

Restorative Environments

Restoration as the ‘process of renewing physical, psychological and social capabilities diminished in ongoing efforts to meet adaptive demands’
(Hartig, 2004)

Environments promote restoration due to specific plastic, esthetic, social and symbolic attributes, many linked to our evolutionary history.



Supporting Theories

Ulrich, 1993

Psychophysiological Stress Recovery Theory

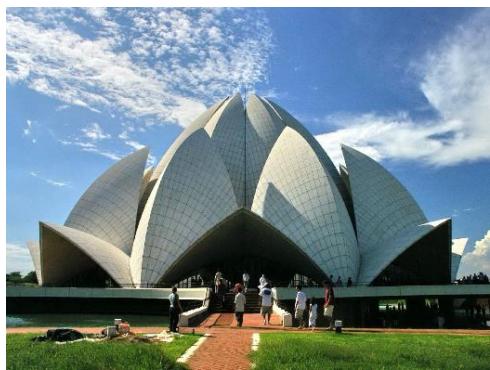
- Affective responses to environments – fast, automatic and implicit
- Environmental characteristics linked to better survival chances evoke biophilic responses: approximation and appreciation, restoration, improvement of higher cognitive function

Kaplan & Kaplan, 1989

Attention Restoration Theory

- Cognitive evaluation of environment's characteristics
- Attributes that promote a restorative experience
 - Being away
 - Extension (connectedness + scope)
 - Soft Fascination (calls forth involuntary attention)
 - Compatibility

Interest:



Studies

1- Image sorting task

How do people group different urban sceneries?

- Shared grouping criteria?
- Laypeople X people with art training?
- unconventional urban buildings X conventional urban architecture buildings ?
- Where do graffiti and reflective glass buildings stand?

2 – Semantic differential task

What is the perceived restorative potential of each group of images?

- Which environments are perceived as more restorative, which are less?
- Laypeople X people with art training?
- Which scenario is preferred?

Study 1 – Image Sorting Task

n= 152, 140 answered demographic questions, 135 complete answers

Age: 19-77, average of 37 years old (sd= 12,4)

Mostly female (61,4%)

80% college education,,

From all over the country (43% DF, 25% Southeast, 15% Northeast, 10% South)

46% laypeople, 54% with art training

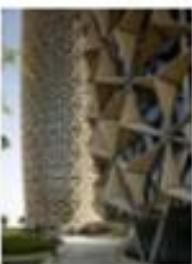
Optimal sort platform

3 photographic stimuli per category

(constructed from theory predictions)



