

# An enabling technique for describing experiences in architectural environments

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## Abstract

Experience is everything that appears to consciousness during the encounter of a human being with an environment. A survey that helps people introspect about their place experience and capture that experience through words will be presented. The Environmental Description Survey is an enabling technique in which participants first comment about their experiences by completing a series of sentences, e.g., related to their liking for some architectural element (qualitative part of the survey), and then they are asked to rate their experiences in a 1–10 scale; e.g., How much do you like that architectural element? (quantitative part). The survey is answered after the participants have made an exploratory itinerary in the environment but still being in that environment. The most frequent experiences presented to 35 participants who visited an architecturally relevant area of the Santa Lucía Riverwalk in Monterrey, Mexico, were discovered through the survey. In addition to the frequency of the commented experiences, the quantitative data obtained correspond to the intensity of the experiences, the personal importance they had for the participants, and the chronological order in which they were presented during the visit to the place. The results obtained through the survey reveal the possibilities of experience that an architectural environment can generate in people. The hybrid technique presented also allows to discover the more relevant aspects of a place related to environmental preferences. Considering the data obtained through this technique during an architectural or landscape design may result in places capable of generating positive human experiences.

## Keywords

Architecture, Data collection techniques, Description, Experience, Introspection.

## 1. Introduction: Introspection and the description of experiences

The term experience has been used in broad and imprecise ways, as Hurlburt and Heavey remark (2015, 149). In order to specify what is understood as experience, several definitions of it will be exposed in the following lines. Lived experience has been described by Boden, Larkin & Iyer (2019, 219) as: "... our encounters with everything within our lifeworld — the world as it appears to us and is salient for us." Hurlburt (2011, 2) indicates that experience is what is "apprehended directly before the footlights of consciousness." Experience is everything of which a human being can be aware, and it encompasses from the perceivable objects of the world to the experiences of the body, according to Jackendoff (1987, 3).

In line with the previous definitions of experience, it has been stated by de la Fuente Suárez (2012, 2013, 2019) and by other authors (Holl, 1994a; Malnar & Vodvarka, 2004; Rasmussen, 1959; Tuan, 1977), that multiple types of experiences are possible to be produced in a human encounter with a place or an architectural environment. Tactile sensory experiences, enjoyable or unpleasant emotional experiences, interactive experiences in which the user notices how he or she transforms the environment, depth and shape perception, experiences related to the meaning of a place, and many others, can be phenomena of which a human being may be aware during his or her stay in an architectural environment. Extending the concept of affordance by Gibson (1986), Tweed (2000, 6) indicates that buildings may afford experiences in the same manner as they afford activities.

A human being is occupied at a particular moment with specific experiences out of a welter of multiple possibilities of experience (Hurlburt, 2011; Hurlburt & Heavey, 2006; Hurlburt & Heavey, 2015). Following the previous statement, it can be asserted that only certain experiences appear to the consciousness of a human being while being in a specific place and that some experiences are generated in people with more frequency and more intensity than others in that place. A technique that allows discovering the experiences presented

to human beings in an environment and the frequency of occurrence of such experiences will be proposed.

In a direct and spontaneous manner, people experience the environment and the objects around them, and they also experience themselves. However, only in certain situations people focus their attention on the act of experiencing itself, an operation that has been called introspection, which means "... explicit self-consciousness, whereby we attend, either casually or attentively, to our own mental states, or to ourselves having those mental states, or simply to ourselves." (Janzen, 2008, 22). In its simplest terms, introspection has been considered as "looking inward", in contrast to extrospection or "looking outward", which is the common experience of attending to the external environment (Gould, 2006, 190; Kean, 2016, 128). Therefore, to obtain in-depth descriptions of the environment, the survey to be presented (the Environmental Description Survey) incites the participants to extrospect, i.e., to observe their surroundings, and it also incites them to introspect, making them focus on their inner experience with those surroundings.

A description of an object and its qualities is considered a description of an experience in the present study. Noticing and emphasizing some qualities of the object while neglecting others, recognizing it as an object of a particular category, and finding its shape pleasurable, are all experiences. In the words of Hurlburt (2011, 2): "A thought, a feeling, a tickle, a seeing, a hearing, and so on count as experience (...) seeing the orange-and-gold of a real sunset is an experience." Describing an object in absolute objective terms is humanly impossible. Furthermore, when describing experiences with the environment, its buildings and objects, the inner aspects of the experiences obtained through introspection are inseparable from the objects and qualities described through extrospection.

The importance of introspection lies in the fact that it is a necessary act for a person who wants to describe his or her experiences (Zahavi, 2005, 223). Nevertheless, it should be noted that introspection is not the same as making

judgments and rationalizations about one's experiences, but the: "enlargement of the field of attention and contact with re-enacted experience", as Bitbol and Petitmengin put it (2013, 269–270).

According to Giorgi (2012, 6): "Description is the use of language to articulate the intentional objects of experience." Due to the focus of the present article on description and experience, it is relevant to define the branch of philosophy known as Phenomenology, which in words of Moran (2011, 4), is "the descriptive science of consciously lived experiences and the objects of those experiences, described precisely in the manner in which they are experienced."

One of the first theorists to point out the need for a phenomenology of architecture was Norberg-Schulz (1980, 8). Nevertheless, Rasmussen (1959) approached earlier the theme of the experience of architecture, but without adhering to the phenomenological approach. The latter author describes multiple examples of the visual and acoustic impressions produced in an encounter with architecture. The present study is in line with how Rasmussen (1959, 36) understood the subjectivity of experience: "There is no objectively correct idea of a thing's appearance, only an infinite number of subjective impressions of it."

Several architects and theorists as Holl (1994a, 1994b) and Pallasmaa (1994, 2005), had exposed their interpretations of how phenomenology may be implemented in architecture. For example, Pallasmaa (2005, 70) emphasizes the multisensory character of an architectural experience. Meanwhile, Holl (1994b, 40) incites people to increase their introspection and sensibility while experiencing space: "An awareness of one's unique existence in space is essential in developing a consciousness of perception."

The great majority of the texts on phenomenology of architecture are theoretical, and therefore not based on empirical research in which people comment on their experiences with particular works of architecture. There resides the first point in which the present study and its methods depart from the existing phenomenological

approaches to architecture. Contrary to the theoretical phenomenology of architecture, empirical methods have been employed in phenomenological psychology (Langdrige, 2007). As the main data collection technique in qualitative research, the interview has also been used in phenomenological studies (Englander, 2012; Maurel, 2009; Pollio, Henley & Thompson, 1997). A study with a phenomenological approach focused on architectural experiences was realized by Jumsai na Ayudhya (2015). The research methods of the latter included photo-elicitation and interviewing in real architectural and urban environments that the participants selected.

In addition to interviews, written accounts are another technique used in phenomenological research to gain insight into how people experience distinct lived situations (Langdrige, 2007; Turner & Turner, 2004). Both techniques help conduct third-person phenomenological research since they are interested in "... the specific experiences of individuals and groups involved in actual situations and places..." (Seamon & Gill, 2016).

