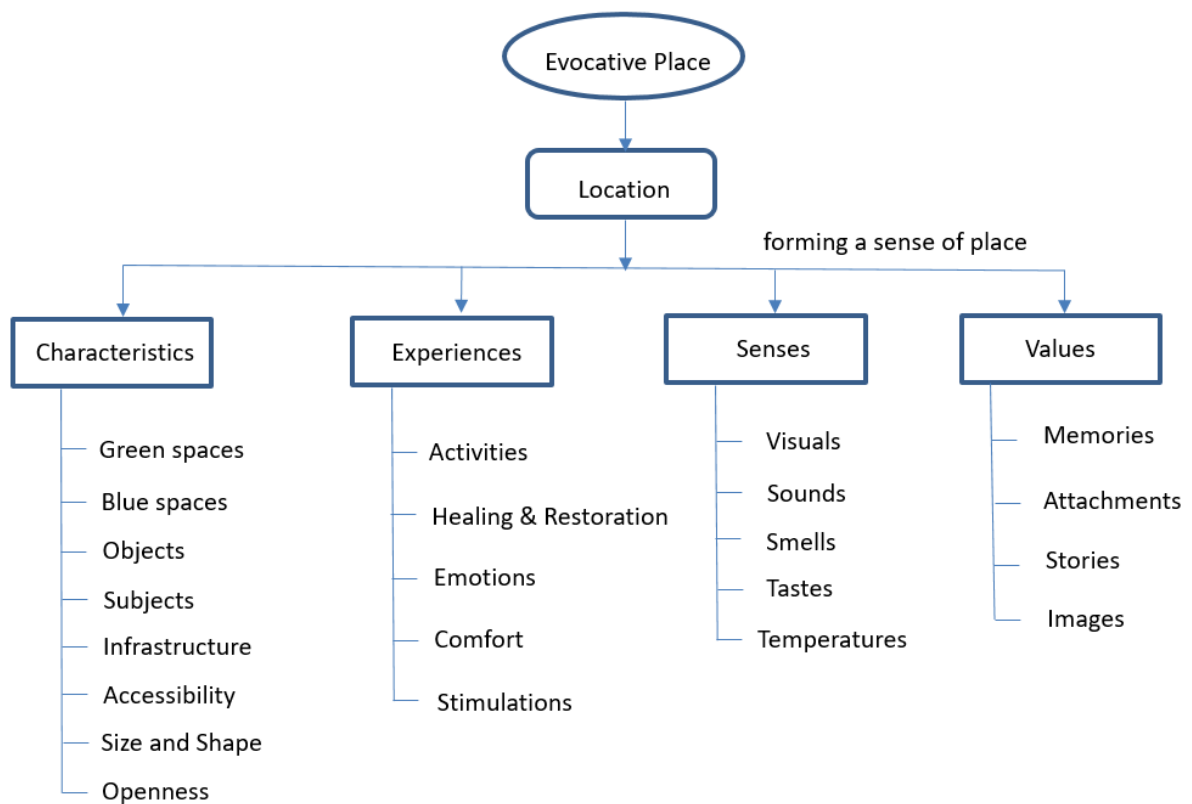


Figure 6. The Conceptual Model of an Evocative Place

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

Characteristics. This category includes the physical characteristics of a place; that which is tangible and visible. These physical characteristics may include *green areas* such as parks, meadows, trees, or flowers. *Blue spaces* include water in many different forms. Water is a significant element of many places and may include fountains, rivers, lakes, canals, waterfronts, or oceans. Places usually consist of *Objects* such as benches, buildings, swimming pools, restaurants, coffee places, libraries, university buildings or other objects. People – *Subjects* - many times add to the value of place, and on the contrary, often the absence of people may have a special meaning contributing to the place to be more serene and tranquil. An important part of every place is its *Infrastructure* that can come in the form of paths, roads, streets, or trails. The *Accessibility* of a place indicates how can this place be physically accessible. Every place also has its *Size and Shape* that may be important to humans. How open is the place; *Openness* is a characteristic of a place important to some of their users.

