



## Article

# Relaxation and Fascination through Outside Views of Mexican Dwellings

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**Abstract:** Exposure to outside views creates opportunities to distract and experience feelings of relaxation. To explore the relationship between the environmental qualities of the views with such psychological states, 89 participants from seven Mexican states evaluated the views they contemplated during the confinement due to the COVID-19 pandemic. Items on fascination, cognitive well-being, and how relaxing and helpful the views were to withstand the confinement were answered. Participants took photographs of the views, which were evaluated according to 41 environmental dimensions, considering the built elements, vegetation, and visibility. Based on these dimensions, a classification of the views into categories was realized with multidimensional scaling. The five categories obtained were (a) immersive views of extensive landscapes with vegetation, (b) non-immersive views of landscapes with vegetation, (c) views of courtyards with vegetation, (d) views of commonplace scenes, and (e) views of mostly built elements. The categories generating the highest and lowest relaxation, fascination, and cognitive well-being were identified. The views of extensive landscapes with vegetation and the views of courtyards were the categories presenting the most favorable psychological effects. Furthermore, a partial correlation network found direct relations between the environmental and psychological dimensions. Fascination relates to the observation of distant elements, mountains, and trees. Meanwhile, relaxation correlates with the presence of plants and anticorrelates with car visibility, the quantity of the windows of the visible buildings, and the variety of built elements. Relaxation was the psychological state with the highest direct relation with the environmental dimensions. Meanwhile, the perceived immersion (the feeling of being outdoors), the quantity of plants, and the attractiveness of the built elements were the environmental aspects most directly related to the psychological dimensions. The multiplicity of environmental and architectural qualities considered allowed specific implications for architecture to be obtained. An integrated configuration of the natural and the built elements, and a limited quantity and variation of the built elements were qualities that generated positive outcomes in the observers of the views.



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**Keywords:** built environments; vegetation; psychological restoration; cognitive well-being

## 1. Introduction

### 1.1. Relaxation, Fascination, and Psychological Restoration in Relation to the Environment

During the experience of a place or landscape, the attended physical aspects of the external environment and the events of the internal environment of the observer are intertwined [1]. In the words of Åsdam [2] (p. 127):

*“To experience something like landscape involves a multitude of relations: e.g., that of the changing movement, that of thinking clearly about that experience—or about something else, that of daydreaming or of being specific, of feeling tired or invigorated, or stressed or lost—one after the other, at the same time.”*

The known psychological benefits of visiting places or observing landscapes with specific qualities are exposed in the following paragraphs. In environmental psychology,

restoration involves the psychophysiological process of recovering resources depleted due to ordinary life demands [3]. The latter demands include the stress and mental fatigue produced during work hours or daily routines. According to the Attention Restoration Theory (ART) [4], environments that generate the following experiences are referred to as restorative environments: fascination, the feeling of being away from quotidian tasks, the perception of encountering an extensive space, and the compatibility with the elements and activities of the place [4]. By measuring the properties of restorative environments proposed by the ART, a corpus of literature has used the Perceived Restorativeness Scale [5]. Remarkably, a close relationship between environmental preference and restoration exists. People's preference ratings for a place depend on how restorative the place is [6].

Physiological and psychological parameters have evidenced that brief encounters with restorative environments effectively promote outcomes related to relaxation [7]. Relaxation conveys a physiological and a psychological dimension and is characterized by decreased emotional arousal and tension [8]. Relaxation is the opposite of the stress response. Psychological relaxation in the environment involves an improved mood and positive effect, subjective restoration, and vitality [9].

Psychological relaxation is one of the most significant effects of the recovery experiences in natural environments such as forests [7]. Nevertheless, environments with a high proportion of built elements that present water elements and moderate quantities of vegetation can also generate relaxing experiences [1].

Cognitive benefits of the exposure to restorative environments are related to a decrease in mental fatigue, and are evidenced in the increase in attentional performance [10–12]. The cognitive benefits of interacting with restorative environments are explained by the Attention Restoration Theory [4]. The ART suggests that directed or voluntary attention, such as the attention paid during working hours, is a resource susceptible to being depleted. As a result, a state of mental fatigue is obtained (namely, directed attention fatigue). Involuntary or effortless attention is activated during the exposure to a fascinating object or environment without requiring the voluntary or conscious control of the observer. In this manner, a fascinating stimulus allows directed attention to rest. Fascination is an effortless mode of attention that implies an aesthetically pleasurable experience [13]. It is important to remark that fascination can be considered the core experience of environmental restoration [4].

Furthermore, the Attention Restoration Theory describes two types of fascinating stimulus: a modest attentional attraction named soft fascination and a hard fascination in which the observer is completely captured. Natural environments are places with plenty of stimuli generating soft fascination [4]. Simple aspects of nature, such as the sounds of a river or the wind blowing through the tree leaves, are examples of soft fascination sources. Other examples of the fascinating qualities of nature include fractality and the colorfulness of textures [13].

On the contrary, hard fascination stimuli fill the mind [14], and they “forcefully grab one’s attention and are difficult to resist” [15] (p. 1057). Examples of hard fascination are the moments when people experience the feeling of being “glued to the seat”, e.g., during a concert or the watching of movies. Commonly, fascination and relaxation coexist during the experience of an environment. Nevertheless, in hard fascination environments, the feelings of relaxation can be replaced with those of excitement [16]. The latter states are related to sublime environments, since “Astonishment . . . is the effect of the sublime in its highest degree” [17] (p. 42). Some of the qualities that cause sublime experiences are the greatness of dimension, as happens when looking down a cliff [17] (p. 52), and a high quantity of valuable things, such as a sky full of stars [17] (pp. 60–61).

In other respects, the ART suggests that the time spent in restorative places not only allows people to restore the depleted resources from mental fatigue but also promotes the capacity to focus and use the mind effectively, thus allowing a state of cognitive well-being. In line with this, Kaplan built a well-being scale [18] to measure the cognitive effects of restoration on psychological well-being. The questionnaire covers three psychological constructs:

- Effective functioning: This is the subjective cognitive well-being related to a perception of being effective, e.g., being focused, alert, and positive [18];
- Tranquility (at peace) reflects a calmed state of mind, e.g., being relaxed, comfortable, and patient [18];
- Distraction conveys a set of behavioral manifestations related to a deficit of directed attention, e.g., being disorganized and forgetful [18].

The construct validity of the psychological factors included in the well-being scale was provided by Kaplan [18], and it was empirically replicated with Mexican participants by Martínez-Soto [19].

### 1.2. Environmental Qualities and Elements Related to Restoration and Preference

The presence of vegetation is the most studied environmental characteristic regarding its psychological and physiological impacts during human transactions with places. Multiple studies indicate that the most preferred settings are those with a higher proportion of vegetation [20–23]. Likewise, higher levels of greenness are associated with higher cognitive functioning, more positive mood states, and lower depression and anger [19,24]. Furthermore, an increase in tree density yields higher self-reported stress reduction [25].

An immersive experience in nature implicates all the senses and conveys a heightened awareness and relaxation [26]. Nevertheless, as Kaplan [27] (p. 128) pinpoints, people may obtain benefits from nature only by contemplating it: “A great deal of satisfaction derived from nature does not involve being in the natural setting, but rather having a view of it”. Regarding the observation of outside views, Honold et al. [28] indicate that research on views from windows has mainly focused on views with a high quantity of vegetation or views lacking it. The quantity and variety of vegetation in the views positively influence physiological stress outcomes [28].

Mixed environments, i.e., those including both natural and human-made elements, may produce restorative experiences such as natural environments [29]. Houses with building-integrated vegetation, i.e., green roofs and facades, are more preferred, considered more beautiful and restorative than those without vegetation [30]. While referring to the use of vegetation in conjunction with buildings, the landscape architect Norman K. Booth [31] (p. 346) indicated, “The use of organic forms is one means for countering surroundings dominated by straight lines, flat planes, concrete, and glass”. The relevance of including profuse vegetation and reducing the quantity of built elements in pocket parks was highlighted in a study by Nordh and Østby [32]. Having “a lot of grass” contributes to the restoration in the park, whereas having “a lot of hard surfaces” decreases it.

Regarding park scenes with built elements surrounded by nature, the level of fittingness or harmony of the built elements with the natural context is related to how attractive and relaxing the scenes are [33]. The latter study’s fittingness level considered the color, texture, size, and shape congruity of the built elements with the natural surroundings.

In other respects, places with historical value can promote positive affective outcomes and be perceived as restorative [34–36]. Regarding the formal aspects of architectural works, views of buildings with variation in the roof silhouette and ornamentation tend to evoke higher ratings of restorative qualities such as being away and fascination [37]. Meanwhile, places with built elements presenting nature-like configurations and detailing are preferred [36,38,39].

Complexity is, according to Herzog et al. [40] (p. 44), “... the sheer amount of information or the number of elements present in a scene ...” Whereas complexity refers to the quantity of directly perceivable information, mystery is the degree to which a scene promises to offer more information if one walks further in such a scene [40,41]. The new information to be discovered is not visible from the original point of view [4] (p. 55). Therefore, mystery is related to the dimension of occlusivity in visibility analysis [42–44], in which some elements cover a certain quantity of space in a scene, which may be discovered through exploration. According to Kaplan and Kaplan [4], natural environments

present higher preference and mystery ratings and are low in complexity, whereas urban environments present a lower preference and mystery while being highly complex.