In other respects, asking people to verbalize their inner speech or think aloud while making an explorative itinerary in an architectural environment is a technique used to discover people's experiences with an environment (de la Fuente Suárez, 2019, 2020). As Ericsson and Simon remark (1984, 60), Think Aloud Protocols (TAP) have certain qualities in common with phenomenological methods; nevertheless, while the latter rely on the introspection of the participants, thinking aloud elicits the direct expression of thoughts. Thus, on the one hand, during a concurrent TAP, the participants are not asked to retrieve information from their memories (as may happen in interviews). Nevertheless, on the other, the process of thinking aloud or concurrent verbalization interferes with the experience itself, a situation of interference that does not occur in phenomenological interviewing (Petitmengin, 2006).

The Environmental Description Survey (ENVIDES) to be presented in the following section was created based on the findings of the Think

Aloud Protocols carried out in distinct architectural environments. The survey, which relies on introspection, represents a very different alternative to TAP, interviewing, and written accounts for obtaining descriptions of experiences with built environments. ENVIDES has in common with the phenomenological written accounts the intention to obtain from the participants a detailed description of their experiences; in this case, experiences with an environment. Nevertheless, the survey is not only a qualitative technique but also a quantitative one. The mixed-methods technique proposed is based on the fact that the quantitative techniques or the qualitative ones are insufficient in isolation to comprehend architectural experiences, but they may complement and strengthen each other.

The quantitative component of the survey is related to the questionnaires used in Environmental Psychology and Empirical Aesthetics in which respondents use a scale to rate, e.g., their preference for an urban or architectural space, the spaciousness, complexity, or coherence of the scene, and the intensity of the emotions they feel (Coburn et al., 2020; Herzog, 1992; İmamoğlu, 1986; Negami, 2016). In the latter studies, the participants are not located in real places, but they rate the scenes through photographs of them.

According to Gibson (1986, 43): “The essence of an environment is that it surrounds an individual.” The importance of the immersion and direct experience of the participants with real environments and buildings has been stressed in de la Fuente Suárez (2020). Studies in which participants rate the qualities of places in situ are less common (de la Fuente Suárez, 2019, 2020; Ayataç et al., 2020; Moorapun & Bunyarittikit, 2018; Nasar, 1987; Russell, Ward & Pratt, 1981).

Before presenting the ENVIDES, it is worth mentioning another approach for studying human experience: phenomenography, which was initially employed in teaching and learning research (Dall’Alba, 2000, 84; Prosser, 2000, 34). The most important data collection technique in phenomenographical studies is the interview (Marton, 1986,

42). Meanwhile, phenomenological research pretends to find the universal or essence that a lived experience has for people (van Manen, 1990, 10), phenomenography looks for the different modes of experiencing that may be presented to people in a specific situation: “What are the qualitatively different ways in which this particular phenomenon might be seen?” (Marton, 2015, 114). Thus, phenomenography does not aim in unveiling the manner of experiencing a phenomenon by human beings in general, neither the particular manner in which each person experiences the phenomenon. Instead, a midpoint is looked for in phenomenography: “In between the common and the idiosyncratic there seems, thus, to exist a level; a level of modes of experience, forms of thought, worthwhile studying.” (Marton, 1981, 181).

A limited amount of categories represent the ways of experiencing a phenomenon in phenomenographic studies, e.g., the different ways of understanding design that designers may have (Daly, Adams, & Bodner, 2012), or the students’ ways of sketching during architectural design (Rice, 2008). In phenomenographical studies: “The first result is a qualitative one (“What are the conceptions held? “), and the second is quantitative (“How many people hold these different conceptions? “).” (Marton, 1981, 195). The conjunction of the qualitative and the quantitative represents an essential point in common of the present study with phenomenography.

Another relevant characteristic of phenomenography is that it pretends to include in its descriptions not only the basic aspects of lived experience but also the conceptual and the culturally learned aspects which are discarded in phenomenology (Marton, 1981, 181). Nevertheless, the conceptual part is prioritized in phenomenography, and the obtained descriptions are the manners in which people understand and opine about phenomena. The latter explains why phenomenography would not help uncover the affective experiences with spaces, according to De Matteis et al. (2019, 7).

With the intention of surpassing the deficiencies of existing methods for describing experiences, the boundaries

between the qualitative and the quantitative, and between the introspective and the extrospective, are blurred in the present hybrid study. Even though it is related to existing approaches and methods, the technique to be introduced here inquires human experiences with places without aligning to them.

### 1.1. Objectives

The article aims to present a survey which objectives are as follows:

- a) Help people introspect and extrospect about their experiences with the environment.
- b) Overcome the difficulties of capturing those experiences through words.
- c) Allow participants to quantify several aspects of the experiences they commented on.
- d) Reveal the experiences that an architectural environment can generate in people through an easy to perform analysis of the data.
- e) Unveil the aspects or qualities of a place related to environmental preferences.
- f) Render visible how the multiple experiences with a place relate to each other.

## 2. The environmental description survey: Studying how the environment and its elements are experienced

The technique to be presented was created based on the Think Aloud Protocol, the phenomenological written accounts, and the environmental psychology scales described above. Several TAPs were carried out in distinct buildings and places, in which the participants were asked to express all that went through their minds while walking in the place (de la Fuente Suárez, 2019, 2020). After carrying out those TAPs, it was noticed that, regardless of the building or place, it was common that the participants expressed what they liked or disliked, what attracted their attention, they also talked about something that produced doubts in them, about something they did not expect to be in a certain way, etc.

Based on these frequent types of comments, a series of incomplete phrases (known as stems) was created, e.g., “I like...”, “It was unexpected...”,

and “It looks like...”. These stems conform the Environmental Description Survey (ENVIDES), a sentence completion technique aiming to elicit detailed comments about the experiences presented to people in a specific place. It is important to note that the task of freely writing about an experience may be difficult for most people, and it does not allow long texts (van Manen, 1990, 64). Overcoming these difficulties is the main objective of the ENVIDES incomplete phrases.

Sentence completion is a type of enabling technique: “a device which allows the individual respondent to find a means of expressing feelings, thoughts and so on which they find hard to articulate.” (Chandler & Owen, 2002, 98). Sentence completion techniques have been used in psychology, marketing, and user experience research and have the advantage of allowing to obtain structured qualitative data about users that requires less time to analyze than results from interviews (Kujala, Walsh, Nurkka & Crisan, 2014).

ENVIDES asks the participants to create a series of statements or declarative sentences, i.e., expressions about something (Calway & Skyes, 1996, 13), referring to their direct observation of the environment, its elements, and qualities. The survey elicits the participants to describe what surrounds them but also what is going on inside them. Through the stems, the participants create sentences in which the “what of the experience” (the object, building, or place being experienced) is connected with the “how of the experience”, i.e., the specific manner in which the object is experienced, e.g., how the object is perceived, or the emotions it causes. As shown in Table 1, some stems specify a type of experience (experience stems), while other stems specify the object of experience (element stems). The stems have as few words as possible, which prevents directing the participants towards some aspects or elements of the environment. Four pilot versions of the survey were applied in different architectural environments (building’s interiors, exteriors, and public spaces), previous to the survey of the present study. In this manner, the comprehensibility of the instructions and the expressions



**Table 1.** *Incomplete phrases or stems included in the Environmental Description Survey.***ENVIRONMENTAL DESCRIPTION SURVEY (ENVIDES)**

EXPERIENCE STEMS				ELEMENT STEMS	
Saliency, attention and interest	Liking, pleasure and preference	Intentions and desires	Other experiences	Place in general and fixed-feature elements	Semifixed and nonfixed-feature elements
It stands out...	I like...	I would like to... I wished to...	It looks like... It seems...	This place...	This object... These things...
I attentively observed... I stared at...	I dislike...		It was unexpected... It makes me think... It makes me doubt...	This building... These buildings... This building element... These building elements...	The people...

used in the stems was improved. Owing to the openness of the stems, ENVIDES is a technique capable of being used to study a multiplicity of environments.