Stimuli

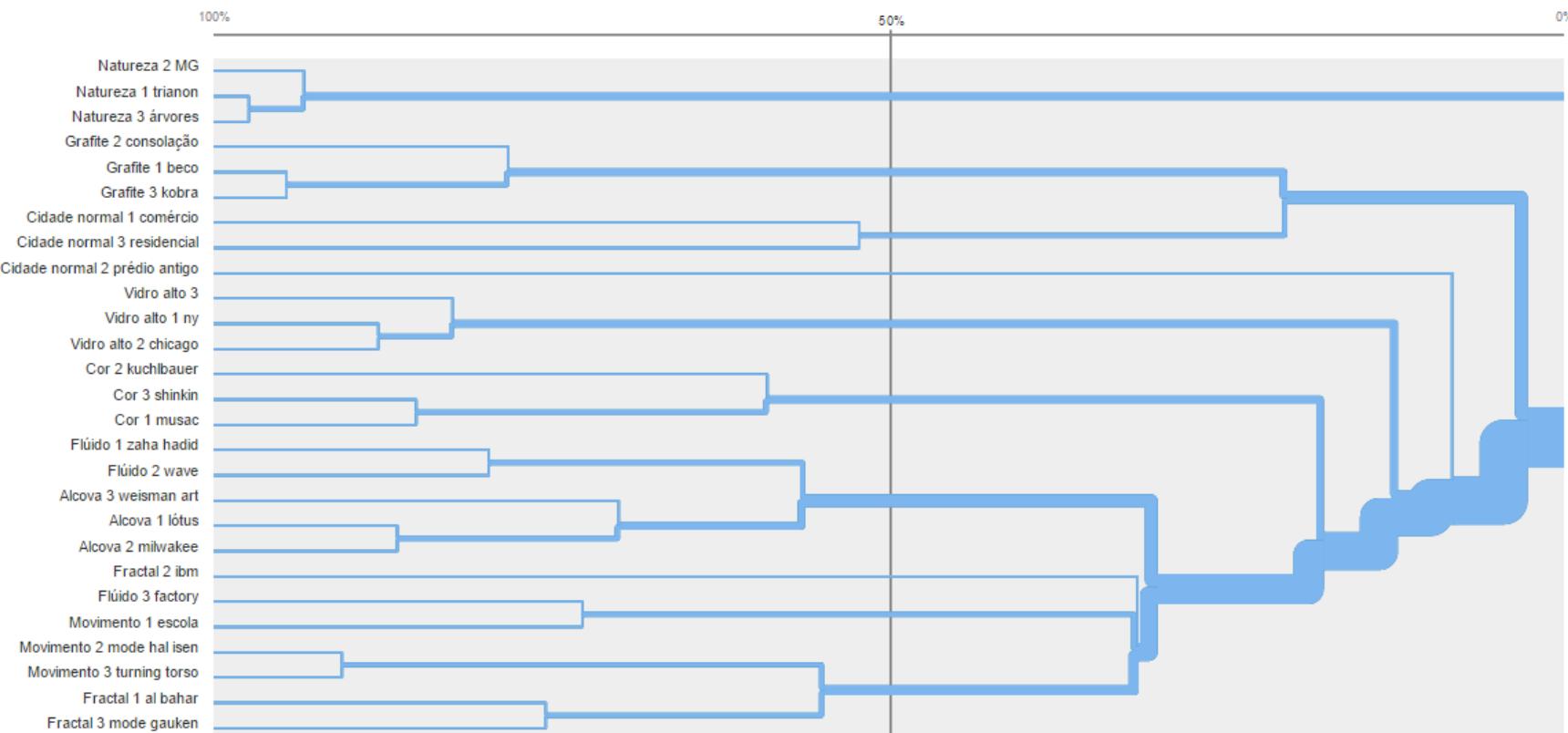


Classification – lay people

only complete answers (n=73)

Actual Agreement Method

The Actual Agreement Method works best with 30 or more participants and will depict only absolutely factual relationships. We call this the Skeptical Dendrogram.