Experiences of a place are related to some intangible characteristics of a place and may include activities, healing and restoration, emotions, comfort or stimulation. *Activities* describe the activities the (power) place enables and may include jogging, walking, swimming, reading, studying or other activities. Some places have *Restorative, Healing effects* on people in that they enable a transformation of negative, traumatic, painful feelings into positive, peaceful, or contented states. These may be places of meditation, inner peace, tai chi movements, or just walking and observing the healing power of a green color. *Emotions* are the emotions this place evokes. Experiences also

includes the level of *comfort* at this place and the *stimulation* people experience by this place which can be motivating, fun, inspiring or invigorating.

Senses. This category includes the methods of perceptions which can be visual observing, *Visuals* – visual impressions – through their sight. Places may be significant due to their *Sounds* or *Smells*. *Tastes* refers mostly to food found at evocative places that may be significant. *Temperatures* are felt by people as well and they may describe places as warm, or with nice and pleasant temperatures.

Values. Places may have historical values, or personal values. These values can be tangible or intangible. They may include *Memories* of what a person experienced at this place that can also form an *Attachment* demonstrating its significant imprint. People may have *Stories* connected to this particular place they may want to share with others and are specific for this particular place.

5 *Emotions of Evocative Places in the City of Vitória*

5.1 *Prevailing Emotions in the City and their Locations*

The words for emotions were given to the survey participants as a list of words (Table 7). This taxonomy of emotions was taken from the book titled *Non-violent communication* written by Rosenberg (Rosenberg 1999). For the purpose of this study, the taxonomy including all the words for emotions were translated into Portuguese.

AFETUOSO	EMPOLGADO	INEBRIADO
compassivo	impressionado	maravilhado
amigável	animado	extasiado
amoroso	acalorado	eufórico
aberto	desperto	encantado
bondoso	estupefato	exuberante
simpático	deslumbrado	radiante
tenro	ávido	extático
caloroso	energizado	emocionado
ENGAJADO	entusiasmado	TRANQUILO
assimilado	contente	calmo
alerta	revigorado	lúcido
curioso	vivo	concentrado
absorto	apaixonado	confortável
encantado	surpreso	centrado
em transe	vibrante	contente
fascinado	AGRADECIDO	preenchido
interessado	apreciativo	suave
intrigado	comovido	quieto
envolvido	grato	relaxado
enfeitado	tocado	aliviado
estimulado	INSPIRADO	satisfeito
ESPERANÇOSO	impressionado	sereno
expectante	admirado	silencioso
encorajado	maravilhado	tranquilo
otimista	ALEGRE	confiante
CONFIANTE	divertido	REVIGORADO
empoderado	encantado	vivificado
aberto	contente	rejuvenescido
orgulhoso	feliz	renovado
à salvo	jubiloso	descansado
seguro	satisfeito	restaurado
	cativado	revivido

Table 7. The list of emotions according to Rosenberg (1999) translated into Portuguese

The participants were able to use this taxonomy as part of their online survey and choose the words that best describe their emotions felt at their self-selected evocative places. Table 8 summarizes the categories of the emotions and how often they were selected by the citizens. The majority of the participants feel peaceful (28.4%) at their evocative places. In contrast to that, others feel excited (20.7%) which is an indication of energy and stimulation of evocative places for the students in this city. These were the prevailing categories of emotions selected by the participants. If one adds the percentage of the students that feel engaged (8.9%) we end up with 29.6% of the students being

excited and engaged at their evocative places. This demonstrates a high level of engagement, stimulation, and excitement in the city. Energy is in the air in this city!

Category of Emotion	Emo 1	Emo 2	Emo3	Sum	Percentage
Peaceful	43	61	56	160	28.4
Excited/Empolgado	45	41	31	117	20.7
Engaged/Engajado	13	22	15	50	8.9
Confident/Confiante	17	12	15	44	7.8
Joyful/Alegre	7	16	16	39	6.9
Affectionate/Afetoso	19	5	9	33	5.9
Grateful/Agradecido	9	8	13	30	5.3
Inspired	14	3	12	29	5.1
Exhilarated/Inebriado	5	12	5	22	3.9
Refreshed	8	2	12	22	3.9
Hopeful	6	6	2	14	2.5
Restored	1	3	0	4	0.7
Sum	187	191	186	564	100

Table 8. Emotions felt at evocative places in Vitória, Brazil

We mapped these categories on a map and visualized the top four categories of emotions. Figures 7-10 demonstrate the locations of the evocative places according to the most often selected categories of these emotions. The maps with data and visualizations can be found online in ArcGIS Online under the following link: <https://arcg.is/eeCz5>. The company ESRI provides the base maps for these maps.