## 2.1. Experience stems

These stems are to be completed with the elements of the environment producing the experiences, e.g., “I like... the textures of the buildings around the canal.” or “It was unexpected... to walk around the place from various heights.”

### 2.1.1. Saliency, attention, and interest

The intention of the “It stands out...” stem is to discover what elements of the environment have the highest perceived saliency for the participants; understanding saliency as the quality of an object to be conspicuous, e.g., in contrast to its surroundings (Borji, Sihite & Itti, 2013). Meanwhile, the stems “I attentively observed... / I stared at...” Intend to elicit responses in the participants related to what caught their attention, and presumably what elements or qualities of the environment they considered the most interesting. For a deeper explanation of the relation between attention and interest, see Ade la Fuente Suárez (2020).

### 2.1.2. Preference and aesthetic pleasure

The “I like...” stem is used to construct statements about positive aspects, preferences, or liking for the environment or the specific objects within it. The “I like...” stem may allow the participants to indicate what elements or qualities of the environment produce

in them experiences related to aesthetic pleasure (beauty), which is: “... a pleasurable subjective experience that is directed toward an object and not mediated by intervening reasoning.” (Reber, Schwarz & Winkielman, 2004, 365). On the other hand, the “I dislike...” stem is useful in detecting what the participants noticed as something negative in the environment. The “I like...” and “I dislike...” stems may be completed with aspects of the environment that go beyond the visual ones. Other sensory qualities may be playing a role in the experience of a place, and ENVIDES can be used to discover them.

### 2.1.3. Intentions and desires

Since the activities that the participants are asked to carry out in the environment are walking around and answering the ENVIDES, some intentions of actions and desires that may be generated in the participants during their encounter with the place may be unaccomplished. The stems “I would like to... / I wished to...” were created to discover these unfulfilled intentions of the participants. These stems also allow the participants to indicate what changes they would like to have done in the environment.

### 2.1.4. Other experiences with the environment

The “It looks like... / it seems” stems allow the participants to describe their impressions of the appearance of a place. The “It looks like...” stem incites the participants to describe experiences in which they compare the environment or its elements with other known

objects and places. The latter stem may also invite the participants to include illusory experiences in their description, those experiences in which the observers' perceptions do not coincide with the reality of the object (de la Fuente Suárez & Millán Gómez, 2012). Meanwhile, the stem: "It was unexpected..." allows knowing the participants' expectations that were contradicted during their visit to the place. Furthermore, to discover what elements or qualities of the environment provoked thoughtful experiences in the participants, the following stems were included in the ENVIDES: "It makes me think... / It makes me doubt..."

## 2.2. Element stems

These stems are intended to be completed with the experiences produced by the elements of the environment, and a description of those specific elements, e.g., "This building element... is different from what is commonly seen" (the glass bridge).

### 2.2.1. Place in general and fixed-feature elements

The stem: "This place..." is very useful as it enables the participants to use adjectives to describe the place as a whole. In addition to the last stem, if the ENVIDES is to be applied in a built environment, the following stems should be included: "This building... / These buildings..." and "This building element... / These building elements...", which allow the participants to describe the fixed-feature elements, "...those that are basically fixed, or those that change rarely and slowly." (Rapoport, 1990).

### 2.2.2. Semifixed and nonfixed-feature elements

The stems "This object... / These things..." incites the participants to describe the small-scale elements of the environment, which are commonly movable (semifixed). Finally, the stem "The people..." enables the participants to include the human occupants or inhabitants and their activities in their description of the environment, i.e., the nonfixed-feature elements (Rapoport, 1990).

It is remarkable that since the participants are asked about their experiences

of the place while they are still in that place, some ENVIDES stems induce a concurrent or real-time introspection in the participants (I like...), while other stems induce a retrospective introspection (I attentively observed...).

After completing the stems or phrases, the participants are asked to give distinct values to their comments, i.e., to give numerical quantities to the experiences according to how intensely they experienced them (how liked, how unexpected, etc.). Through the ENVIDES, four dimensions of the experiences with the environment are obtained: intensity, importance, immediacy, and occurrence; they will be explained in detail in the methods section. By combining a qualitative and a quantitative part, ENVIDES allows participants to describe and give a significant amount of information about their experience of an environment that could not be obtained through an interview, a TAP, or a quantitative survey. An explanation of the instructions given to the participants will be exposed later.

Studies that are composed of a first qualitative part (interview) and a second quantitative part (survey) have been used in inquiring people's experiences with built environments (e.g., Kusumowidagdo, Sachari & Widodo, 2016). Nevertheless, the qualitative and the quantitative are fused in a single instrument in the proposed technique.

## 2.3. Positive experience statements

In order to know the participants' affective responses to the place visited, a series of statements is presented to them after they answer the ENVIDES (table 2). Beyond obtaining an overall evaluation of the preference for the environment, the presented statements allow differentiating several types of positive experiences with a place. It is important to remark that, since the participants are located in a real place, it is possible to ask them to rate aspects that go beyond the visual qualities of the environment, and that are not possible to rate with photographs: e.g., "I really like being in this place", or "It feels very comfortable to be in this place."

Some of the statements are focused on positive experiences that participants may have during their itinerary;

meanwhile, other statements are related to the intention of spending free time in the place in the future. Participants indicate how much they agree with each statement through a 0-10 scale. The data obtained through these predefined statements complement the strengths of the open answers obtained with the ENVIDES.

### 3. Methods

#### 3.1. Participants and case study selection

Forty-three persons participated in this study. Thirty-five participants completed the survey, following all the instructions correctly (18 men, 17 women, ages 16 to 27, average of 20). Nineteen participants were architecture students (second to fourth semesters), and the other 16 participants were from 14 different careers or occupations. The surveys were conducted from 9:30 am to 12:30 pm, during mostly sunny days with average temperatures of 30° C (86° F).

The case study is an artificial canal with pedestrian walkways: the Santa Lucía Riverwalk (2007) in the Mexican city of Monterrey by the architect Enrique Abaroa (Landa, 2019, 102). The specific place where the survey was conducted is the Riverwalk area between the Museum of Mexican History (MHM) and the Northeastern Museum (MUNE; Figure 1). The Museum of Mexican History (1994) was designed by the architects Augusto Álvarez and Óscar Bulnes. Meanwhile, the Northeastern Museum (2007), dedicated to exhibitions of more regional character, was designed by Salinas Lasheras Architects (Landa, 2019, 51). The Riverwalk was selected as a case study due to its combination of built and natural elements, the multiple views that it allows to the visitors, and its variety of materials and shapes.