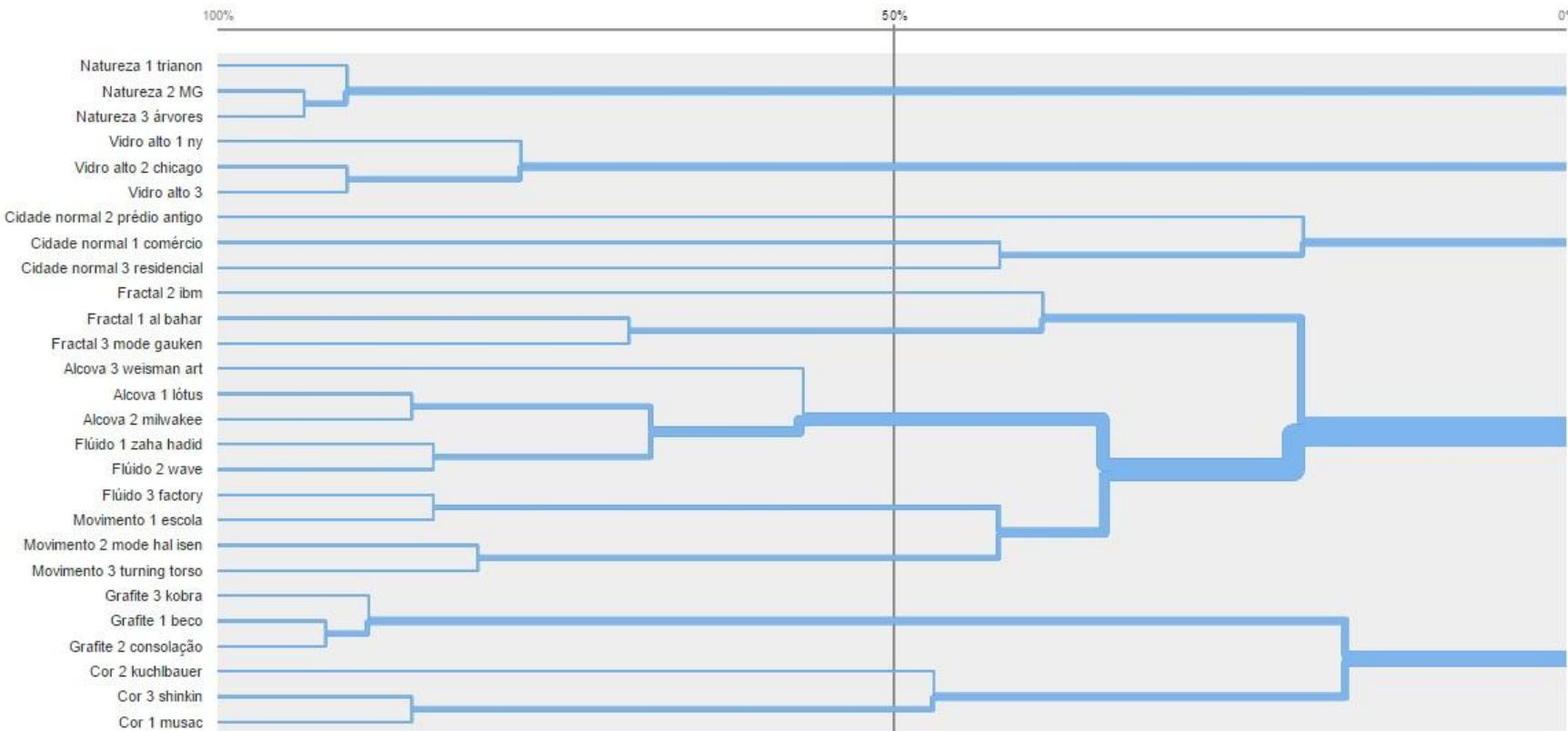


Classification – people with art training

only complete answers (n= 62)

Actual Agreement Method

The Actual Agreement Method works best with 30 or more participants and will depict only absolutely factual relationships. We call this the Skeptical Dendrogram.



Similarity Matrix

Similarity Matrix ◉

Grafite 1 beco

96 Grafite 3 kobra

91 88 Grafite 2 consolação

40 38 37 Cidade normal 1 comércio

9 9 12 41 Cidade normal 3 residencial

4 4 4 20 33 Cidade normal 2 prédio antigo

9 9 9 17 29 24 Vidro alto 1 ny

4 4 4 14 30 17 83 Vidro alto 2 chicago

6 6 6 14 30 16 79 90 Vidro alto 3

0 0 1 3 12 11 29 40 41 Movimento 2 mode hal isen

0 0 1 1 12 11 20 30 32 80 Movimento 3 turning torso

3 3 3 6 17 16 25 35 38 67 75 Fractal 3 mode gauken

4 6 6 6 12 14 24 24 25 48 51 69 Fractal 1 al bahar

4 6 4 4 11 19 19 22 20 46 45 50 61 Movimento 1 escola

3 4 3 4 11 20 19 22 24 51 56 62 59 83 Flúido 3 factory

1 1 3 1 9 17 20 20 20 48 51 41 46 56 56 Flúido 2 wave

0 0 1 1 9 17 14 17 17 53 54 40 45 46 51 83 Flúido 1 zaha hadid

0 0 1 1 9 19 14 19 17 51 54 45 41 46 53 69 83 Alcova 2 milwaukee

1 1 1 1 9 19 12 16 17 46 51 43 45 45 51 72 82 85 Alcova 1 lótus

3 4 3 1 9 16 14 17 19 45 53 48 50 48 53 66 67 66 73 Alcova 3 weisman art

20 22 22 9 8 14 9 9 8 20 27 22 30 24 27 27 32 33 33 38 Cor 2 kuchlbauer

27 29 27 12 12 19 17 19 19 25 27 29 29 35 35 29 29 30 29 32 51 Cor 3 shinkin

29 30 30 14 11 14 19 19 17 19 20 22 25 33 33 33 22 24 25 20 27 51 89 Cor 1 musac

14 16 14 12 24 24 24 24 25 20 25 27 41 58 56 43 33 30 32 30 32 29 40 40 Fractal 2 ibm