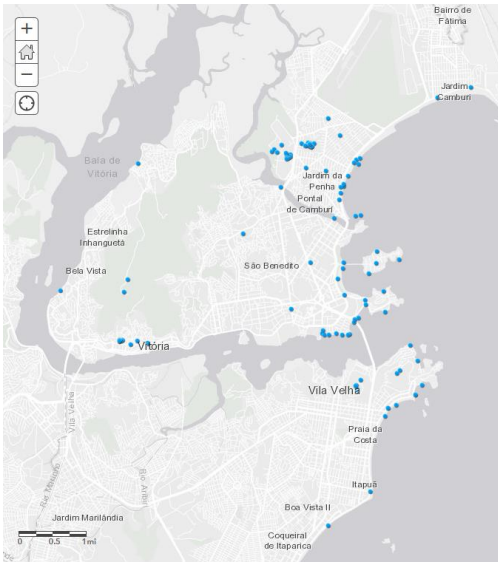


Figure 7. Evocative places at which citizens feel 'PEACEFUL'

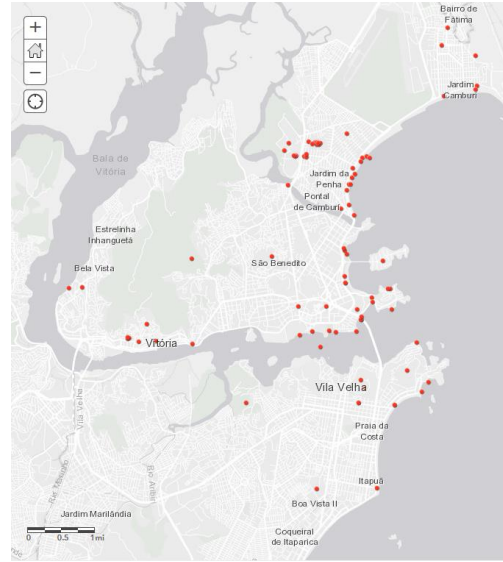


Figure 8. Evocative places at which citizens feel 'EXCITED'

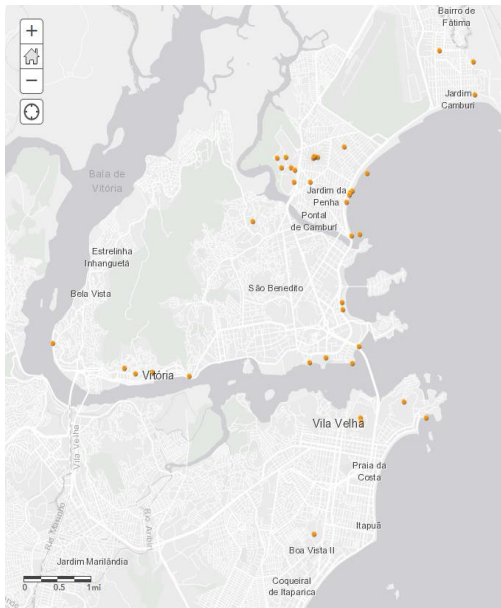


Figure 9. Evocative places at which citizens feel 'ENGAGED'

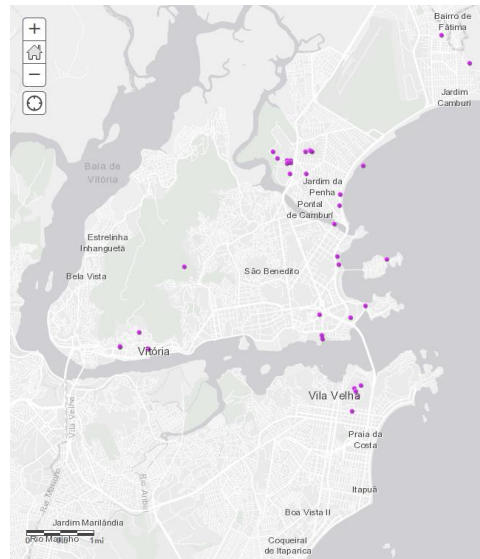


Figure 10. Evocative places at which citizens feel 'CONFIDENT'