#### 3.2. Environmental description survey (ENVIDES)

The following paragraphs correspond to a synthesis of the survey instructions given to the participants in the Riverwalk.

0.- Please walk around this place while observing whatever you want; take the time you need (all participants began their itinerary in the starting

**Table 2.** Positive experience statements used together with the Environmental Description Survey.

I really like being in this place.
I enjoy exploring this place.
It feels very comfortable to be in this place.
I like the appearance of this place.
I would like to spend my free time in this place.
I really like the architecture of this place.
I would like to spend time with other people in this place.
I enjoy contemplating this place.

point marked in Figure 2, where the limits of the walkable area are signaled). Please do not walk outside the established limits (this instruction prevents the participants from visiting other neighboring places that could distract them). Return to this point when you finish your itinerary (the survey and the written instructions are turned in to the participants at that moment).

1.- Based on the route you took and what you observed, try to create phrases using the incomplete sentences that appear in the rectangles of the answer sheet (1 in Figure 3).

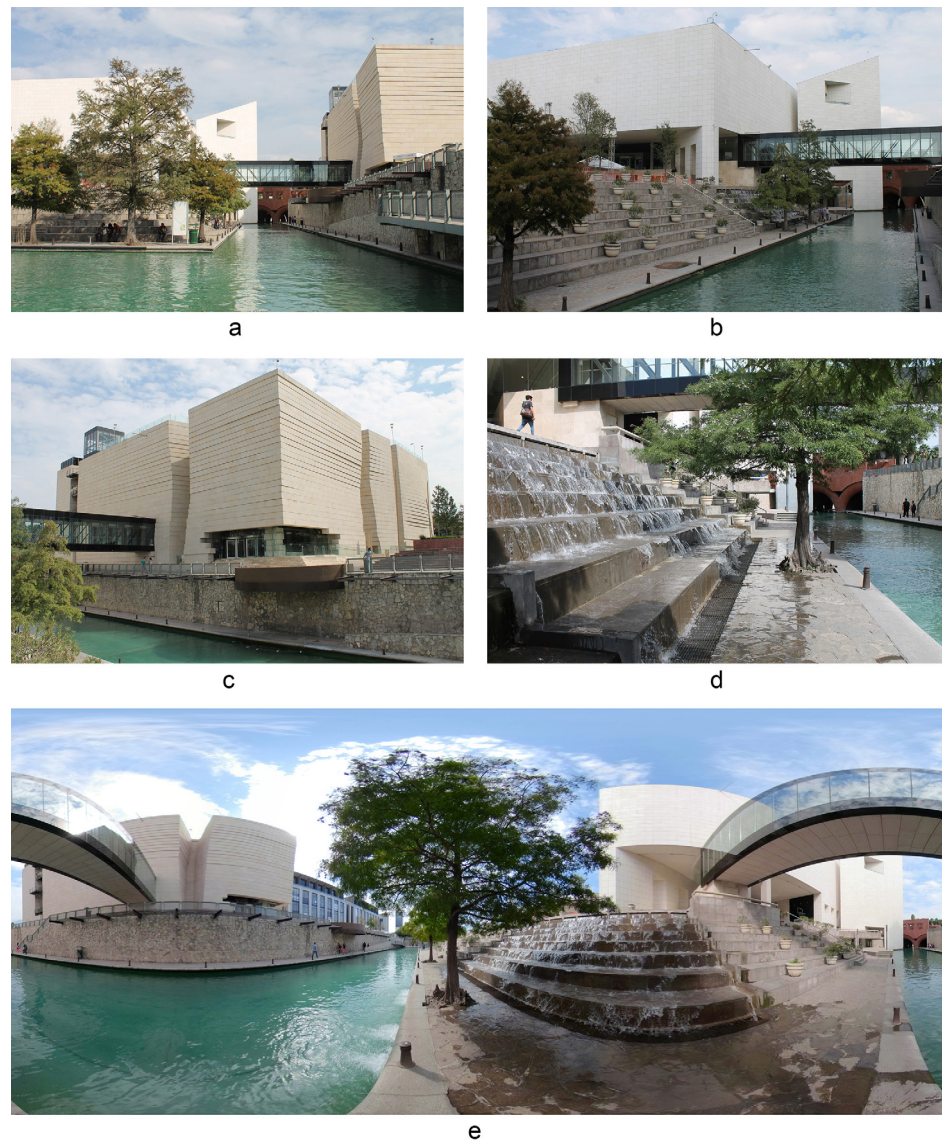
1.1.- Describe as much as possible each aspect you want to comment. Ensure to be clear in what you are describing or what you are referring to (1.1 in Figure 3). Use a rectangle for each comment you write, and if you do not know what to comment spontaneously, leave the rectangle blank. In the rectangles with two sentences, only give one answer, completing any of the two sentences. While answering each section of this survey, keep moving within the established area without going out of that area.

2.- Continue with the following question: Which of the things I commented on did I notice FIRST, just when I arrived at the place? Write a letter “F” in the upper right corner of the corresponding rectangles (2 in Figure 3).

3.- Now, ask yourself the following question: What things did I notice when I was already answering the SURVEY? Write a letter “S” in the upper right corner of the corresponding rectangles (3 in Figure 3).

4.- The following section consists of answering the question: Which comments are IMPORTANT to me? Read





**Figure 1.** Views of the Santa Lucía Riverwalk, Monterrey, Mexico:

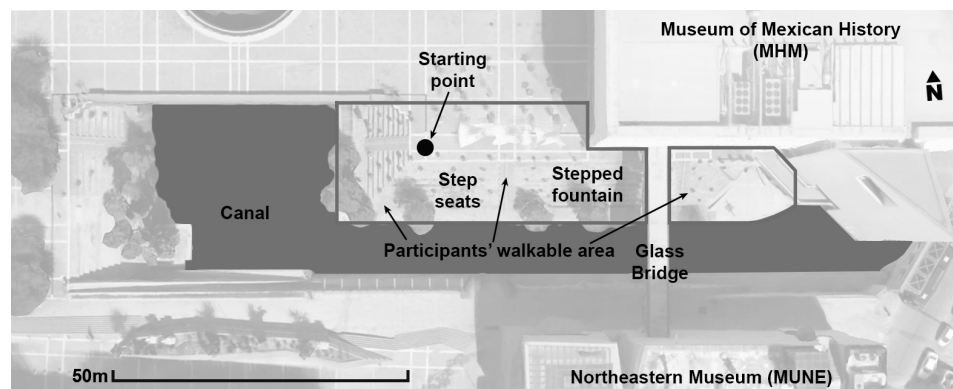
a) The canal, the museums, and the walkable area of the participants of the study (below the trees on the left).

b) Museum of Mexican History (MHM, Álvarez and Bulnes 1994), the glass bridge connecting the museums, and the step seats in the participants' walkable area.

c) Northeastern Museum (MUNE, Salinas Lasheras Architects 2007).

d) Stepped fountain of the Riverwalk.

e) 360° panoramic photograph of the Riverwalk, taken in front of the stepped fountain.