3 3 1 1 1 3 1 1 1 0 0 1 1 6 1 1 1 1 1 1 1 0 9 Natureza 2 MG

3 3 1 0 0 1 0 0 0 1 1 0 0 4 0 1 1 3 3 3 3 3 0 8 93 Natureza 3 árvores

4 4 3 0 0 0 0 0 0 0 0 0 4 0 0 0 0 0 0 0 0 1 8 90 93 Natureza 1 trianon

Similarity Matrix ◉

Natureza 3 árvores

98 Natureza 1 trianon

95 94 Natureza 2 MG

5 5 5 Grafite 3 kobra

4 5 4 34 Grafite 1 beco

1 1 1 79 82 Grafite 2 consolação

1 2 1 48 48 51 Cidade normal 1 comércio

0 0 0 22 25 35 52 Cidade normal 3 residencial

0 0 0 5 8 16 19 46 Vidro alto 3

0 0 0 6 9 17 20 43 91 Vidro alto 2 chicago

0 0 0 12 15 23 26 46 86 88 Vidro alto 1 ny

0 0 0 4 4 6 6 18 56 57 47 Movimento 2 mode hal isen

0 0 0 4 4 6 6 19 46 47 37 90 Movimento 3 turning torso

0 0 0 4 4 8 8 16 46 46 37 72 78 Fractal 3 mode gauken

0 0 0 5 5 6 6 14 36 38 30 58 58 75 Fractal 1 al bahar

0 0 0 5 5 6 4 11 30 33 23 61 65 62 68 Flúido 3 factory

0 0 0 6 5 8 5 15 31 34 25 57 64 60 58 73 Flúido 2 wave

0 0 0 5 5 6 7 11 34 37 28 59 62 58 59 66 80 Flúido 1 zaha hadid

0 0 0 5 5 6 7 11 31 34 25 54 61 59 62 64 76 86 Alcova 2 milwaukee

0 0 0 4 4 5 5 12 34 37 28 58 66 63 65 63 75 80 86 Alcova 1 lótus

0 0 0 4 4 5 8 14 37 38 30 54 55 56 62 56 65 68 73 75 Alcova 3 weisman art

1 1 1 11 11 15 16 21 26 29 25 48 50 47 52 74 56 48 45 45 44 Movimento 1 escola

4 4 4 21 19 21 23 21 27 27 25 34 35 47 64 47 41 34 37 38 43 61 Fractal 2 ibm

0 0 0 31 31 25 15 11 26 26 22 37 36 37 38 39 41 40 40 39 42 35 38 Cor 3 shinkin

0 0 0 38 39 34 18 15 24 26 23 28 27 28 30 34 35 31 33 29 37 34 36 36 Cor 1 musac

0 0 0 38 36 31 18 15 20 21 18 28 31 30 30 33 39 34 33 33 44 37 38 65 63 Cor 2 kuchlbauer

0 0 0 11 13 19 18 28 22 22 25 19 23 22 20 25 23 22 26 23 20 19 22 15 18 20 Cidade normal 2 prédio antigo

Figura 13. Matriz de similaridade dos participantes que possuem treino formal nas artes (n=62).

Figura 14. Matriz de similaridade dos participantes leigos (n=73).

Study 2 – Semantic Differential

n= 125

- Mostly females (68%).
- Age 19 -75, average of 37 (sd= 11,5)
- From all over the country (similar distribution).
- Most did not participate in Study 1 (62%)
- Most are laypeople (67%)