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

The majority of the “peaceful” emotions can be found near the coast, close to the ocean, at the beaches. Additionally, the area Jardim da Penha on the north of the city, is the source of feeling peaceful as well. The citizens/students feel excited at a variety of locations across the city area. Engaged they feel mostly in two areas in the north, namely Jardim da Penha and Jardim Camburi. The locations for the feeling “confident” mainly concentrate in the area Jardim da Penha, at some beach locations and in Vila Velha.

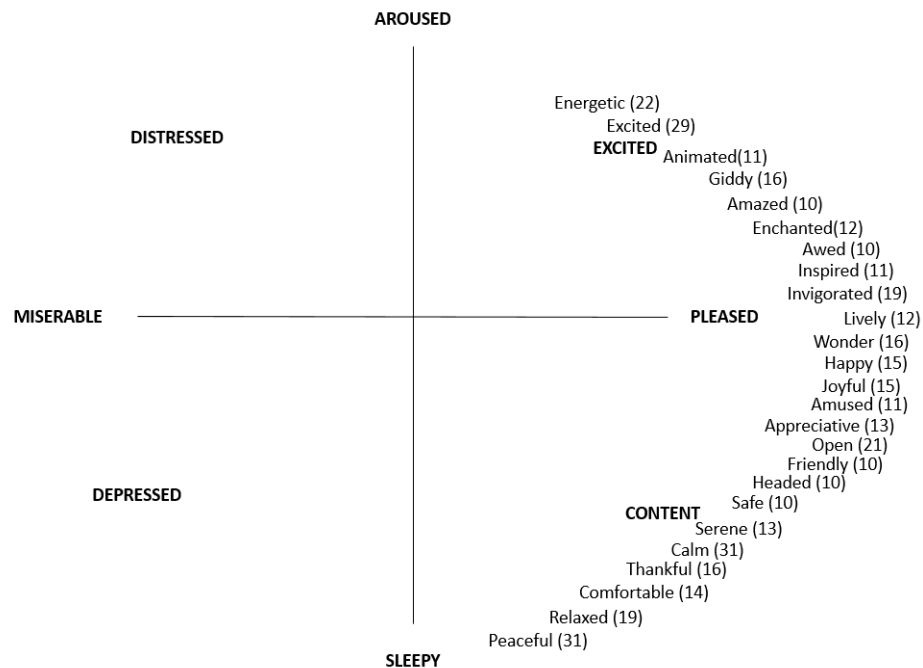


Figure 11. Emotions expressed in Vitória, Brazil organized in Russell’s (1980)

Circumplex model of affect

The most often selected emotions were calm, tranquil, energetic, open, invigorated, relaxed, giddy, thankful, wonder, happy, comfortable, appreciative, and serene. We represent the emotions selected in the Russell’s (1980) Circumplex model of affect. The model represents eight affect concepts in a circular order (Figure 11). All

emotions mentioned more than ten times are represented in the model with the number of mentions indicated in the brackets. All mapped emotions can be found on the positive axis. The majority of the emotions can be found in the quadrant pleased – aroused and pleased – sleepy.

5.2. *Conclusions Related to the City of Vitoria and How Can Planners Use this Information*

What can landscape architects, urban planners, designers and architects learn about the most evocative place in the city of Vitoria? How can they use this analysis and the knowledge provided in this research? Knowing the evocative places and their high concentrations in the cities can provides a useful feedback to them learning about the places at which the citizens feel positive emotions. What can they learn from such places? As an example in this research, the city's neighborhood Jardim da Penha represents the highest concentration of evocative places. Figure 12 shows the location of the neighborhood.