Another aspect that has been approached in existing research about preference and restoration is visibility (the openness or spaciousness of a view) [36]. The latter dimension is related to the isovist area, i.e., the extent of space that may be seen from an observation point [36]. Views with high levels of depth and spaciousness elicit higher environmental preferences [45]. Inside office buildings, people with views with more extension and more natural content expressed higher satisfaction than those without such views [46]. Meanwhile, during the observation of streetscapes, a sense of enclosure caused by the tall walls of blocks of buildings hindering visibility was related to lower feelings of being away from quotidian tasks and a lower restoration likelihood [37]. The visibility of the sky also positively influences the restorative experiences with the environment. As reported by Masoudinejad and Hartig [45], having a window view with more sky in a high dwelling density context is related to a higher restoration probability.

### 1.3. Research Questions

Restoration through vegetation in the environment has been well researched. Nevertheless, the restorative and non-restorative qualities of the built elements have been less studied. Is it the configuration of the walls, the level of detail in the architecture, or the visibility of streets that facilitates or reduces restoration? Based on the statements mentioned above, the following research questions are proposed, which consider both the built and the natural elements present in a view:

- Q1. How can outside views be categorized according to their environmental qualities?
- Q2. Which environmental dimensions of the views present stronger direct relations with fascination, relaxation, and cognitive well-being?
- Q3. What are the implications of this study for the architectural discipline?

## 2. Methods

A mixed-methods design was employed, with quantitative measurements, scales, and questions accompanied by open-ended qualitative questions.

### 2.1. Participants

Through convenience sampling, 89 persons from seven Mexican states participated in this study. Their average age was 23.7 years ( $SD = 8.4$ ). A Google Forms survey was sent to the participants during the first COVID-19 wave in Mexico (spring of 2020). The first page of the survey presented the informed consent for participating in the study voluntarily. The survey asked for sociodemographic data, e.g., age and city of residence.

Several existing studies about restorative environments used photographs, digital simulations, or videos as stimuli [30,34,35,45]. Nevertheless, in the present study, participants were asked to evaluate the environment following an ecological approach [47]. Therefore, the actual situations presented to people when facing the outside views from their own houses or apartments were researched.

### 2.2. Instruments

#### 2.2.1. The Psychological Scales and the Outside View Statements

The Revised Perceived Restorativeness Scale (R-PRS) [5,48] is made up of 23 items that measure the perception of five restorative factors: being away, compatibility, coherence, scope, and fascination, with an 11-point scale of response (from 0 = Nothing, does not apply to the experience described, to 10 = Completely, it does apply to the experience). Only the fascination factor of the R-PRS was included in this study. The original items were adapted to include the term “view” owing to the environmental context of the evaluation (Table 1). Meanwhile, the Well-Being Scale (WBS) [18,19] comprises 23 items that provide evidence of the three cognitive factors related to well-being: effective functioning, tranquility, and distraction. Participants were prompted to answer the Well-Being Scale, considering how

they felt during the last days. The latter scale (Table 1) considers a format response from 0 (Never) to 4 (Very frequently).

**Table 1.** Psychological outcomes of the person–environment relation examined in this study.

Variable	Factor	Items	Scale
Perceived restoration	Fascination	<ul style="list-style-type: none"> <li>- This view is fascinating.</li> <li>- Following what is going on in this view really holds my interest.</li> <li>- This view awakens my curiosity.</li> <li>- There is much to explore and discover in this view.</li> <li>- My attention is drawn to many interesting things in this view.</li> </ul>	0–10
	Effective functioning	<ul style="list-style-type: none"> <li>- Energetic and excited about what you are doing.</li> <li>- Life is interesting and challenging.</li> <li>- Focused.</li> <li>- Effective.</li> <li>- Positive.</li> <li>- Able to get really absorbed in a task.</li> <li>- Alert.</li> <li>- Satisfied with how things have been going lately.</li> <li>- You have a good sense of where you're going.</li> <li>- Attentive.</li> <li>- Renewed.</li> </ul>	0–4
Cognitive well-being	Tranquility	<ul style="list-style-type: none"> <li>- Relaxed.</li> <li>- Comfortable.</li> <li>- Irritable.</li> <li>- Everything was an effort.</li> <li>- Patient.</li> <li>- Annoyed.</li> <li>- Pressured and overloaded.</li> </ul>	0–4
	Distraction	<ul style="list-style-type: none"> <li>- Forgetful.</li> <li>- Disorganized.</li> <li>- You were losing or misplacing things.</li> <li>- It is difficult to finish things you have started.</li> <li>- Making decisions is difficult.</li> </ul>	0–4

A set of 11 scalar items, introduced here as the Outside View Statements (OVS), were included in the survey to obtain data regarding the quality and quantity of the elements that were present in the view (e.g., the sky, trees, or walkable areas) and how relaxing and helpful the view was to withstand the confinement (Table 2). These items were created to complement the data related to the fascination with the view, i.e., to help discover which elements make a view more fascinating. Therefore, the items were not intended to measure any particular environmental variable; on the contrary, they encompass multiple aspects of outside views and the positive experiences they generate in people based on existing research. An item regarding the sonic quality of the home was also included: How much noise is in your dwelling? (0–2 scale).

**Table 2.** The Outside View Statements (OVS) included in the survey.

Type	Items	Scale
Other psychological states	<ul style="list-style-type: none"> <li>- I feel relaxed while looking at this view.</li> <li>- Having this view helps me to withstand the confinement.</li> <li>- Looking at this view gives me a moment of privacy.</li> </ul>	0–10
Environmental evaluations	<ul style="list-style-type: none"> <li>- When I look at this view, I feel like being outdoors.</li> <li>- I really like the built elements visible from here (buildings, houses, walls, sidewalks, etc.).</li> <li>- I can see in this view places where I like to walk.</li> <li>- I see things that are far away from here in this view.</li> <li>- This view allows me to see what is happening outside.</li> <li>- I can see the sky very well in this view.</li> <li>- Many plants can be seen from this location (shrubs and flowers).</li> <li>- I can see many trees from here.</li> </ul>	0–10

Furthermore, several open-ended qualitative items were incorporated into the survey (Table 3) to explore the content of the views and the psychological states other than fascination that the views arouse in the observers. The open-ended items are phrases or stems to be completed by the participants. They are similar to the items of the enabling technique proposed by de la Fuente Suárez [1]. The open-ended item asking the participants to report what they saw in the view allowed us to calculate the number of categories of elements composing the scene, which is proposed here as a type of environmental complexity.

**Table 3.** Open-ended items in the survey.

Type	Items
Other psychological states	<ul style="list-style-type: none"> <li>- This view makes me feel ...</li> <li>- While looking at this view, I usually think ...</li> </ul>
Environmental descriptions	<ul style="list-style-type: none"> <li>- What attracts me to look at this view is ...</li> <li>- In this view, it is possible to see ... (Describe what you see in this view.)</li> </ul>

### 2.2.2. Photographs and the Evaluation of the Environmental Dimensions of the Views

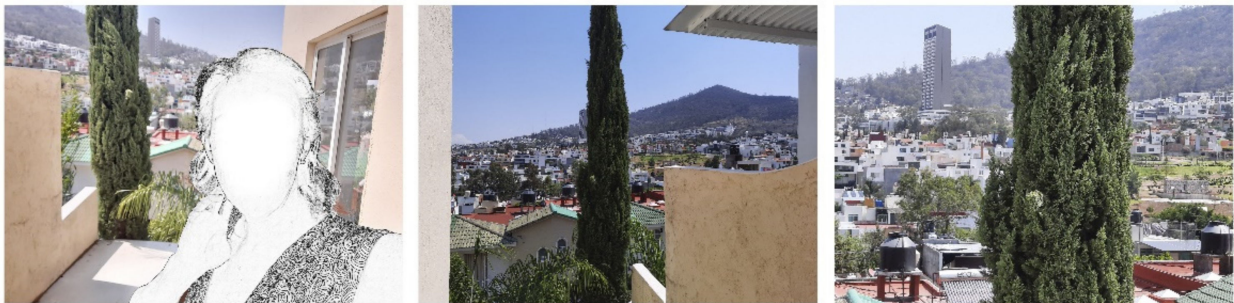
Participants were instructed to take three photographs of the view; each possessed specific characteristics. The first photograph presented the participant while looking at the view and allowed for a better comprehension of the participant's relationship with the surrounding built elements and the exterior environment. The second photograph captured the view from the location the participant usually occupied to look at the view on a quotidian basis. Meanwhile, the third photograph presented a close-up of the view that allowed us to observe details that in the second photograph could have been missed (Figure 1).



### Participant A



### Participant B



**Figure 1.** Examples of the three photographs taken by two participants (A,B): the contextualized participant (left), the outside view (middle), and the view close-up (right).

Forty-one environmental dimensions were assessed of each view considering the three photographs (Tables 4 and 5, and Figure 2). The introduction indicated that the restorative-ness of a place has mainly been studied based on the opposition of natural vs. built places. Meanwhile, the research questions section stressed the lack of research considering more specific qualities of places regarding preference and restoration. Several existing studies present the following categories of places [49] or views [50,51]: all natural, mostly natural, mostly built, and all built. Nevertheless, the present study does not evaluate views based solely on the natural–built dichotomy. In a previous study, the environmental dimensions of visibility, vegetation proportion, walkable surface, and the visual access to streets were explored in relation to environmental preference and restoration [36]. The latter dimensions were employed in the present research, and many other closely related dimensions were also included. Eighteen dimensions are related to visibility and the immersion of the observers with the outside environment. Fourteen dimensions are about vegetation and nature and how vegetation accompanies the built elements. Nine dimensions exclusively relate to buildings and other human-made elements. The 41 environmental dimensions of the present study are related to existing research. Nevertheless, they were not extracted directly from it since they are proposed for exploratory purposes. Therefore, the dimension selection was based not only on what is known but also on what is not.