common- different

looks like places from my day to day – doesn't

ugly- beautiful

not interesting – interesting

fits me – does not fit me

can't do what I want – can

not harmonic – harmonic

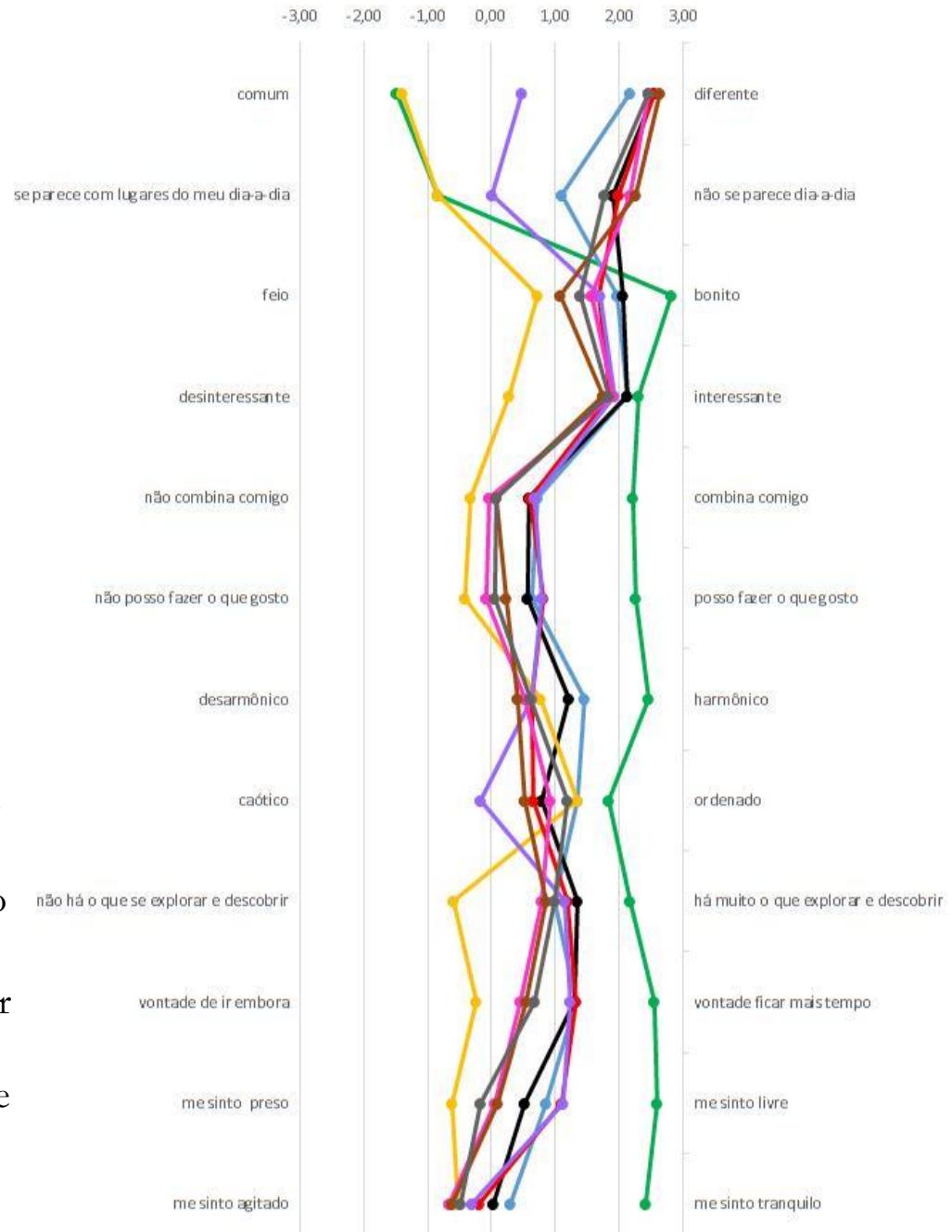