Figure 12. Jardim da Penha (©google maps)

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

Figure 7 also shows a very specific street design. It is a design that has been carefully planned and designed. Figure 8 shows a detail of this planning. The streets end in a concentric circle; in the middle of this circle is a park which is a public space available for the citizens to socialize, meet and enjoy the public space for their own use. It is an example that is successful and could be replicated in other neighborhoods or cities. This is also something that needs to be studied further. How do these publically available spaces contribute to a better quality for life for the citizens and their happiness in the city in which they live? The city is car-centered, but these parks in the middle represent the possibility for the citizens to walk and have an experience of a walkable part of the city. One can imagine moms and dads bringing their children to play there, or students bringing their books to study, elderly to sit and observe others, have a good chat or place to read and socialize.



Figure 13. Street design in Jardim da Penha neighborhood (@riamscheidegger)

6 *Discussion and Conclusions*

The study presented focuses on evocative places, places that evoke positive affect and attempts to contribute to a better understanding of how people express emotions related to places and which emotions do they associate with their self-selected evocative places. This article summarizes characteristics and emotions felt at 192 evocative places in the City of Vitória in Brazil. One of the significant results of this article is *The Conceptual Model of an Evocative Place* which adds additional elements for the descriptions of evocative places. It aims to provide cross-cultural and multi-dimensional ways of describing evocative places. The conducted experiments in Europe (Poplin 2017, 2018), in North America (Poplin 2018, 2020) and South America (this article) show the importance of tangible/physical and intangible/non-physical characteristics of evocative places. Often, the intangible characteristics become the most important category as the majority of our participants/inhabitants of the city express appreciation of their experience at these places as being the most important category with which they describe their places. Additionally, important are also senses and values. People are receptive to things they see, smell, hear, taste and remember. This research aims to contribute to the discussion on intangible characteristics of places that are difficult to acquire and map. It also aims to contribute to the discussion in positive places, places that evoke positive emotions and to understand where such places are located in the cities and how are they perceived by their citizens. A better knowledge about emotional landscapes and attachments to places may help create happier cities where the inhabitants can have positive experiences.

We are aware of some limitations of this study. The participants of the survey were students and it therefore represents the view from the perspective of the students and cannot be generalized to all inhabitants of the city. However, it was also our intention to focus on this population in order to better compare the results gained in this city with previous experiments accomplished in Hamburg, Germany, Ames and Grinnell, both in Iowa, and in Vienna, Austria. It was also our intention to focus on the positive feelings with which we then excluded places that may evoke other emotions found on the opposite side of the Russell's model. Another study could look into the whole spectrum of emotions in order to understand the positive vs. negative places in the city. The sample size was big enough to be able to complete the conceptual model of evocative places and to continue the discussion about the concentration of places that evoke positive emotions as presented on the density maps. Alternative ways of representing emotions need to be additionally studied. Representing them with a dot attached to the selected location is possible in a geographic information system as they are attached to the locations of self-selected places (and represented as an attribute to the location). However, the current state of GIS development only enables to represent objects with well-defined boundaries. Emotions are not a typical GIS object and can only be represented with visualizations currently offered by the limited concept of representation in a GIS reduced to point, line and polygon object types.

In the next step we intend to concentrate on an in-depth study of public spaces in the city. The knowledge of public places, their characteristics and how people feel at these places may be a valuable input for the development of novel co-design approaches that can

safeguard and intensify common goods and the well-being of the citizens. Hence, the evocative places regarding values in the City of Vitória possess a set of attributes of representations (legitimate history) and social practices (supporting collective memory) that goes back to the origins of the city and the way its citizen built attachment articulated with the element water. Moreover, to a city as an island, the evocative places experiment might have identified a pattern in this type of geographical configuration, as most of evocative places were located in the waterfronts.

In the next steps of this research the team intends to study the role of positive public places, their concentrations in the cities (forming emotional landscapes) and in particular and in more detail their relevance for urban planning. It is important to reflect upon the emotions and collect additional data to be able to better understand the correlation of the emotions and the characteristics of these places. The plan is to continue with data collection in Brazil and study cultural differences of evocative places, the characteristics of these public places and the ways people express their emotions related to places on different continents. This research aims to contribute to a better understanding of intangible landscapes of the cities and how cities can be planned and designed so that they evoke positive emotions and lead to happier and healthier cities of the future.