**Table 4.** Environmental dimensions of the views related to visibility and immersion.

	Visibility/Immersion	Levels
Visibility.	The horizontal extension of the view: This dimension indicates the openness or the quantity of space visible from a view.	1–3
Maximum depth.	Distance of the furthest elements found in the view in relation to the observer.	1–3
Depth variety.	Degree to which the elements present in the view are located at different distances to the observer.	1–3
Walkable surface.	Quantification of the horizontal plane capable of affording people's displacement.	1–3
Occlusivity.	Degree to which some elements of the view are hiding other elements or spaces from the observer's point of view.	1–3
Non-intervisibility of the visible spaces.	Level to which the scene presents spaces that are not visible from the other spaces in the view. A high level corresponds to views in which several streets appear, and people on one street cannot see the people on the others. A low level corresponds to views in which the visible space is a single unit, and all the people occupying that space can see each other.	0–2
Horizon visibility.	Quantity of the line of the horizon that may be appreciated in the view.	0–2
Sky proportion.	Extension of the sky that is visible in the scene.	0–2
Height level of the observer.	Quantification of the observer's height in relation to the landscape or space observed. The zero level corresponds to environments surrounded by walls in which the observers must look upwards to see beyond. Level 1 is ground floor observation, in which the observer looks frontally. Meanwhile, in levels 2 and 3, the observers look down from the first floor, or the second floor or higher, respectively.	0–3
Observation distance to the outside environment.	Degree of spatial separation between the observer and the outside space. When a participant sees through a window while far away from it, the observation distance is at the highest level.	0–3
Roof enclosure.	How enclosed the view is regarding the built elements above the observer.	0–3
Lateral wall enclosure.	Enclosure level of the view caused by the vertical built elements on the observer's sides.	0–3
Frame constriction.	Degree to which the built elements restrict the possibilities of having an open view, e.g., a view through a little window.	0–2
Observation through a transparent surface.	The view is observed through a pane of glass or a mosquito net.	0/1
Curtain presence.	A fabric curtain frames the view, or the observer sees outside through a blind curtain.	0/1
Observation through a grid.	The scene is observed through the strips of a grid window or a window grill that fragment the view.	0/1
Immersion.	Level in which the observer is in direct contact with the outside environment during the observation of the view. Immersion conveys a high multisensory involvement with the wind, the sun, or the exterior weather. In the highest level of immersion, there is no element interfering between the observer and the outside environment, such as glass, a curtain, or window grills.	0–3
Extralimitory property observation.	Degree to which what is seen in the view is outside of the property boundaries of the dwelling. In the lowest level of this dimension, what is seen in a view is part of the property, e.g., an enclosed courtyard.	0–2



**Table 5.** Environmental dimensions related to vegetation and the built elements present in the views.

<b>Vegetation/Nature</b>		<b>Levels</b>
Vegetation proportion.	Level of presence of greenery in the scene.	0–3
Living vegetation proportion.	Quantification of living plants and trees (dead vegetation is not considered).	0–3
Tree proportion.	Quantity of trees, shrubs, and palm trees in the view.	0–3
Green area presence.	Quantification of the vegetated spaces in the view, such as parks or gardens.	0–2
Maximum vegetation height.	Maximum height of the vegetation, taking as reference the number of building stories.	0–4
Vegetation variety.	Heterogeneity of plants, trees, and shrubs.	0–3
Vegetation/soil contact.	Level to which it is possible to see the connection between vegetation and the soil of the ground or pots.	0–3
Vegetation/wall configuration.	Level of presence of vegetation with a wall behind in a view.	0–2
Wall/vegetation configuration.	Measurement of the presence of walls with vegetation behind in a scene. Only the upper parts of trees or plants are visible in this type of configuration.	0–2
Vegetation/vegetation configuration.	Quantification of the presence of vegetation followed by more vegetation in a view.	0–2
Floor/vegetation configuration.	Quantification of the built horizontal surfaces (e.g., sidewalks, tile floors, or streets) followed by vegetation in a view.	0–2
Natural and built integration.	Degree to which the vegetation and other natural elements are mixed or interlocked with the built elements. A clear separation of the built elements from the natural ones corresponds to the low level of this dimension.	0–2
Vegetation unity.	Degree to which the vegetation in the scene composes a continuous whole.	0–2
Mountain presence.	Quantification of the hills and mountains in a view.	0–2
<b>Built/Human-Made Elements</b>		<b>Levels</b>
Built element proportion.	Quantification of the presence of all human-made elements in the scene.	1–3
Built element variety.	Heterogeneity level of the facades, walls, roofs, fences, and other built elements regarding their shapes, colors, and materials.	0–2
Architectural detail.	Quantitative complexity of built elements such as walls and roofs.	0–2
Floor/wall configuration.	Level of presence of built horizontal surfaces in contact with walls in a view. Angles of 90° are commonly present in such configurations.	0–2
Wall frontality.	Quantification of the walls positioned perpendicularly to the visual axis of the observer. A frontal wall blocking the observer's view corresponds to the high level of this dimension.	0–2
Openness of the buildings.	Degree to which the built elements in a view present windows or other openings.	0–4
Dwelling presence.	Level to which houses or apartments may be appreciated in the view.	0–3
Street visibility.	Degree to which the streets are visible in the scene.	0–2
Car presence.	Quantity of cars in the view.	0–2



**Figure 2.** Views exemplifying the levels of three environmental dimensions (upper three columns of photographs) and examples of views corresponding to the high levels of a selection of the environmental dimensions (lower three rows). Immersion is the only dimension shown in the low level.

### 2.3. Statistical Analyses

#### 2.3.1. Multidimensional Scaling Analysis

Multidimensional scaling (MDS) was used to categorize the 89 views considering 41 environmental dimensions. SPSS was employed to realize the MDS (PROXSCAL), in which the Euclidean distances between the views were taken as dissimilarities. The more salient descriptive statistics for each category of views discovered through MDS are exposed in the Results section.

#### 2.3.2. Regularized Partial Correlation Network

A psychological network is composed of nodes (mood states, attitudes, or other psychological variables) connected with edges [52]. The open-source software R [53] and the qgraph package for network visualizations of psychometric data [54] were used to create a regularized partial correlation network (RPCN). The latter is “especially useful for descriptive/exploratory studies, clustering items without an underlying assumption of higher-order factors . . . ” [55]. Partial correlation networks have been used in empirical aesthetics to study the relations between the emotions presented during the appreciation of works of art [55] or sublime experiences [56].

The edges present in a partial correlation network convey that the connected variables or nodes have a direct relation after controlling for all other variables [52]. The strength or weight of such a relation is the partial correlation coefficient. The RPCN was created, taking as input the Spearman correlations between all the psychological and environmental dimensions of this study. The glasso algorithm of the “glasso” package [57] was employed to limit the spurious edges included in the network [52]. Meanwhile, by using the “spring” algorithm, the length of the network’s edges varied according to the absolute weight of the relation between the nodes [54].

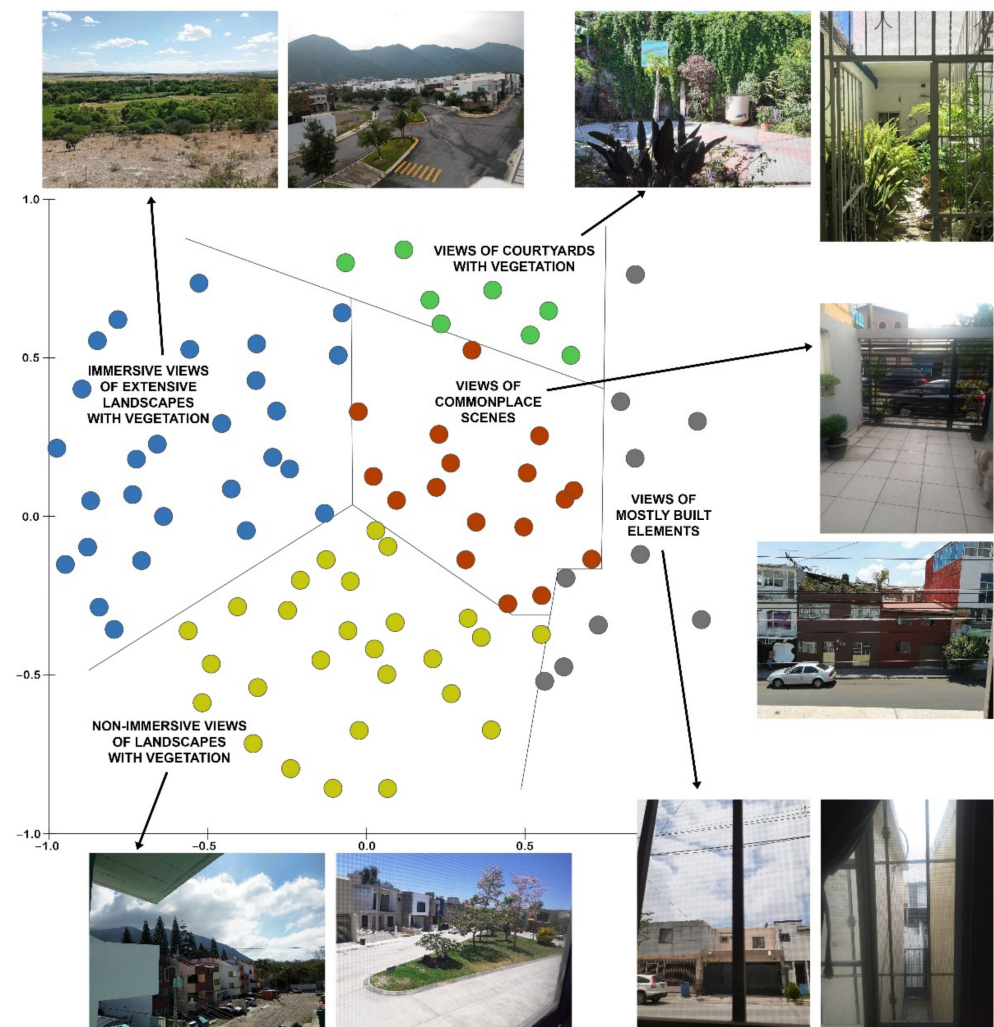
## 3. Results

### 3.1. Categorization of the Views According to Their Environmental Dimensions

Five categories of views were obtained through the multidimensional scaling analysis (Figure 3). The categories include views that are similar regarding the 41 environmental dimensions, and they were named as follows:

1. Immersive views of extensive landscapes with vegetation (27 views),
2. Non-immersive views of landscapes with vegetation (27 views),
3. Views of courtyards with vegetation (8 views),
4. Views of commonplace scenes (17 views), and
5. Views of mostly built elements (10 views).