caotic – organized

nothing to explore and discover – much to

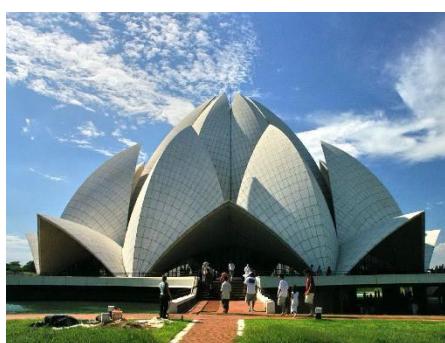
want to leave – want to stay longer

feel trapped – feel free

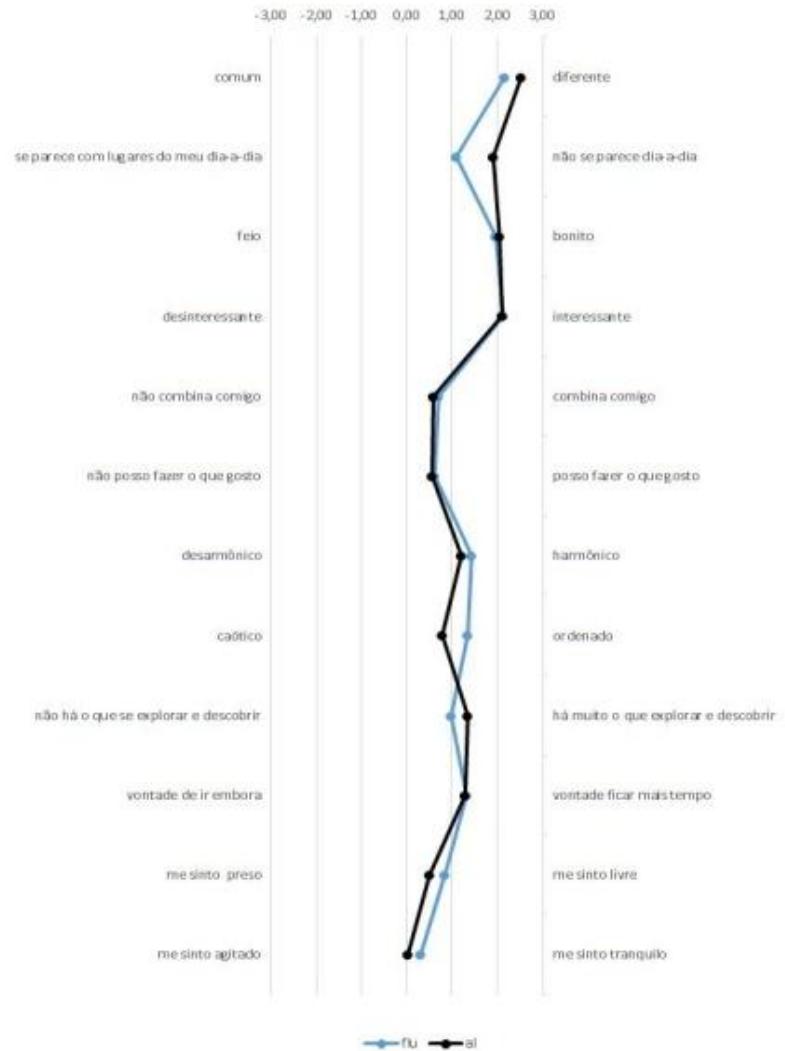
feel agitated – feel calm