**Figure 2.** Santa Lucía Riverwalk aerial view showing the area where the survey was conducted (participants' walkable area), the museums' buildings, and the glass bridge. Based on an image from Google Earth.

**1**

I like...	I like...
It was unexpected...	It was unexpected...
It looks like... It seems...	It looks like... It seems...
I attentively observed... I stared at...	I attentively observed... I stared at...
I would like to... I wished to...	I would like to... I wished to...
It makes me think... It makes me doubt...	It makes me think... It makes me doubt...
This place...	This place...
I dislike...	I dislike...
This building... These buildings...	This building... These buildings...
The people...	The people...
This building element... These building elements...	This building element... These building elements...
It stands out...	It stands out...
This object... These things...	This object... These things...

**1.1**

I would like to... *come to walk here.*  
I wished to... **I**

I dislike... *that people do not keep the place clean and that they litter.*

**2**

I would like to... *come to walk here.*  
I wished to... **F**

**3**

I dislike... *that people do not keep the place clean and that they litter.* **S**

**4**

I would like to... *come to walk here.*  
I wished to...

**I**

I dislike... *that people do not keep the place clean and that they litter.*

**5**

I would like to... *come to walk here.*  
I wished to...

**I**

I dislike... *that people do not keep the place clean and that they litter.*

**6**

I would like to... *come to walk here.*  
I wished to...

**\*How much would I like to come to walk here?**

I dislike... *that people do not keep the place clean and that they litter.*

**\*How much do I dislike that people do not keep the place clean and that they litter?**

**6.1**

I would like to... *come to walk here.*  
I wished to...

**\*How much would I like to come to walk here?** **9**

I dislike... *that people do not keep the place clean and that they litter.*

**\*How much do I dislike that people do not keep the place clean and that they litter?** **10**

**7**

I really like being in this place.	0-1-2-3-4-5-6-7-8-9-10
I enjoy exploring this place.	0-1-2-3-4-5-6-7-8-9-10
It feels very comfortable to be in this place.	0-1-2-3-4-5-6-7-8-9-10
I like the appearance of this place.	0-1-2-3-4-5-6-7-8-9-10
I would like to spend my free time in this place.	0-1-2-3-4-5-6-7-8-9-10
I really like the architecture of this place.	0-1-2-3-4-5-6-7-8-9-10
I would like to spend time with other people in this place.	0-1-2-3-4-5-6-7-8-9-10
I enjoy contemplating this place.	0-1-2-3-4-5-6-7-8-9-10

Figure 3. Survey instructions given to the participants (see text for details).

all the comments you made, including the part printed on the sheet, and select the ones that are important to you. Place a letter "I" in the left corner inside the rectangle where you wrote the comments that are important to you. (4 in Figure 3). While selecting them, consider your experience of the place in general, everything you see, and everything that happens through your mind. Focus on what is important to you and not what you think is important to others.

5.- Answer the following: Which of all the comments are THE MOST IMPORTANT to me? Read all the sentences you marked with the letter "I", and from all those sentences, select the ones you consider as your most important experiences with the place. Then, fill in the boxes with an "I" that correspond to the most important comments to you (5 in Figure 3).

6.- The next activity consists of mentally transforming each comment that you wrote into a question including

**Table 3.** Operationalization of the dimensions of experience that ENVIDES allows to measure.

Dimensions of Experience	Definition	Indicators
<b>IMMEDIACY</b>	Instantaneity with which the experience is produced.	Participants' ratings (1 to 3 ordinal scale) for what they noticed or experienced first just arriving at the place ("F" = 3); what they experienced once they were answering the survey ("S" = 1); and the experiences that were produced in between the other two points in time (empty boxes = 2).
<b>IMPORTANCE</b>	Personal relevance given to an experience in relation to all the experiences produced in the environment.	Participants' ratings (1 to 3 ordinal scale) for the most important experiences (the filled boxes = 3); the important experiences (boxes marked with an "I" = 2); and the not important experiences (empty boxes = 1).
<b>INTENSITY</b>	Strength of the experience that is produced, or degree to which something is experienced as possessing a quality.	Participants' ratings using a 1 to 10 continuous scale; 1 meaning: very little; and 10: a lot.
<b>OCCURRENCE</b>	Degree in which a phenomenon is manifested or experienced by people in a place; or capability of the environment to present the experience to people.	Percentage of the participants who commented about an experience.

the expression: How much ...? (A list of the stems transformed into questions is presented to the participants in order to help them in the formulation of the questions; e.g., How much does it stand out...?, How much do I like...?, or How much does this place...?) (6 in Figure 3).

6.1.- While you are mentally creating the questions for each comment, answer each question with a number from 1 to 10, where: 1 is VERY LITTLE, and 10 is A LOT. Place each number in the bottom corner. (6.1 in Figure 3).

7.- Finally, read carefully the following phrases (the Positive Experiences Statements), and based on your experience with the place, ask yourself: how much do I agree with this comment? (7 in Figure 3). Answer by giving a number from 0 to 10, where: 10 is COMPLETELY AGREE, and 0 is COMPLETELY DISAGREE.

In this case study, the average time that the participants took to explore the place was 15 minutes, and the whole activity (including the Survey) lasted 1 hour.

### 3.2.1. Quantitative dimensions of the experiences in the ENVIDES

As indicated above, each experience described with words by the participants is also rated numerically. In this manner, three dimensions are obtained for each comment: immediacy, importance, and intensity (Table 3).

Immediacy allows knowing the temporal order of occurrence of the participants' experiences and the order in which they discovered the different as-

pects of the environment through their movement.

Importance ratings given by the participants seem related to what makes a place special for each of them. Similarly, Cele (2006, 119), while referring to place experiences of children, comments: "Even the tiniest thing, such as a crack in the pavement, can become important and valuable for the sake of the memories and dreams it causes..."

The last dimension of experience rated by the participants is intensity, and it indicates, e.g., how unexpected, how liked or disliked each experience was for the participants. The intensity of architectural experiences has been studied in de la Fuente Suárez (2019, 2020).

### 3.2.2. Coding the comments into categories of experiences

Thanks to the stems, the phrases created by the participants are pre-codified, and it is a simple task to categorize the commented experiences; e.g., the comments given to an experience stem such as "I like..." are categorized according to the distinct elements or characteristics of the place that are liked. On the contrary, the comments of an element stem such as "This place..." are coded according to the different experiences or qualities of the place as described by the participants.

After the comments are coded into categories of experiences, the occurrence of each category is calculated (Table 3). Therefore, contrary to immediacy, importance, and intensity, occur-



**Table 4.** Examples of comments made by the participants (ENVIDES) classified into elements of the environment and experience categories (only 14 out of 51 categories are shown).