Each category presents a combination of dimensions in specific quantities that make them distinguishable. As Masoudinejad and Hartig [45] (p. 407) indicated, “ . . . people residing near street level may see little sky from the window, but they may see people passing by outside, while residents on the highest floor levels may see little street life, but they may be able to look across rooftops and see the landscape beyond.” In the following paragraphs, the view categories are described considering all the statistics related to the environmental and psychological dimensions (Tables A1 and A2).



**Figure 3.** Multidimensional scaling displaying the outside views of Mexican dwellings separated into five categories according to their similar environmental characteristics.

### 3.2. Descriptive Statistics of the Categories of Views

#### 3.2.1. Immersive Views of Extensive Landscapes with Vegetation

The vegetation-related dimensions were in the highest points in this category of views. Forty-four percent of the participants reported green areas in this category, and 52% reported mountains. All the dimensions related to visibility were quite high in this category, and these views presented the highest proportion of sky. Participants were in direct contact with the outside environment in these views since no barriers were separating them from it in most cases. The observers of the extensive landscape views were located in a higher position than the observers of the other categories. The extensive landscapes views are the only ones that can be considered vistas, since a vista is “An unobstructed distant view within one’s range of vision without turning the head” [58] (p. 402). Furthermore, contrary to the other categories, the built elements were highly liked in the extensive landscape views.

Regarding the psychological aspects, this category of views was the most fascinating together with the category of views of courtyards. Views of extensive landscapes brought a moment of privacy, made people feel as if they were outdoors, and allowed them to see what was happening outside. Ninety-three percent of the participants reported positive emotions of low arousal, such as relaxation, with these views. Meanwhile, 19% of the participants reported positive emotions of high arousal, such as enthusiasm. These views were the best at promoting well-being out of all the categories since they generated in



the inhabitants the highest levels of feeling positive, relaxation during the day, feelings of renewal, and excitement about their activities.

### 3.2.2. Non-Immersive Views of Landscapes with Vegetation

After the immersive views of extensive landscapes, the non-immersive views had the highest values in the visibility-related dimensions and the highest proportion of trees. Thirty percent of the participants indicated that what they liked about these views was precisely the trees. This second category also corresponded to views of landscapes, since the concept of landscape includes not only rural spaces but also urban ones [59] (p. 62). The observers of these views were the least immersed in the outside environment. The latter is in clear contrast with the total immersion found in the extensive landscape views. Sixty-seven percent of the participants reported houses in their views, and this category of views was the one with the highest variety in the built elements.

Non-immersive views include, e.g., buildings, trees, mountains, people, cars, and the sky. The environmental complexity of this category of views was on the highest level, and participants observed many far-away things in these views. However, these views did not score high in any positive psychological aspect, perhaps due to the lack of immersion with the outside environment.

### 3.2.3. Views of Courtyards with Vegetation

This category of views presented the highest level of living vegetation, and 100% of the participants reported greenery. The views in this category were highly enclosed by lateral walls, possessing low values in the visibility dimensions. The views of courtyards presented spaces that belong to the dwelling, i.e., the lowest level of extraliminary property observation.

The configuration of elements found in these views was vegetation with a wall behind (vegetation/wall). Despite being surrounded by walls, the participants reported no comments about elements obstructing their views. The vegetation was seen as an attractive foreground element with unattended built elements acting as a background. Due to the surrounding walls, participants had to look upwards to see the environment outside the courtyard, which was mainly composed of a section of sky and some partially visible elements. Despite being the category with the lowest proportion of sky, 75% of the participants reported the sky and clouds when prompted to comment on what they saw. Meanwhile, 50% reported observing or listening to birds. The following words from Baker [60] (p. 159) can describe the experiences occurring in such little courtyards:

*“Enclosure enhances our sensibilities by eliminating other distractions and literally captures the atmosphere. The lack of visual freedom created by boundary walls heightens perception through our other senses, liberating us from overemphasis on sight.”*

The views of courtyards correspond to the simplest of all categories since participants commented on the smallest quantity of elements surrounding them. Despite the latter, these views obtained the highest score in fascination, and they held the interest of the observers. The smallest quantity of negative emotions out of all the categories was felt while looking at these views. Despite the reduced dimensions of the built space, these views made people feel as if they were outdoors at the maximum level. They were also the most relaxing during contemplation and the most helpful to withstand the confinement of all the views. The highest level of patience and the lowest annoyance and irritability were felt daily by the people with this category of view. According to Bringslimark et al. [61] (p. 429), “Plants in a setting filled with visual stimuli might have weaker effects than plants in a sterile setting.” In the views of courtyards, the plants’ positive effects may have been high because of the simplicity of the environment as a whole.

### 3.2.4. Views of Commonplace Scenes

These views presented moderate levels of many evaluated dimensions, with few particular characteristics making them outstanding. They partially presented the environment



outside the dwelling without allowing an open view of an urbanscape. The participants observed the views in this category with varying degrees of immersion. Furthermore, the commonplace views showed intermediate levels of vegetation. The uninteresting qualities of these views may be related to the fact that their observers were the ones who reported about the presence of cars (47%) and people (41%) most out of all the categories. The psychological dimensions of these unremarkable views presented many of the lowest values of all the categories. They generated low levels of fascination, relaxation, and privacy, together with the lowest feeling of being outdoors. The latter was accompanied by the lowest levels of patience and feeling positive, and the highest levels of irritability of all the views.

### 3.2.5. Views of Mostly Built Elements

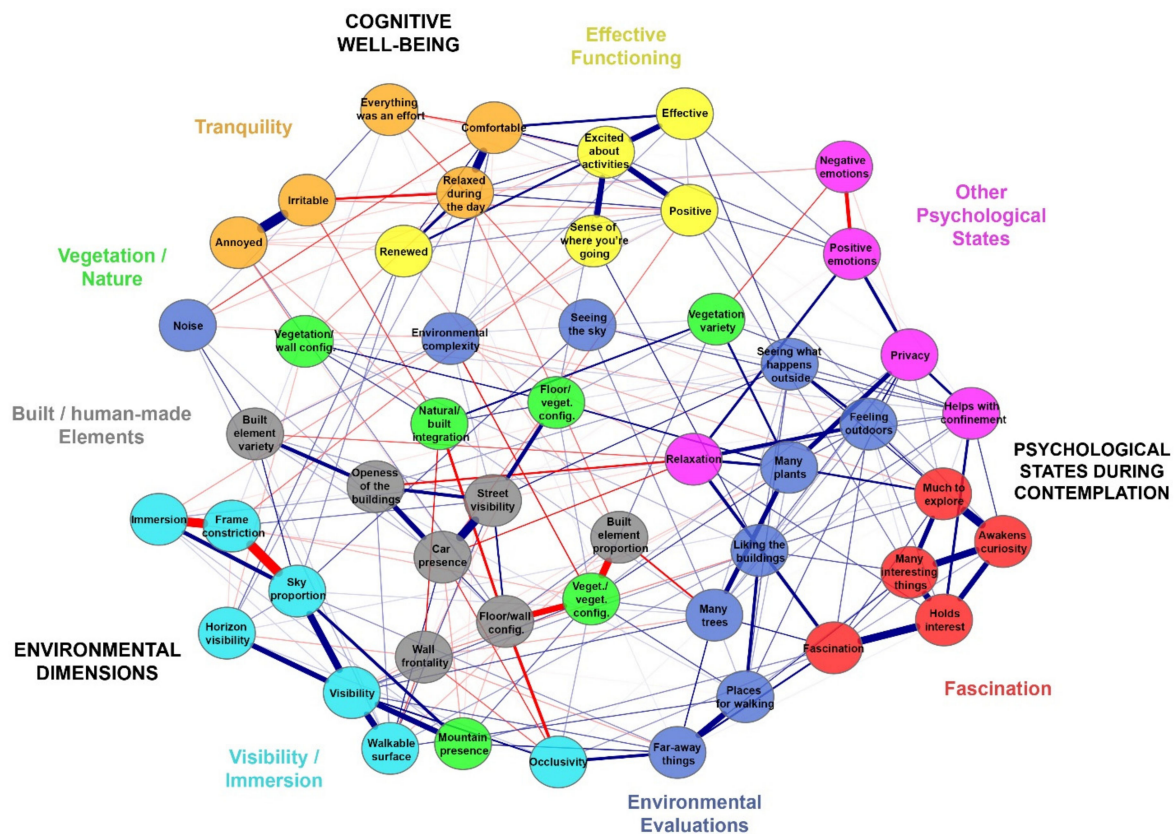
This category includes views with low levels of visibility and the lowest proportion of sky. Furthermore, these views possessed the highest proportion of built elements and the lowest proportion of vegetation of all categories. The main configuration found in these views was a floor in contact with a concrete wall. The latter may have caused these views' built elements to be the least liked of all categories. Participants reported streets (50%) and space-dividing elements (40%) in these scenes. In addition to the disliked built elements devoid of detail, the participants reported phenomena related to light and how it interacted with the visible elements (70%), e.g., the light rays of the sunset and the changes in the perceived color of the walls over time. Most participants in this category were not fully immersed in the outside environments, and 40% thought about going outside while looking at the scene. Twenty percent of the participants had thoughts related to personal issues while observing these views. Therefore, these views did not distract the observers from overthinking about their daily situations. These views generated the highest percentage of negative emotions (50%). The reported negative emotions included low arousal emotions, e.g., melancholy (30%), and high arousal emotions, e.g., distress (20%). Contradictorily, the observers of these views were those who mostly tried to relax or thought about being relaxed while contemplating (20%), as if they were making an effort to accomplish relaxation.