natur eza flu al vidro cor grafite tt bp frac

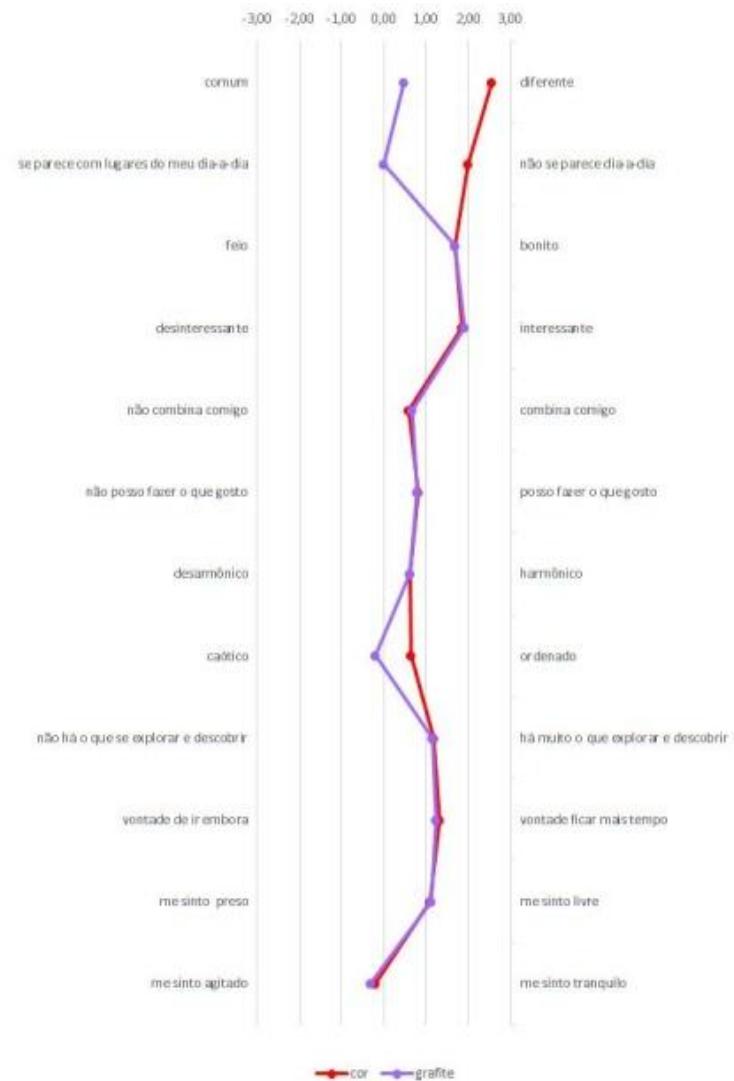


Fluid X Alcove



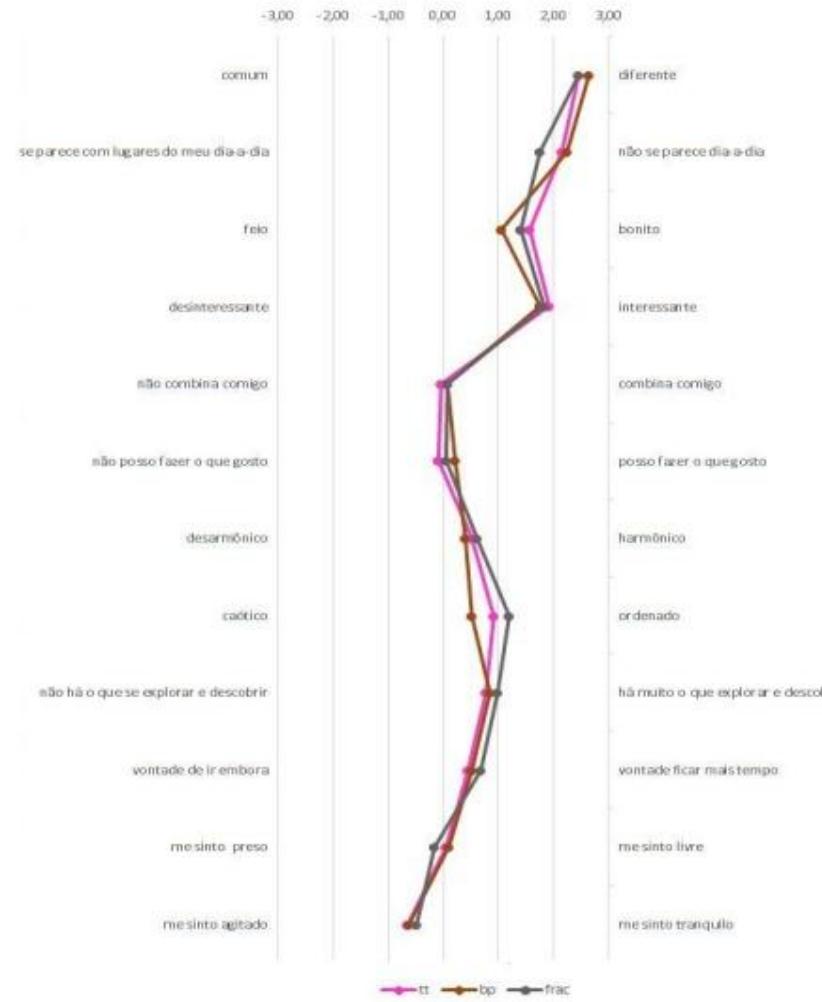


Graffiti X Color



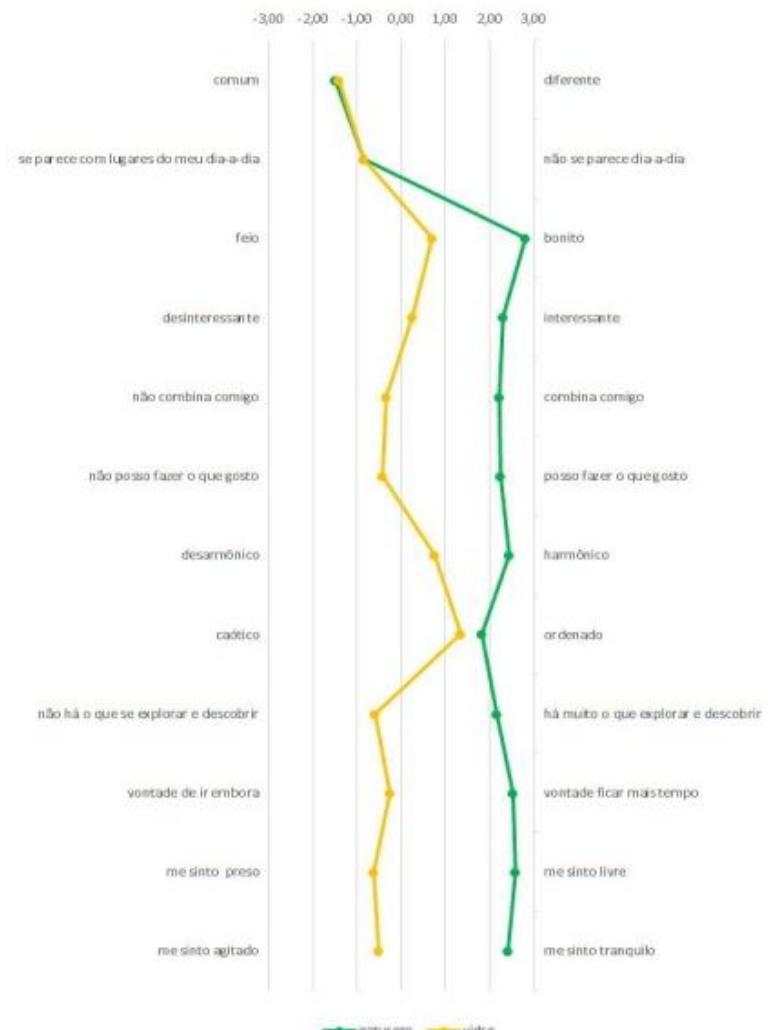
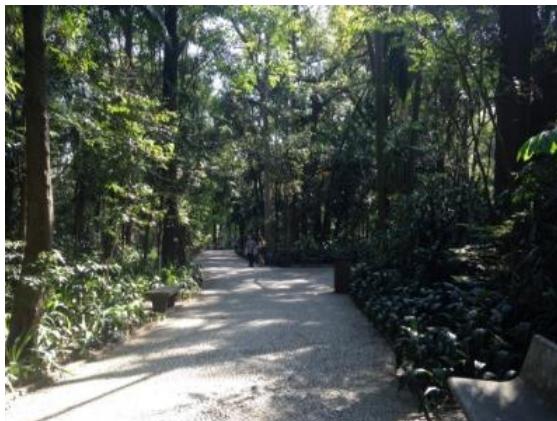