Acknowledgements

We acknowledge the Professors and Staff at the Department of Architecture and Urbanism at the Federal University of Espírito Santo, Vitória city, for their support. Special thanks go to all the students that have undertaken the online surveys and shared their urban experiences in Vitória. Thank you to Stephen Poplin for the language improvements of this text.

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

References

- Altman, I. and S. M. Low (1992). *Place attachment*. New York, Plenum Press.
- Bonnes, M. and G. Secchiaroli (1995). *Environmental Psychology: A Psycho-Social Introduction*. London: Sage. London, Sage.
- Bott, S., Cantrill, J. G. and O. E. Myers Jr. (2003). Place and the Promise of Conservation Psychology. *Human Ecology Review*, 10 (2).
- Canter, D. V. (1977). *The Psychology of Place*. New York, Palgrave Macmillan.
- Cooper-Marcus, C. and C. Francis (1998). *People places*. New York, Wiley & Sons.
- Cresswell, T. (2004). *Place a short introduction*. Oxford, UK, Blackwell Publishing.
- de Andrade, B. and R. H. de Almeida (2016). I valori del patrimonio territoriale: un'analisi sui discendenti di immigrati germanici in un'area montana di Espírito Santo, Brasile (The values of the territorial heritage: an analysis of the descendants of Germanic immigrants in a mountain area of Espírito Santo, Brazil). *Rivista Scienze del Territorio*, v.4, p.206 - 215. doi: https://dx.doi.org/10.13128/Scienze_Territorio-19407.
- de Andrade, B. (2019). *Planning, Children and Games: Geodesign in the Identification of Quotidian and Symbolic Values in the Territory*. PhD thesis, Postgraduate Program in Architecture and Urbanism, Federal University of Minas Gerais. Belo Horizonte, Brazil.
- Ecléa, B. (1994). *Memória e sociedade: Lembranças dos velhos (Memories and Society : Memories of elderly people)*. São Paulo, Companhia das Letras.
- Geddes, P. (1949). *Cities in evolution*. London, William and Norgate Limited.
- Helliwell, J., Layard, R. and J. Sachs (2019). *World Happiness Report 2019*. New York: Sustainable Development Solutions Network. Accessed online on December 12, 2019 at: <https://worldhappiness.report>.
- IBGE (2010). *Brazilian Institute of Geography and Statistics*. Accessed on May 20, 2018 at: <https://cidades.ibge.gov.br/brasil/es/vitoria/>.
- Ittelson, W. H. (1973). *Environment and cognition*. Oxford, Seminar Press.

Kaplan, R. and S. Kaplan (1989). *The Experience of Nature: A psychological perspective*. Cambridge, Cambridge University Press.

Kaplan, S. (1995). The restorative benefits of nature: toward an integrative framework. *Journal of Environmental Psychology*, 15, p. 169–182.

Korpela, K. (2012). *Place attachment. The Oxford Handbook of Environmental and Conservation Psychology*. S. Clayton. New York, Oxford University Press, p. 148-163.

Korpela, K. M., Hartig, T. and F. G. Kaiser (2001). Restorative Experience and Self-Regulation in Favorite Places. *Environment and Behavior*, 33 (572).

Low, S. (1992). *Symbolic ties that bind*. Book chapter in the book: Place attachment. I. Altman and S. Low (eds). New York, Plenum Press.

Low, S. and L. Altman (1992). *Place attachment: A conceptual inquiry*. Book chapter in the book: Place attachment. I. Altman and S. Low (eds.). New York, Plenum Press.

Magnaghi, A. (2005). *The Urban Village: A Charter for Democracy and Sustainable Development in the City*. London, Zed books.

Maptionnaire, (2020), Online participatory software, accessed on March 2, 2020 at: www.maptionnaire.com.

Müller, L. (2008). Intangible and tangible landscapes: an anthropological perspective based on two South African case studies, *SAJAH*, volume 23, number 1, p. 118–138, ISSN 0258-3542.