Elements of the Environment	Experience Categories	Occurrence of the experience categories	Example Comments of the participants	Immediacy of the example comment	Importance of the example comment	Intensity of the example comment
<b>VEGETATION</b>	I like nature and the combination of the natural and built.	23 %	I like... the harmony that exists between the constructions and nature.	10	10	10
			I like... the contrast of the neutral colors of the buildings with the color of the plants.	3.3	6.6	9
	It looks like a natural environment.	26 %	It seems... as if you were leaving the city because you go down and find the "river" and the trees.	3.3	3.3	8
<b>WATER AND FOUNTAINS</b>	I like the sound of water.	26 %	I like... the noise of the water descending from the stepped fountain.	10	6.6	10
	The canal and the water stand out.	26 %	The color of the canal water ...stands out.	3.3	3.3	9
	I would like to get in the water / to touch it.	23 %	I would like... to get in the water, even though I know it isn't right.	6.6	3.3	4
<b>RELAXING PLACE</b>	This place is relaxing / makes one feel good.	54 %	This place... can cause pleasant moments.	3.3	6.6	10
			This place... is to be calm, without any distractions.	6.6	3.3	10
	Water and fountains are relaxing.	31 %	I like... the calm ambiance that the sound of the water generates.	10	3.3	10
<b>GLASS BRIDGE</b>	I attentively observed the glass bridge.	17 %	I attentively observed... the beams of the bridge that crosses the river (structure).	10	10	10
<b>MUSEUMS' BUILDINGS</b>	The Northeastern Museum (MUNE) has movement.	26 %	These building elements... are disordered, causing in me a strange sensation.	3.3	3.3	7
			This building... has an interesting movement.	10	6.6	10
	Experiences with the buildings' materials.	26 %	These building elements... the finishes, and materials of the building (MHM) give more seriousness to the place.	3.3	6.6	5
	Experiences about the places' or buildings' age.	17 %	The arch... makes me think... about whether it is there because of its history or it has been built with an intention.	6.6	10	9
<b>OTHER</b>	I dislike the Sun / the hot weather.	20 %	I dislike... Monterrey's hot climate.	3.3	3.3	10
	Experiences of the different views that may be observed from different points.	14 %	It was unexpected... to find so many points of view from which the place looked different.	6.6	3.3	7
			These building elements... give different landscapes [sights] depending on the point of view from where they are observed.	6.6	3.3	9
	People enjoy this place.	20 %	The people... enjoy the view while they walk in the Santa Lucía Riverwalk.	10	6.6	8

\* The immediacy, importance, and intensity values correspond to the ratings given by the participant for the comment used as an example. The immediacy and importance dimensions, ranging from 1 to 3, are shown on a 1 to 10 scale, as in intensity ratings. All comments have been translated from Spanish.

rence is not rated by the participants. The categories with higher occurrence may inform about the experiences that a place is most able to generate.

### 3.3. Data analysis

Descriptive statistics will be used to show the means of the immediacy, importance, and intensity of the experiences as evaluated by the participants. A Mann-Whitney U test will be performed to discover if the architecture students' experiences with the place are significa-

tively different from those of the other participants. Spearman rho test will be used in order to find correlations between the intensities of the experiences. Considering the non-normal distribution of the data (Shapiro-Wilk test), the nonparametric tests Mann-Whitney U and Spearman rho were selected.

Lastly, a Multidimensional Scaling (MDS) will be realized to group the experiences based on their correlations. As an exploratory data analysis, MDS allows researchers to find structure in

amorphous data sets (Borg & Groenen, 2005, 4). In a MDS, the different items, stimuli, attributes, or persons, are represented as points, commonly in a bidimensional space (Ding, 2018, 4; Groenen & Borg, 2013, 3). The closer the points in the MDS space, the more similar they are (Groenen & Borg, 2013, 1). The name of the MDS analysis realized in SPSS is PROXSCAL, in which the correlations between the experiences were taken as similarities.

#### 4. Results

After analyzing the comments, 51 categories of experiences were found. These categories were classified into six more general elements of the environment: vegetation, water and fountains, relaxing place, glass bridge, museums' buildings, and others. Some examples of the categories and the participants' comments are shown in table 4.

The Mann–Whitney U test was performed to know if a significant differ-

ence existed between the experiences reported by the architecture students and those given by the other group of participants with different professions. Each experience category was commented on by some participants, but not by all of them. Therefore, when a participant did not comment about an experience category (e.g., when he or she did not write about liking the sound of water), the intensity rating for the participant to that experience is considered zero (Table 5). Of all 51 categories of experiences, only one category presented a significant difference between groups: "I like the appearance of the buildings" (Table 5); since more architecture students reported to have liked both museum's buildings than the participants of the other group. Owing to this lack of differences, the data will be presented in this section without making distinctions between groups.

The categories of experiences are shown in the scatterplot in Figure 4. The importance, immediacy, and intensity values of the categories in the figure are calculated considering the ratings given by the participants who did comment on that experience category (i.e., the averages do not include zero values). Therefore, the diagram should be read as follows: how intense/important/immediate was this specific experience for those who commented about it. As can be seen in the figure, the experiences with the highest occurrence in the Santa Lucía Riverwalk (biggest circles) are related to the relaxing character of the place and the presence of water and fountains.

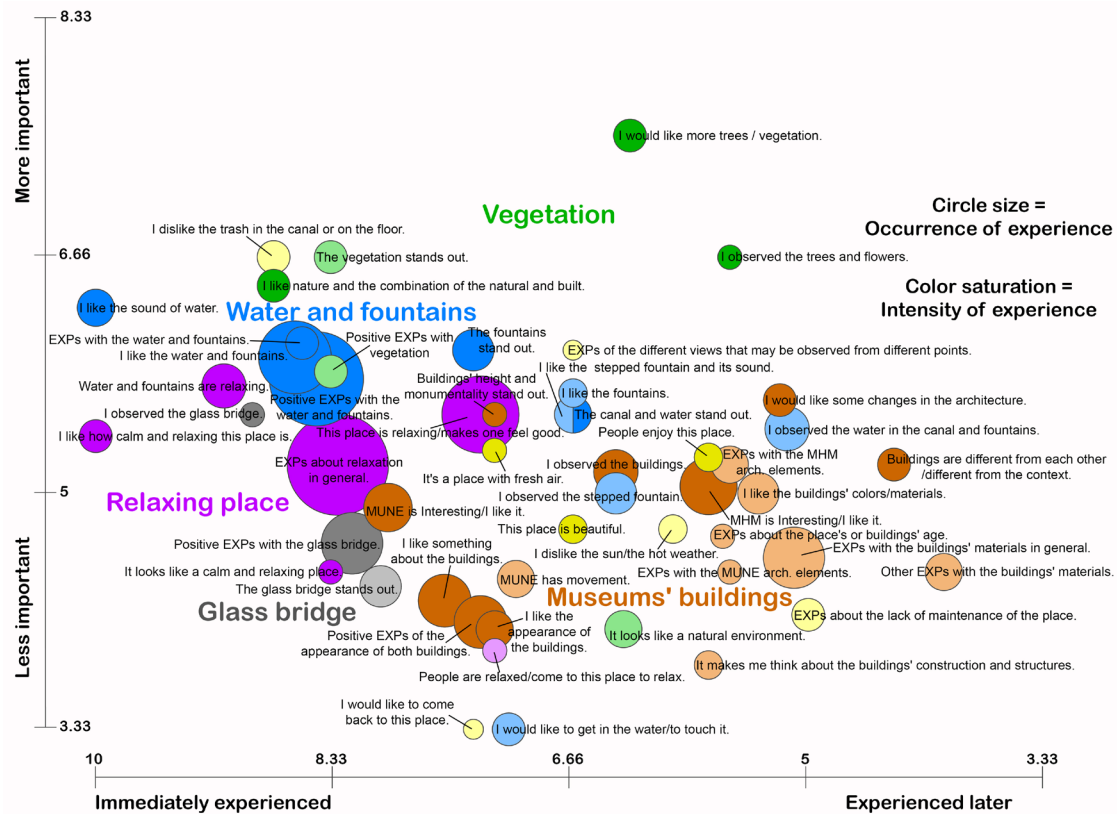
In other respects, the first experiences to be presented to the participants (highest immediacy) are related to the liking for the sound of water and the liking for the calmness of the place (left side in Figure 4). The first architectural experiences to take place are all related to the glass bridge, which according to the participants, stands out due to its contrasting dark color. The experiences related to the museums' buildings tended to occur later.