A high quantity of elements was reported in these views by the participants. Nevertheless, these views generated low values for the fascination items, and in contradiction to their high complexity, the participants evaluated that there was not much to explore in these views. Furthermore, this category of views was the least helpful to withstand the confinement. People with these views presented annoyance at the highest level on a daily basis.

### 3.3. *The Regularized Partial Correlation Network of the Environmental and Psychological Dimensions*

Since the study is exploratory, the hyperparameter gamma of the partial correlation network was set low (0.1). Due to the high quantity of dimensions studied, several of the latter were not included in the presented network (Figure 4). Environmental dimensions that were only directly related to a similar environmental evaluation were excluded since they did not give novel information. For example, tree proportion (an environmental dimension) was related to seeing many trees (an environmental evaluation realized by the participants) but was not related to any psychological dimension. On the other hand, several effective functioning and tranquility items were included in the network since they were related to the environmental dimensions or evaluations. Meanwhile, the distraction items were not included in the RPCN since they did not present relations or presented weak ones with the environmental aspects.

Considering the moderate quantity of participants, which affects a network's weights [52], and the exploratory objectives of the study, the partial correlation network included low weight values of less than 0.1.



**Figure 4.** Regularized partial correlation network of the contemplation of outside views of dwellings. Blue edges connecting the nodes indicate positive direct relations, and red edges indicate negative ones. The line width indicates the weight of the relation. Thicker lines represent weights of up to 0.36, and the faintest lines show weak relations of around 0.01.

The network evidenced several direct relations between the environmental dimensions, the psychological states during contemplation, and cognitive well-being on a daily basis. Therefore, the environmental qualities of the outside views may not only have influenced the pleasurable moments of contemplation but also how people felt during quotidian activities regarding cognitive well-being. The relations with higher weights and the most insightful relations found between pairs of dimensions are exposed in the following sections.

### 3.3.1. Relations with Relaxation and the Other Psychological States

Relaxation was directly related to the number of positive emotions felt during the contemplation of the views (weight = 0.15). Relaxation anticorrelated with the quantity of cars present in the scene ( $-0.11$ ) and the variety or heterogeneity of the built elements ( $-0.08$ ). The latter elements—cars—and discordant buildings may have increased the perceived disorder in the scene and reduced relaxation in the observers. Relaxation also negatively correlated with the openness of the visible buildings ( $-0.13$ ). The latter may indicate that views presenting buildings or houses with many windows through which one can be observed turn out to be deleterious to relaxation. Additionally, relaxation related to the quantity of plants assessed by the participants (0.16). The feeling of being outdoors was directly related to relaxation (0.19), whereas the immersion of the observer in the outside environment presented a marginal positive relation (0.04). Therefore, the perceived level of contact with the outside space (the feeling of being outdoors) turned out to be notably more related to relaxation than the actual immersion and contact with the outside world (e.g., the absence of barriers such as glass).

The degree to which a view helped withstand the confinement related to the capability of the view to hold interest (0.15), the moment of privacy it brought (0.15), the vegetation variety (0.08), the visibility of the sky according to the participants (0.08), seeing what was happening outside (0.07), and liking the built elements (0.07). Meanwhile, the feeling of privacy was related to the quantity of positive emotions (0.17), the feeling of being outdoors (0.12), and the quantity of plants assessed by the participants (0.21). In other respects, the participants reported fewer negative emotions when contemplating views with vegetation variety ( $-0.09$ ).

### 3.3.2. Relations with the Fascination Items

“This view is fascinating” correlated with the relaxation felt during contemplation (0.17), the participants’ evaluations of distant things in the view (0.13), and the quantity of trees (0.11). It was also marginally related to the presence of mountains (0.06) and the occlusivity in the scene (0.05). “My attention is drawn to many interesting things in this view” was related to the observation of distant things (0.10), feeling positive (0.06), and liking the built elements (0.08). Meanwhile, “There is much to explore and discover in this view” was directly related to the participants’ evaluation of the quantity of plants (0.14), the possibility of seeing what was happening outside (0.11), the feeling of being outdoors (0.10), and the attractiveness of the built elements (0.07). It is noticeable that the preference for the built elements was related to the interestingness of the view, but not to the fascination or relaxation items.

### 3.3.3. Relations with the Well-Being Items

Feeling effective related to seeing what was happening outside (0.09). Meanwhile, “You have a good sense of where you’re going” was negatively related to frame constriction ( $-0.06$ ). The feeling of renewal was related to the appreciation of the horizon line (0.07), and the higher the participants’ evaluation of the sky visibility, the less “everything was an effort” ( $-0.08$ ). The latter relations may indicate that having visual contact with the outside environment through the integration of the interior and exterior space impacts cognitive well-being.

Regarding the built elements, liking the latter was related to having a good sense of where one was going (0.10). The participants felt less relaxed on their daily routines when exposed to views with a high proportion of built elements ( $-0.06$ ), and more annoyance was experienced when exposed to views presenting the floor/wall configuration (0.05). Participants with views with a higher integration of the natural and built felt less irritable ( $-0.09$ ) and annoyed ( $-0.04$ ) on a daily basis. Meanwhile, feeling comfortable was inversely related to the perceived noise in the dwelling (0.09).

### 3.3.4. Relations with the Attractiveness of the Built Elements

Liking the built elements correlated with the participants’ evaluations of “I can see in this view places where I like to walk” (0.17). Similarly, the higher the walkable surface in the scene (0.04) and the higher the visibility (0.05), the more the built elements were liked. An interpretation of the latter relation is that built elements were more liked when appearing in an open view in which multiple constructions were present. Meanwhile, the frontal position of walls in relation to the observer may have reduced the attractiveness of the built elements ( $-0.05$ ). The latter relations indicate that the possibilities of displacement through a scene that the built elements afford (walkable surface), or on the contrary, restrict (wall frontality), influence the preference evaluations of the built elements themselves. The vegetation/wall configuration was marginally related to the attractiveness of the built elements (0.03). Considering all the above, liking the built elements in a view was related to external aspects, such as the quality of the space or places visible in the view and the vegetation coverage of the built elements. The attractiveness of the built elements was not related to formal qualities such as their variety or quantity of detail. It is important to

remark that the variety of the built elements was negatively related to relaxation, but it was not negatively related to the attractiveness of such elements.

### 3.3.5. General Relations between Environmental and Psychological Dimensions during View Contemplation

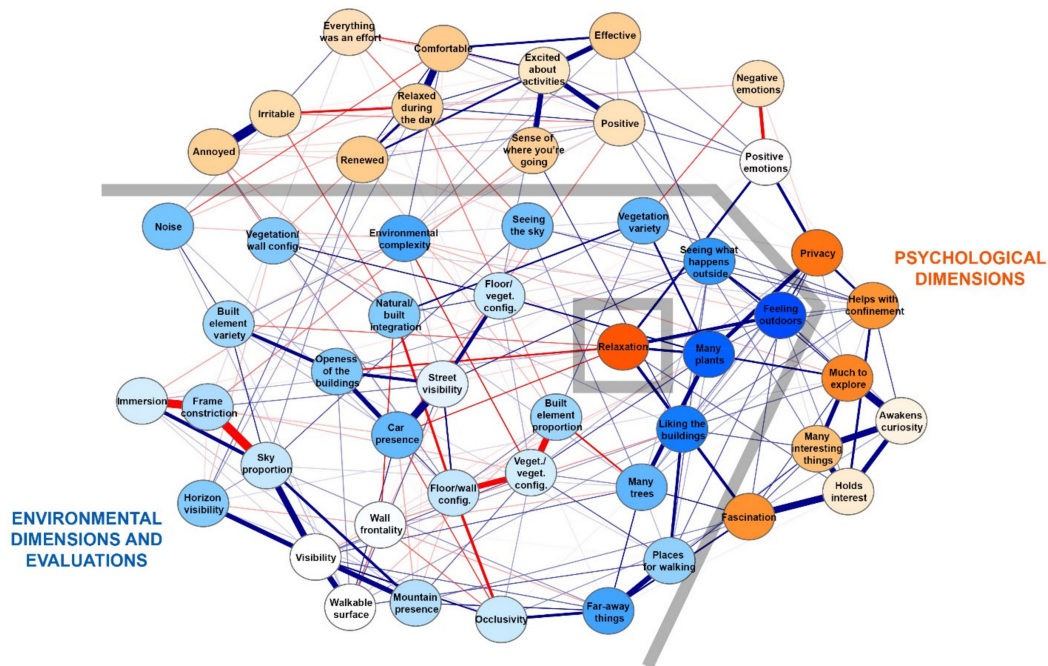
The dimensions of the network can be joined into two major groups: the environmental dimensions and evaluations, and the purely psychological dimensions. The environment-related types of dimensions are (a) visibility/immersion, (b) vegetation/nature, (c) built/human-made elements, and (d) environmental evaluations. The latter includes several items of the Outside View Statements related to the view's contents (e.g., the evaluation of the quantity of trees), and it also includes environmental complexity.