OECD. (2017), *How's Life? 2017: Measuring Well-being*. OECD Publishing, Paris, accessed on March 2, 2020 at: https://doi.org/10.1787/how_life-2017-e.

Pierre, N. (1996). *Realms of Memory*. New York, Columbia UP 98.

Poli, D. (2013). Democrazia e Pianificazione del Paesaggio: Governance, Saperi Contestuali e Partecipazione per Elevare la Coscienza di Luogo (Democracy and Landscape Planning: Governance, Contextual Knowledge and Participation to Elevate the Place Consciousness). *Rivista Geografica Italiana*, 120, p. 255–273.

Poli, D. (2015). *Patrimonio Territoriale fra Capitale e Risorsa nei Processi di Patrimonializzazione Proattiva (Territorial Heritage between Capital and Resource in Proactive Patrimonialization Processes)*. In B. Meloni (Eds) *Aree interne e progetti d'area*. Turin: Rosenberg & Sellier, p. 123–140.

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

Poplin, A. (2017). Mapping Expressed Emotions: Empirical Experiments on Power Places, *Special issue: Methods and Applications of Empirical Cartography, Journal of Cartography and Geographic Information*, Volume 2, p. 83-91.

Poplin, A. (2018). Cartographies of Fuzziness: Mapping Places and Emotions. *The Cartographic Journal*, Volume 54, Issue 4, p. 291-300.

Poplin, A. (2020). Exploring Evocative Places and their Characteristics. *The Cartographic Journal*. Published online on March 2, 2020.
<https://www.tandfonline.com/doi/full/10.1080/00087041.2019.1660502>.

Rosenberg, M. B. (1999). *Nonviolent Communication: A Language of Compassion*. Encinitas, CA, PuddleDancer Press.

Rossi, A. (1982). *The architecture of the city*. Cambridge, MA, MIT Press.

Pretty, G. H., Chipuer, H. M. and P. Bramston (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology*, 23, p. 273-287.

Proshansky, H. M. and A. K. Fabian (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, 3, p. 57-83.

Russell, J. A. (1980). A Circumplex Model of Affect. *Journal of Personality and Social Psychology*, 39 (6), p. 1161-1178.

Russell, J. A. and A. James. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, 110 (1), p. 145–172.

Russell, J. A. and G. A. Pratt (1980). A description of the affective quality attributed to environments. *Journal of Personality and Social Psychology*, 38, p. 311-322.

Shoval, N., Y. Schvimer and M. Tamir. (2018). Tracking technologies and urban analysis: Adding the emotional dimension. *Cities*, 72, p. 34 - 42.

Steele, F. (1981). *The Sense of Place*. Boston, CBI Publishing.

Tuan, Y. F. (1974). *Topophilia: A study of environmental perception, attitudes, and values*. Englewood Cliffs, NJ, Prentice Hall.

Tuan, Y. F. (1977). *Space and Place. The Perspective of Experience*. Minneapolis, University of Minnesota Press.

Citation: Poplin, A., de Andrade, B. A., and S. Mahmud. 2020 (forthcoming). Exploring Tangible and Intangible Characteristics of Evocative Places: Case Study of the City of Vitória in Brazil, book chapter in *Springer special issue on Modern Approaches to the Visualization of Landscapes*, edited by Olaf Kühne, Corinna Jenal and Dennis Edler, accepted for publication, to be published by Springer.

Tuan, Y. F. (1980). Rootedness versus sense of place. *Landscape*, 24, p. 3-8.

Ulrich, S. R. (1983). Aesthetic and affective response to natural environment, behavior and the natural environment. *Human Behavior and Environment*, 6, p. 85-125.

Walljasper, J. (2017). How to Design Our Neighborhoods for Happiness. YES! Magazine, YES!, published on 29 March 2017.

Waxman, L. (2006). The Coffee Shop: Social and Physical Factors Influencing Place Attachment. *Journal of Interior Design*, 31(3), p. 35-53.

Zeile, P., Resch, B., Loidl, M., Petutschnig, A. and I. Doerrzapf. (2016). Urban emotions and cycling experience – Enriching traffic planning for cyclists with human sensor data. *Proceedings of the GI_Forum*, p. 201 - 216.