Despite its minor occurrence, the experiences related to vegetation were the ones that received the highest ratings of importance by the participants who experienced them. The water and

**Table 5.** Numerical intensities given by the participants for three experience categories. Architecture students appear in the upper grey zone of the table. Meanwhile, the other participants are located in the lower zone.

Participant	I like the sound of water.	I like the appearance of the buildings.	This place is relaxing/ makes one feel good.
1	10	0	10
2	0	10	10
3	0	0	10
4	0	8,5	0
5	0	0	10
6	8	0	10
7	0	8	0
8	10	0	0
9	0	10	0
10	0	10	0
11	0	7	10
12	10	10	0
13	0	7	10
14	10	0	0
15	0	0	9
16	0	9	0
17	0	7	0
18	0	8	9
19	10	0	10
20	0	0	9
21	0	10	10
22	0	0	10
23	0	8	0
24	9	0	0
25	0	0	10
26	10	0	0
27	10	0	9
28	0	0	10
29	0	0	3
30	0	0	9
31	0	0	0
32	0	0	0
33	0	0	0
34	0	0	8
35	0	0	0





**Figure 4.** Experience Scatterplot (Immediacy/Importance) of the Santa Lucía Riverwalk ENVIDES, in which the 51 categories of experiences (EXPs) are shown in circles.

\* The x-axis corresponds to the temporal dimension of immediacy, from the more immediately experienced (left) to the less immediately experienced (right). The y-axis corresponds to the importance. The sizes of the circles show the occurrence of the experience between the participants; the biggest circle has 71 % of occurrence, while the smallest one has 14 %. Finally, the different colors (hues) of the circles indicate the elements of the environment to which the categories of experiences belong, and the two saturation levels of the colors indicate whether the experience has a high intensity (8.5–10) or a moderate intensity (7.0–8.4).

fountains' experiences were second in importance. Meanwhile, the architecture related experiences, those with the museums' buildings and the glass bridge, were not of high personal importance. Finally, the experiences with the highest intensities in the Riverwalk were: "I would like more trees / vegetation" (9.75) and "I Like the sound of water" (9.67).

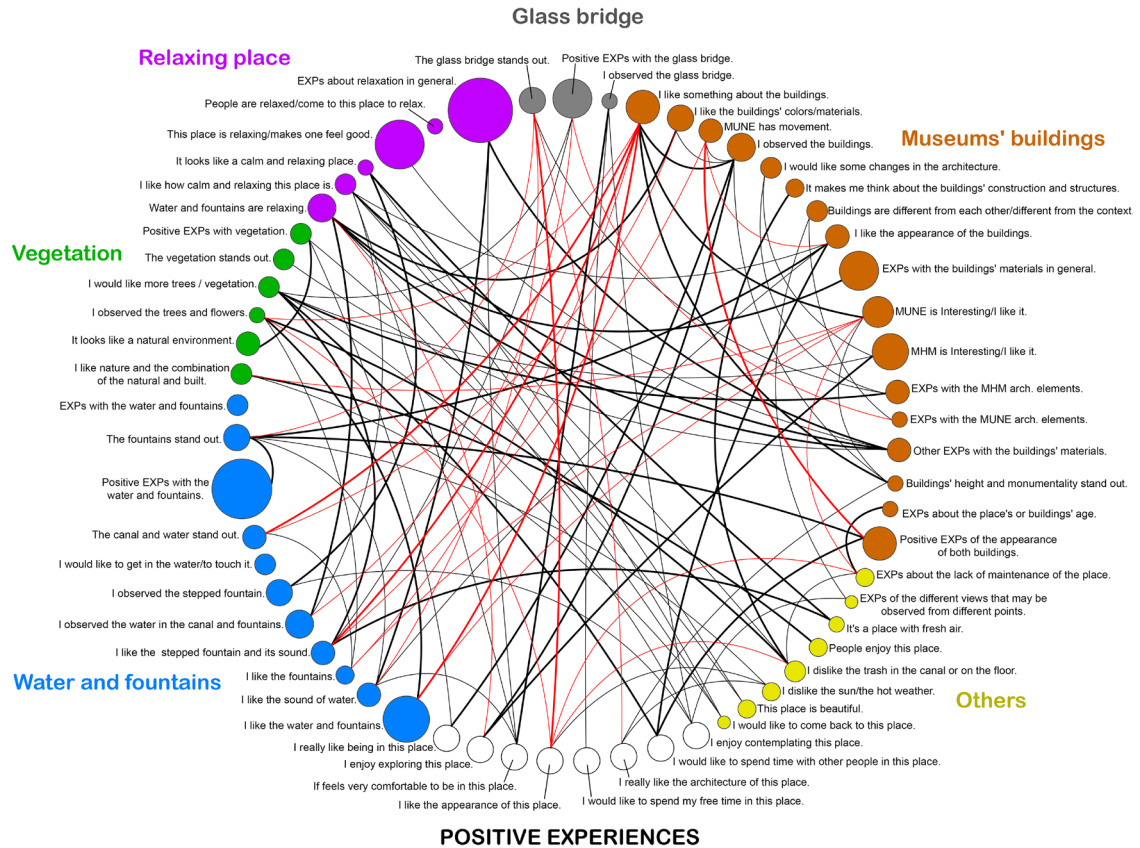
Because ENVIDES was designed to help in the description of experiences with the environment and its elements, it is understandable that other experiences such as those related to bodily sensations, the actions carried out in the environment, and other emotions besides pleasure and displeasure, are seldom commented through this technique (see de la Fuente Suárez, 2012, 2013, 2016 and 2019 for a deeper description of these other experiences).

#### 4.1. Correlations between the categories of experiences and the Positive Experience Statements

The mean values of the Positive Experience Statements for the Santa Lucía Riverwalk were all high, ranging from 8.15 (I would like to spend my free time in this place) to 9.18 (I enjoy contemplating this place).

From the data obtained through ENVIDES, 110 moderate correlations (Spearman's rho) were found between all the intensity ratings given by the participants for their experiences and the ratings of the Positive Experience Statements (significance at  $p < 0.05$ ). Some examples of the intensity ratings used to calculate the correlations were previously shown in table 5.