Meanwhile, the psychological dimensions are (a) fascination, (b) tranquility, (c) effective functioning, and (d) other psychological states. The last category corresponds to the characterization statements that did not ask about specific elements of the environment (e.g., "Having this view helps me to withstand the confinement"). Two more dimensions were also included in the other psychological states: the quantities of positive and negative emotions reported during the contemplation of the views.

The absolute weights of the edges that a node has with the other nodes in a network are summed to calculate the centrality measure of the strength of a node [52]. It is remarkable that contrary to the existing studies in which the networks included solely psychological dimensions, such as emotions or symptoms, the present study analyzed relations between psychological and environmental dimensions. Therefore, due to the distinct nature of the two major groups of dimensions, obtaining the strength of the nodes or other centrality measures of such a hybrid network would have caused nonsensical interpretations.

Therefore, due to the latter situation, another network metric needed to be considered: the bridge strength. The latter corresponds to "... the sum of the absolute value of all edges that exist between a node A and all nodes that are not in the same community as node A" [62] (p. 4). In this study, the mean bridge strength was calculated. The weights of the edges between each environmental dimension and all the psychological dimensions were averaged, and the weights of the edges between each psychological dimension and all the environment-related dimensions were also averaged. In this manner, the environmental nodes that were most directly related to the psychological dimensions and the psychological nodes that were most closely related to the environmental dimensions were discovered. The mean bridge strengths of the nodes of the RPCN are shown as a heatmap in Figure 5, and the following findings were noticeable:

- The psychological dimensions that presented stronger direct relations with the environmental aspects of an outside view were (a) relaxation and (b) the privacy felt during contemplation. Therefore, assuming that the environmental dimensions antecede the psychological ones, it may be inferred that changes in the environmental dimensions of an outside view will likely affect relaxation and privacy;
- The environmental dimensions that were most strongly related to the psychological states were (a) the capability of the environment to make people feel as if they were outdoors, (b) the quantity of moderate-size plants as evaluated by the participants, and (c) the attractiveness of the built elements. The latter three environmental aspects may have had the strongest influence on people's psychological states while contemplating the views. It is interesting to pinpoint that liking the buildings was directly related to five psychological states, as shown in Figure 4; nevertheless, all these relations were of moderate to low weight.



**Figure 5.** Mean bridge strength of the nodes of the RPCN considering two general groups of dimensions in blue and orange. The mean bridge strength is shown with the saturation of the respective colors. Nodes are not transparent to show their saturation values more clearly. The psychological dimension of relaxation is an enclave surrounded by environmental dimensions. Relaxation and feeling as if one were outdoors have summed bridge strengths of 0.75 and 0.65, respectively (without averaging), and they present the highest mean bridge strength of all dimensions (around 0.03).

Even though partial correlation networks such as the one shown here do not present causal relations, according to Blanco et al. [63], they allow for an approximation to causality. Therefore, it is possible to hypothesize about environmental dimensions causing psychological states based on the partial correlation network.

## 4. Discussion and Conclusions

The following section presents the interpretation of the major findings considering the research questions. In addition, several references are given if the results are related to existing research.

#### 4.1. Q1. How Can Outside Views Be Categorized According to Their Environmental Qualities?

The categorization of views allowed for the identification of two types of fascinating environments that could not be found by analyzing the dimensions (extensive landscapes views and courtyard views). In the views of extensive landscapes, the values of the environmental dimensions related to fascination were high. Meanwhile, the reduced courtyards with vegetation corresponded to atypical environments that did not possess the environmental qualities related to fascination. This is the first time to our knowledge that such categorization of views has been realized, since existing research has mainly focused on the study of scenes that present the natural and the built in pure states or different degrees [22,23,64].

Considering that the purpose of the present study was exploratory and the statistical analyses were performed in a single-item manner, a detailed analysis comparing the view categories regarding fascination and cognitive well-being as whole psychological constructs should be presented elsewhere.



#### 4.2. Q2. Which Environmental Dimensions of the Views Present Stronger Direct Relations with Fascination, Relaxation, and Cognitive Well-Being?

Relaxation could be generated through the presence of little to medium-sized plants [65], the absence of cars, and the low complexity of the scene. Relaxation was not related to open views, but it was slightly related to direct contact with the outside environment. Meanwhile, fascination was related to far distances and a great scale of visible elements, i.e., the observation of distant objects and the presence of mountains and trees. Regarding the mountains, the presented results are in line with existing studies since mountain landscapes are highly fascinating and restorative [64].

Most research on psychological restoration has focused on vegetation's benefits [20,21,24,25]. Nevertheless, according to the findings of this study, the attractiveness of the built elements is one of the three environmental aspects that had a strong direct relation with the psychological dimensions while contemplating the views. Liking the built elements was related to the interestingness of a view, the possibilities of discovery and exploration that it offered, and the view's capability to help with the confinement.

The direct relation between liking the built elements and interestingness, and the absence of a relation of the former with the fascination item, need more research to understand the psychological aspects related to the aesthetic experiences with architectural works. In general, more studies are needed on the attractiveness of the buildings in a landscape and the benefits of such affective experiences.

Regarding the categories of views, only the extensive landscape views possessed built elements capable of generating high aesthetic pleasure in the observers. Predominantly, buildings appearing in the views from this sample of Mexican dwellings received low liking ratings, and their unplanned variety had negative effects on relaxation. The latter may not apply to countries with higher architectural quality in residential zones.

One of the limitations of this study is the reduced quantity of participants. Nevertheless, the evaluation of views implied the assessment of 41 environmental dimensions of 89 participants with three photographs each, resulting in a time-consuming activity that restrained the number of participants included in the study.

The multiple environmental dimensions employed in this study allowed for the discovery of specific relations with the psychological aspects that could not have been obtained if only the common dimensions in existing research were considered (e.g., vegetation proportion). Furthermore, since dimensions about contextual aspects of the observation were included (such as immersion and frame constriction), not only the views were studied but also the situation of contemplation experienced by the observers. Meanwhile, the combined use of environmental dimensions and categories allowed for a better understanding of the relations between views, fascination, and relaxation than a study of the dimensions in isolation.

The methodological contributions of the present study include people's contact with real environments, the utilization of unexplored dimensions, and the parallel use of different statistical techniques. The latter techniques may be applied in diverse places and situations beyond the contemplation of outside views. Static observation of outside views was examined. Nevertheless, the environmental dimensions that make an environment relaxing and restorative could be different if the observer's displacement and exploration were involved. Therefore, other studies need to address the environmental dimensions that generate dynamic restorative experiences.

#### 4.3. Q3. What Are the Implications of This Study for the Architectural Discipline?

Based on all the above, the following paragraphs present suggestions for architects. However, it is important to remark that due to the exploratory approach of the study, more research is needed to confirm these assumptions.

- The integration of the exterior with interior space (making people feel outdoors) is as important as the merging of the natural and the built when pursuing people's relaxation and cognitive well-being. Considering that the integration of natural and

built elements presented negative relations with irritability and annoyance, and that the attractiveness of the built elements may be increased with vegetation/wall configurations in which the walls of buildings are behind vegetation, it is relevant to design places with such qualities. In general, the simultaneous consideration of the natural and the built in designed environments is a relevant theme for future studies;

- Courtyards with vegetation are reduced and secluded spaces that offer opportunities for restoration and relaxation and helped the inhabitants withstand confinement. Therefore, it is not mandatory to have extensive views or high sky visibility to have those benefits. Instead, a more modest space with plants far from the street is sufficient to experience a restorative parenthesis or pause in the middle of an urban world. Courtyards and the views they allow must be included in houses and apartments to generate well-being in their inhabitants;
- People do not evaluate their liking for built elements in an isolated manner, but take into account aspects of the context, such as the pleasant walks that the spaces between buildings afford. Architectural works and the places that they accompany compose an experiential whole. Therefore, architects should consider people's holistic manner of experiencing during the design process to generate well-being through the built environment;
- Several formal aspects of architecture (variety and proportion of built elements, openness of the buildings, and floor/wall configuration) influence human relaxation and well-being. The formal or aesthetic regarding buildings cannot be considered a secondary aspect in architecture after the functional, since the generation of well-being through aesthetics is also a function that a built environment must possess. Architecture is not only about the creation of functional buildings, but also about the generation of environments that allow users themselves to function effectively;
- People react positively to specific qualities of the environment and know their preferences, but this does not indicate that they know how to generate a pleasant environment as a whole or that they have the resources to do so. The wide variety of materials, colors, and architectural details of the built elements appearing in the views was related to a lower relaxation and was produced mainly by self-built dwellings. While choosing the dwelling style may satisfy the owners, the landscape composed of many such dwellings may be disharmonious.

Understanding the connections between the environmental and psychological dimensions examined in this study is mandatory for all the people implicated in the design and materialization of built environments. Hence, therein resides the importance of realizing and making public more research exploring people's experiences with places.

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**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** Data per category of views corresponding to the psychological dimensions. The left columns of each category of views correspond to the mean values (in bold), and the right columns present the standard deviations.