The diagram in Figure 5 shows a selection of the 94 correlations that were considered the most insightful. Correlations between experience categories in which one of the categories was more



**Figure 5.** Experience Correlation Network of the Santa Lucía Riverwalk ENVIDES, showing the correlations between the 51 categories of experiences and the 8 Positive Experience Statements.

\* Correlations with coefficients between  $\pm 0.4$  and  $\pm 0.56$  are shown with thick lines, and those between  $\pm 0.33$  and  $\pm 0.39$  are shown with thin lines. Positive correlations are represented with black lines, while negative correlations lines are in red. The multiple correlations between the Positive Experience Statements are not included.

general and included the other, a more specific one, are not shown in the figure. The average absolute value of the significant correlations found is 0.39. In order to give an abridged correlations description, only some correlations with coefficients higher than the average (shown with thick lines in Figure 5) will be commented on in this section.

Even though several experiences related to water, nature, and relaxation were commented on by the participants, the highest correlation of “I really like being in this place” is with “I attentively observed the museum’s buildings”. This architecturally centered attitude of the participants is also noticed in the correlation that indicates that the more they enjoyed exploring the place, the more they attentively observed the buildings, and the more they found the Museum of Mexican History as interesting.

In other respects, some participants commented that the black color of the bridge was seen as highly contrasting

with the environment. In general, the more the participants saw the bridge as standing out, the less they liked the appearance of the place. The last relation was not pointed out directly by any participant; nevertheless, it was discovered through the correlation.

Regarding the positive statement: “I would like to spend time with other people in this place”, it is also related to the architecture of the place (the liking for the appearance of the museums’ buildings). The fact that the experience categories that correlate with the Positive Statements are mainly related to architecture may be due to the lack of vegetation found by the participants, since the more the participants would like to spend time with other people in the Riverwalk, the more they wished there were more trees.

Concerning the correlations between the categories of experiences only, it is important to highlight the correlations of the experience category with the

highest occurrence (71 %), corresponding to: “Experiences about relaxation in general”. The more the participants liked the sound of water, the more intense were their experiences related to relaxation. Furthermore, 31 percent of the participants commented on a cause-effect relationship in which they experienced water as generating relaxation in the place.

The subtle textures and colors of the stone panels (MHM) and the granite panels (MUNE) may also be involved in the relaxation of the people in this place, since “Other experiences with the buildings materials” presents correlations with “Experiences about relaxation in general”, and more specifically with “I like how calm and relaxing this place is”.

It seems that in this place, the participants liked either the buildings, or the water and fountains, since there is a negative correlation between “I like something about the buildings” (a specific quality of them) and “I like the water and fountains”. The quality of the buildings that may have been experienced as attractive by the participants could be their prominent scale, as shown by the correlation between: “I like something about the buildings” and “Buildings’ height and monumentality stand out”.

Lastly, a specific perception of the Northeastern Museum noticed by the participants: “it seems as if MUNE had movement”, is an effect found interesting for some but strange for others that may have reduced the “Positive experiences of the appearance of both buildings”, as is shown in the negative correlation between those experience categories.

#### **4.2. Multidimensional scaling analysis of the experiences with the environment**

The MDS Analysis was realized based on the correlations between the intensities of all the experiences and the values given by the participants to the Positive Experience Statements (PES). The higher the correlations between the experiences, the closer they appear in the MDS Scatterplot shown in Figure 6.

In the MDS scatterplot, the experiences tend to segregate into two extremes: the Architectural Experiences and the Environmental Experiences.

The architectural experiences comprise the experiences had with the museum’s buildings and the glass bridge. Meanwhile, the Environmental experiences correspond to the categories of water and fountains, vegetation, and relaxing place. The experiences in the category of others are dispersed on both sides of the diagram.

The experiences related to relaxation, to water and fountains, and those related to the museum’s buildings, have high occurrences. These three elements of the environment are what mostly characterize the studied zone in the Riverwalk. Nevertheless, the fact that the PES are more related to the architecture in the Riverwalk is again evidenced in Figure 6. The polygon comprising the PES is mostly surrounded by the architectural experiences.

Behind the architecture of the place, the relaxation that the place generates tends to appear close to the Positive Experiences in the MDS Scatterplot. The enmeshed relation between the relaxation experiences with those of water and fountains and the experiences with the buildings materials is also noticeable in Figure 6.

Another aspect to pinpoint about the MDS Scatterplot is that the more specific experiences are located in the upper right part. Some of these specific experiences are keen and thoughtful observations (e.g., it makes me think about the building’s construction and structures, I like nature and the combination of the natural and built, and experiences about the place’s or building’s age). Other specific experiences that also tend to appear in the upper right half are the critique comments about the place (e.g., I dislike the trash in the canal or on the floor, experiences about the lack of maintenance, and I would like more trees/vegetation).

#### **5. Discussion**

Through the proposed technique, experiences of different types, such as those with the buildings materials and the relaxation in the place, are found to be correlated. Therefore, ENVIDES can reveal hidden connections between experiences that are rarely commented directly by the participants and have been little studied so far, e.g., between the architec-





account in architectural design. In the words of Holl (1994a, 45): “We must consider space, light, color, geometry, detail, and material as an experiential continuum. Though we can disassemble these elements and study them individually during the design process, they merge in the final condition, and ultimately we cannot readily break perception into a simple collection of geometries, activities and sensations.”

It is also noticeable from the results of this study that the architectural elements present in a place may play a dominant role in the environmental preferences of people. Architectural elements are more than simply a background for human existence. Therefore, they should be carefully designed by considering the aesthetic and functional aspects in conjunction with the evidence regarding promoting well-being through built spaces.

## 6. Conclusions

The Environmental Description Survey (ENVIDES) proposed in this article intends to obtain from the participants a description of their experiences with an environment. ENVIDES lies in the middle point between the open phenomenological written accounts, in which experiences may be described in detail without restrictions, and the closed psychological instruments with preestablished statements or questions. ENVIDES is a data collection technique in which, by completing a series of sentences, the participants create and answer their own questionnaires based on their specific experiences with the environment. Since it has both a quantitative and a qualitative part, ENVIDES prevents the utilization of two separate research techniques in order to discover people's experiences with places.

The experience with an environment is a complex network of related aspects. ENVIDES helps disentangle and find a structure in that experiential network since it allows discovering the occurrence, immediacy, intensity, and importance of the experiences found in a place and the correlations between those experiences. Future research with ENVIDES will be oriented to discover the experiential networks that other places may generate.

The personal importance ratings given to the experiences with the place were found noticeably distinct from the ratings of intensity and immediacy. Therefore, the nature of the experiences that people consider of high personal importance should be studied further.

The results obtained through the ENVIDES may allow architects to expand their understanding of how the environmental and architectural elements of a place generate particular experiences in people and how these experiences relate to each other. The positive and the negative aspects of a place, and the qualities or elements related to them, are easily pinpointed; there resides the practical use of the descriptions and data obtained through the survey. Applying this technique in successful and unsuccessful existing spaces, or before and after performing an architectural or landscape intervention, would be illuminating and serve as an input for creating places that generate positive experiences in human beings.

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