Type	Item/Dimension	Scale	Categories of Views											Total (89)
			Immersive Views of Extensive Landscapes with Vegetation (27)		Non-Immersive Views of Landscapes with Vegetation (27)		Views of Courtyards with Vegetation (8)		Views of Common-place Scenes (17)		Views of Mostly Built Elements (10)			
Fascination (quantitative items)	This view is fascinating.	0–10	7.78	1.97	6.48	2.86	8.25	2.05	3.71	2.44	4.50	1.43	6.28	2.81
	Following what is going on in this view really holds my interest.		7.85	2.09	6.30	2.87	8.00	2.14	5.12	1.93	4.70	2.31	6.52	2.61
	This view awakens my curiosity.		7.37	2.15	5.63	3.51	7.38	2.77	4.88	2.20	4.80	3.19	6.08	2.96
	There is much to explore and discover in this view.		7.30	2.41	5.74	3.41	6.75	3.01	4.18	2.38	3.60	2.07	5.76	3.03
	My attention is drawn to many interesting things in this view.		7.52	2.24	5.59	2.80	6.88	2.95	4.24	2.46	4.20	2.10	5.88	2.80
Effective functioning (quantitative items)	Energetic and excited about what you are doing.	0–4	2.78	1.15	2.30	1.23	2.25	1.16	1.88	1.05	2.40	1.35	2.37	1.20
	Life is interesting and challenging.		2.74	1.06	2.85	1.10	3.00	0.93	2.29	1.05	2.90	1.10	2.73	1.06
	Focused.		2.63	1.08	2.30	1.20	2.50	1.41	1.88	1.05	3.00	1.05	2.42	1.17
	Effective.		2.59	0.84	2.41	1.05	2.13	0.83	1.94	0.66	2.80	0.92	2.39	0.91
	Positive.		2.93	0.87	2.41	0.97	2.63	1.30	1.71	1.21	2.50	0.97	2.46	1.09
	Able to get really absorbed in a task.		2.33	1.21	2.30	1.07	2.38	1.19	2.12	1.27	2.40	1.35	2.29	1.17
	Alert.		2.52	1.05	2.30	1.23	2.63	1.30	1.88	0.99	2.00	1.33	2.28	1.16
	Satisfied with how things have been going lately.		1.85	1.03	1.85	0.99	1.63	1.41	1.29	1.16	1.40	1.26	1.67	1.11
	You have a good sense of where you’re going.		2.89	0.97	2.11	1.12	2.63	1.30	2.18	1.13	2.80	1.14	2.48	1.13
	Attentive.		2.63	0.97	2.26	0.76	2.63	1.19	2.06	1.20	2.60	1.17	2.40	1.01
Renewed.	2.11	1.01	1.85	1.03	2.00	1.60	1.41	1.06	1.50	1.08	1.82	1.10		
Tranquility (quantitative items)	Relaxed.	0–4	2.22	1.01	2.00	1.14	1.50	1.20	1.24	1.20	1.80	1.03	1.85	1.14
	Comfortable.		2.59	1.15	2.44	0.89	2.00	1.41	2.29	1.31	2.90	1.20	2.47	1.14
	Irritable.		1.56	0.97	1.70	1.30	1.50	1.07	2.00	1.32	1.90	1.29	1.72	1.18
	Everything was an effort.		1.93	0.83	2.19	1.00	2.13	1.46	1.94	1.25	2.10	0.74	2.04	1.01
	Patient.		2.11	0.97	2.11	0.85	2.88	1.13	1.76	1.09	2.40	1.17	2.15	1.02
	Annoyed.		1.52	1.01	1.67	1.00	1.38	1.51	2.06	0.97	2.20	1.14	1.73	1.07
	Pressured and overloaded.		2.15	1.23	2.67	1.27	2.88	0.83	2.18	1.19	2.40	1.43	2.40	1.23
Distraction (quantitative items)	Forgetful.	0–4	1.52	0.94	1.59	1.05	1.75	0.46	2.06	0.97	1.80	1.23	1.70	0.98
	Disorganized.		1.52	0.98	1.63	1.24	1.00	1.20	1.76	1.20	1.80	1.55	1.58	1.19
	You were losing or misplacing things.		1.15	0.82	1.37	1.28	1.13	1.46	1.29	0.99	1.70	1.16	1.30	1.09
	It is difficult to finish things you have started.		1.30	1.10	1.48	0.98	1.88	1.25	1.65	1.06	1.70	1.64	1.52	1.13
	Making decisions is difficult.		1.74	1.06	1.78	1.19	1.75	1.16	2.00	0.94	1.60	1.58	1.79	1.13

Table A1. Cont.

Type	Item/Dimension	Scale	Categories of Views										Total (89)	
			Immersive Views of Extensive Landscapes with Vegetation (27)		Non-Immersive Views of Landscapes with Vegetation (27)		Views of Courtyards with Vegetation (8)		Views of Common-place Scenes (17)		Views of Mostly Built Elements (10)			
Other psychological states and emotions had while observing the view (quantitative and open-ended items)	I feel relaxed while looking at this view.	0–10	8.78	1.63	7.07	2.80	9.88	0.35	5.94	2.88	7.20	2.39	7.64	2.59
	Having this view helps me to withstand the confinement.		8.04	2.47	7.67	3.04	8.75	1.83	6.65	2.83	4.80	2.86	7.36	2.88
	Looking at this view gives me a moment of privacy.		7.52	2.69	6.44	3.12	7.13	2.90	3.76	2.51	4.30	2.41	6.08	3.10
	Positive emotions.	Count	1.74	0.81	1.15	0.77	2.13	1.25	1.06	0.97	1.30	0.67	1.42	0.91
	Negative emotions.		0.33	0.55	0.48	0.75	0.13	0.35	0.41	0.62	0.80	0.79	0.43	0.66
	Low-arousal positive emotions.	0/1	0.93	0.27	0.74	0.45	0.88	0.35	0.65	0.49	0.90	0.32	0.81	0.40
	High-arousal positive emotions.		0.19	0.40	0.11	0.32	0.13	0.35	0.06	0.24	0.10	0.32	0.12	0.33
	Low-arousal negative emotions.		0.11	0.32	0.11	0.32	0.00	0.00	0.06	0.24	0.30	0.48	0.11	0.32
	High-arousal negative emotions.		0.07	0.27	0.11	0.32	0.00	0.00	0.12	0.33	0.20	0.42	0.10	0.30
	Thoughts had while observing the view (open-ended item)	Going out/outdoor activities.	0/1	0.15	0.36	0.15	0.36	0.25	0.46	0.12	0.33	0.40	0.52	0.18
Mind in blank/tries not to think/just enjoys.		0.04		0.19	0.22	0.42	0.00	0.00	0.18	0.39	0.20	0.42	0.13	0.34
Thinks about relaxation/intends to relax.		0.07		0.27	0.11	0.32	0.13	0.35	0.00	0.00	0.20	0.42	0.09	0.29
Personal thoughts.		0.11		0.32	0.04	0.19	0.13	0.35	0.12	0.33	0.20	0.42	0.10	0.30
Thoughts transcending the present moment and place.		0.37		0.49	0.11	0.32	0.25	0.46	0.12	0.33	0.40	0.52	0.24	0.43
The future in general.		0.11		0.32	0.04	0.19	0.13	0.35	0.12	0.33	0.10	0.32	0.09	0.29
Confinement/pandemic.		0.19		0.40	0.37	0.49	0.38	0.52	0.12	0.33	0.10	0.32	0.24	0.43

**Table A2.** Data per category of views of the environmental dimensions and evaluations. As in Table A1, the left columns correspond to the mean values (in bold), and the right columns to the standard deviations.

Type	Item/Dimension	Scale	Categories of Views											Total (89)
			Immersive Views of Extensive Landscapes with Vegetation (27)		Non-Immersive Views of Landscapes with Vegetation (27)		Views of Courtyards with Vegetation (8)		Views of Common-place Scenes (17)		Views of Mostly Built Elements (10)			
Environmental evaluations (quantitative items)	When I look at this view, I feel like being outdoors.	0–10	8.70	1.59	6.67	3.42	9.13	1.36	5.59	3.20	6.50	2.84	7.28	2.95
	I really like the built elements visible from here.		7.04	3.48	6.11	3.08	5.00	4.57	3.88	2.96	3.10	3.03	5.53	3.55
	I can see in this view places where I like to walk.		7.04	3.30	5.78	3.91	2.63	2.83	1.88	2.34	4.30	3.56	4.97	3.82
	I see things that are far away from here in this view.		7.74	2.86	6.81	3.04	3.38	3.34	2.24	3.15	2.30	2.21	5.40	3.75
	This view allows me to see what is happening outside.		8.26	2.26	7.44	2.97	6.00	3.38	6.59	3.10	7.00	3.53	7.35	2.93
	I can see the sky very well in this view.		9.37	1.01	8.74	2.19	8.25	2.43	8.12	2.45	9.30	1.57	8.83	1.94
	Many plants can be seen from this location.		8.00	2.34	6.67	3.01	7.88	3.44	4.47	3.00	3.40	2.72	6.39	3.22
	I can see many trees from here.		8.48	1.72	7.11	2.62	5.00	4.38	5.24	2.75	2.20	2.66	6.43	3.23
	Noise.	0–2	1.00	0.62	1.00	0.55	1.13	0.35	1.18	0.53	1.10	0.57	1.06	0.55
Liked elements of the view (open-ended item)	Trees.	0/1	0.15	0.36	0.30	0.47	0.13	0.35	0.12	0.33	0.00	0.00	0.17	0.38
	Vegetation in general (includes trees).		0.41	0.50	0.44	0.51	0.50	0.53	0.18	0.39	0.30	0.48	0.37	0.49
	Sky/clouds.		0.19	0.40	0.22	0.42	0.50	0.53	0.24	0.44	0.20	0.42	0.24	0.43
	The view as a whole.		0.22	0.42	0.00	0.00	0.25	0.46	0.12	0.33	0.00	0.00	0.11	0.32
	Environmental complexity.	Count	4.00	1.78	4.70	1.38	3.00	0.76	4.12	1.45	4.70	2.16	4.22	1.63
Reported Elements of the view (open-ended item)	A tranquil/quiet place.	0/1	0.22	0.42	0.15	0.36	0.00	0.00	0.12	0.33	0.00	0.00	0.13	0.34
	A park, a natural environment.		0.44	0.51	0.30	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.42
	Plants.		0.04	0.19	0.15	0.36	0.63	0.52	0.18	0.39	0.50	0.53	0.20	0.40
	Vegetation in general.		0.78	0.42	0.89	0.32	1.00	0.00	0.76	0.44	0.50	0.53	0.80	0.40
	An extensive view.		0.33	0.48	0.04	0.19	0.00	0.00	0.00	0.00	0.10	0.32	0.12	0.33
	Mountains/hills.		0.52	0.51	0.37	0.49	0.13	0.35	0.12	0.33	0.00	0.00	0.30	0.46
	Sky/clouds.		0.41	0.50	0.48	0.51	0.75	0.46	0.41	0.51	0.60	0.52	0.48	0.50
	Natural lighting phenomena.		0.15	0.36	0.07	0.27	0.13	0.35	0.18	0.39	0.70	0.48	0.19	0.40
	Houses/apartments.		0.48	0.51	0.67	0.48	0.00	0.00	0.59	0.51	0.60	0.52	0.53	0.50
	Non-residential buildings.		0.19	0.40	0.15	0.36	0.00	0.00	0.06	0.24	0.00	0.00	0.11	0.32
	Electrical installations, dwelling fixtures and fittings.		0.11	0.32	0.15	0.36	0.13	0.35	0.06	0.24	0.10	0.32	0.11	0.32
	Elements dividing space or blocking movement (walls, fences).		0.00	0.00	0.04	0.19	0.00	0.00	0.29	0.47	0.40	0.52	0.11	0.32
	Street/sidewalk.		0.19	0.40	0.44	0.51	0.00	0.00	0.35	0.49	0.50	0.53	0.31	0.47
	Cars in general.		0.19	0.40	0.44	0.51	0.00	0.00	0.47	0.51	0.30	0.48	0.31	0.47
	Moving cars.		0.11	0.32	0.19	0.40	0.00	0.00	0.29	0.47	0.10	0.32	0.16	0.37
	People in general.		0.30	0.47	0.33	0.48	0.00	0.00	0.41	0.51	0.20	0.42	0.29	0.46
	People walking/doing activities.		0.22	0.42	0.30	0.47	0.00	0.00	0.35	0.49	0.10	0.32	0.24	0.43
			Birds/birdsong.		0.15	0.36	0.15	0.36	0.50	0.53	0.18	0.39	0.20	0.42



Table A2. Cont.

Type	Item/Dimension	Scale	Categories of Views											
			Immersive Views of Extensive Landscapes with Vegetation (27)		Non-Immersive Views of Landscapes with Vegetation (27)		Views of Courtyards with Vegetation (8)		Views of Common-place Scenes (17)		Views of Mostly Built Elements (10)		Total (89)	
Visibility/immersion (photograph evaluation)	Visibility.	1–3	2.89	0.32	2.04	0.71	1.13	0.35	1.41	0.51	1.10	0.32	1.99	0.85
	Maximum depth.		2.96	0.19	2.26	0.71	1.50	0.93	1.41	0.62	1.10	0.32	2.11	0.88
	Depth variety.		2.96	0.19	2.81	0.40	1.75	0.89	2.00	0.79	1.50	0.53	2.46	0.75
	Walkable surface.		2.07	0.83	1.85	0.72	1.00	0.00	1.35	0.49	1.30	0.48	1.69	0.75
	Occlusivity.		2.59	0.57	2.11	0.85	1.75	0.71	1.47	0.72	1.30	0.48	2.01	0.83
	Non-intervisibility of the visible spaces.	0–2	1.48	0.80	1.15	0.60	0.38	0.52	0.76	0.83	0.50	0.71	1.03	0.80
	Horizon visibility.		0.70	0.82	0.19	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.62
	Sky proportion.		1.78	0.42	1.22	0.51	0.75	0.46	0.94	0.24	0.70	0.48	1.24	0.58
	Height level of the observer.	0–3	2.19	0.68	1.81	0.68	0.50	0.53	1.18	0.39	1.10	0.57	1.61	0.81
	Observation distance to the outside environment.		0.63	0.69	1.15	0.53	1.63	0.52	1.35	0.61	1.50	0.71	1.11	0.70
	Roof enclosure.		0.44	0.64	1.15	0.53	0.75	0.89	0.94	0.75	1.00	0.67	0.84	0.71
	Lateral wall enclosure.		0.37	0.56	0.96	0.59	1.63	0.74	1.35	0.61	1.60	0.84	0.99	0.78
	Frame constriction.	0–2	0.44	0.70	1.74	0.59	1.13	0.35	1.53	0.62	1.80	0.42	1.26	0.82
	Observation through a transparent surface.	0/1	0.04	0.19	0.56	0.51	0.25	0.46	0.41	0.51	0.60	0.52	0.35	0.48
	Curtain presence.		0.00	0.00	0.70	0.47	0.13	0.35	0.18	0.39	0.60	0.52	0.33	0.47
	Observation through a grid.		0.11	0.32	0.56	0.51	0.13	0.35	0.71	0.47	0.60	0.52	0.42	0.50
Immersion.	0–3	2.85	0.36	1.19	0.92	2.50	0.76	1.71	0.85	1.20	1.40	1.91	1.09	
Extralimitary property observation.	0–2	1.81	0.40	1.67	0.48	0.50	0.53	1.53	0.51	1.20	0.92	1.53	0.64	

Table A2. Cont.

Type	Item/Dimension	Scale	Categories of Views											
			Immersive Views of Extensive Landscapes with Vegetation (27)		Non-Immersive Views of Landscapes with Vegetation (27)		Views of Courtyards with Vegetation (8)		Views of Common-place Scenes (17)		Views of Mostly Built Elements (10)		Total (89)	
Vegetation/nature (photograph evaluation)	Vegetation proportion.	0–3	2.15	0.66	1.96	0.65	2.00	0.76	1.41	0.51	0.50	0.53	1.75	0.80
	Living vegetation proportion.		1.89	0.75	1.93	0.62	2.00	0.76	1.41	0.51	0.50	0.53	1.66	0.78
	Tree proportion.		1.89	0.70	1.85	0.66	1.38	1.06	1.35	0.49	0.30	0.48	1.55	0.83
	Green area presence.	0–2	1.15	0.82	0.52	0.64	0.13	0.35	0.00	0.00	0.00	0.00	0.52	0.74
	Maximum vegetation height.	0–4	3.30	0.72	3.44	0.58	2.25	0.89	3.18	0.64	1.00	1.05	2.97	1.05
	Vegetation variety.	0–3	1.63	0.56	1.63	0.56	1.75	0.46	1.35	0.49	0.60	0.70	1.47	0.64
	Vegetation/soil contact.		2.07	1.00	1.63	0.97	1.38	1.06	0.94	0.75	0.50	0.53	1.48	1.03
	Vegetation/wall configuration.	0–2	0.93	0.68	0.89	0.42	1.13	0.83	0.94	0.24	0.50	0.53	0.89	0.55
	Wall/vegetation configuration.		1.26	0.59	1.00	0.55	0.63	0.92	0.88	0.49	0.30	0.48	0.94	0.65
	Vegetation/vegetation configuration.		1.22	0.75	0.59	0.69	0.63	0.52	0.06	0.24	0.00	0.00	0.62	0.75
	Floor/vegetation configuration.		0.89	0.75	1.04	0.44	0.75	0.89	0.76	0.44	0.50	0.53	0.85	0.61
	Natural and built integration.		0.70	0.54	0.89	0.64	0.63	0.52	0.47	0.51	0.00	0.00	0.63	0.59
	Vegetation unity.		1.52	0.64	1.19	0.88	1.50	0.76	0.88	0.70	0.10	0.32	1.13	0.83
	Mountain presence.		0.85	0.36	0.37	0.49	0.25	0.46	0.00	0.00	0.00	0.00	0.39	0.49
Built/human-made elements (photograph evaluation)	Built element proportion.	1–3	1.56	0.51	1.89	0.42	2.00	0.53	2.18	0.39	2.50	0.53	1.92	0.55
	Built element variety.	0–2	1.30	0.72	1.33	0.62	0.25	0.46	1.24	0.44	1.00	0.94	1.17	0.71
	Architectural detail.		0.56	0.51	0.85	0.60	0.25	0.46	0.94	0.56	0.80	0.79	0.72	0.60
	Floor/wall configuration.		0.85	0.72	1.33	0.62	1.00	0.76	1.71	0.47	2.00	0.00	1.30	0.71
	Wall frontality.		1.04	0.65	1.26	0.76	1.88	0.35	1.71	0.59	1.50	0.71	1.36	0.71
	Openness of the buildings.	0–4	0.64	0.56	0.81	0.52	0.00	0.00	0.85	0.42	0.77	0.92	0.69	0.59
	Dwelling presence.	0–3	1.93	1.07	1.67	0.96	0.50	0.53	1.29	0.69	1.00	0.82	1.49	0.99
	Street visibility.	0–2	0.93	0.92	1.67	0.55	0.00	0.00	1.47	0.80	1.30	0.95	1.21	0.89
Car presence.	0.37		0.69	1.37	0.69	0.00	0.00	1.35	0.86	0.80	0.79	0.88	0.86	

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