Towers X Low rise with skin X Fractal





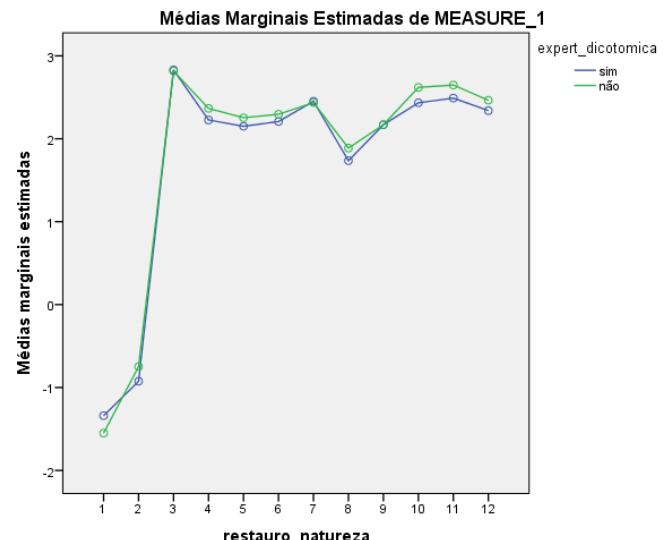
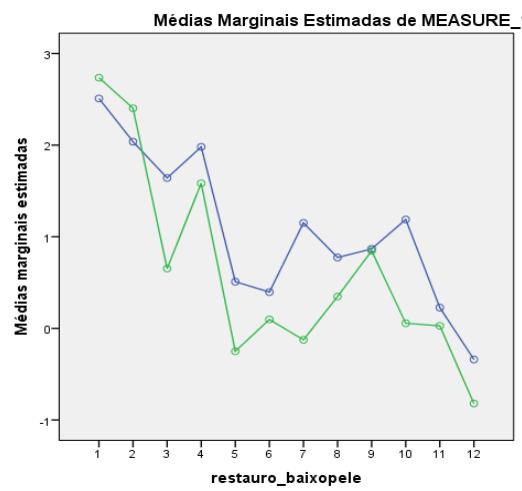
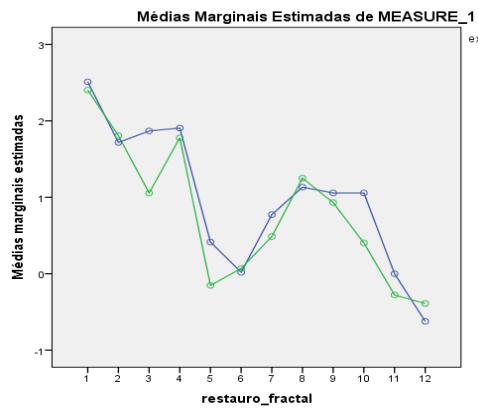
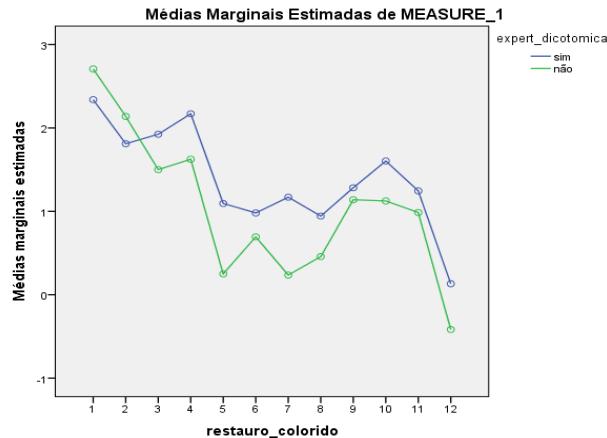
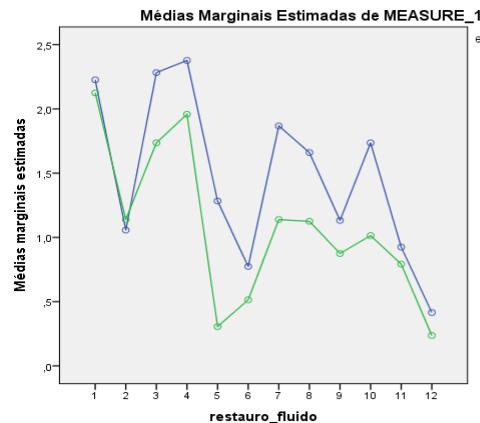
Glass X Nature



■ natureza ■ vidro

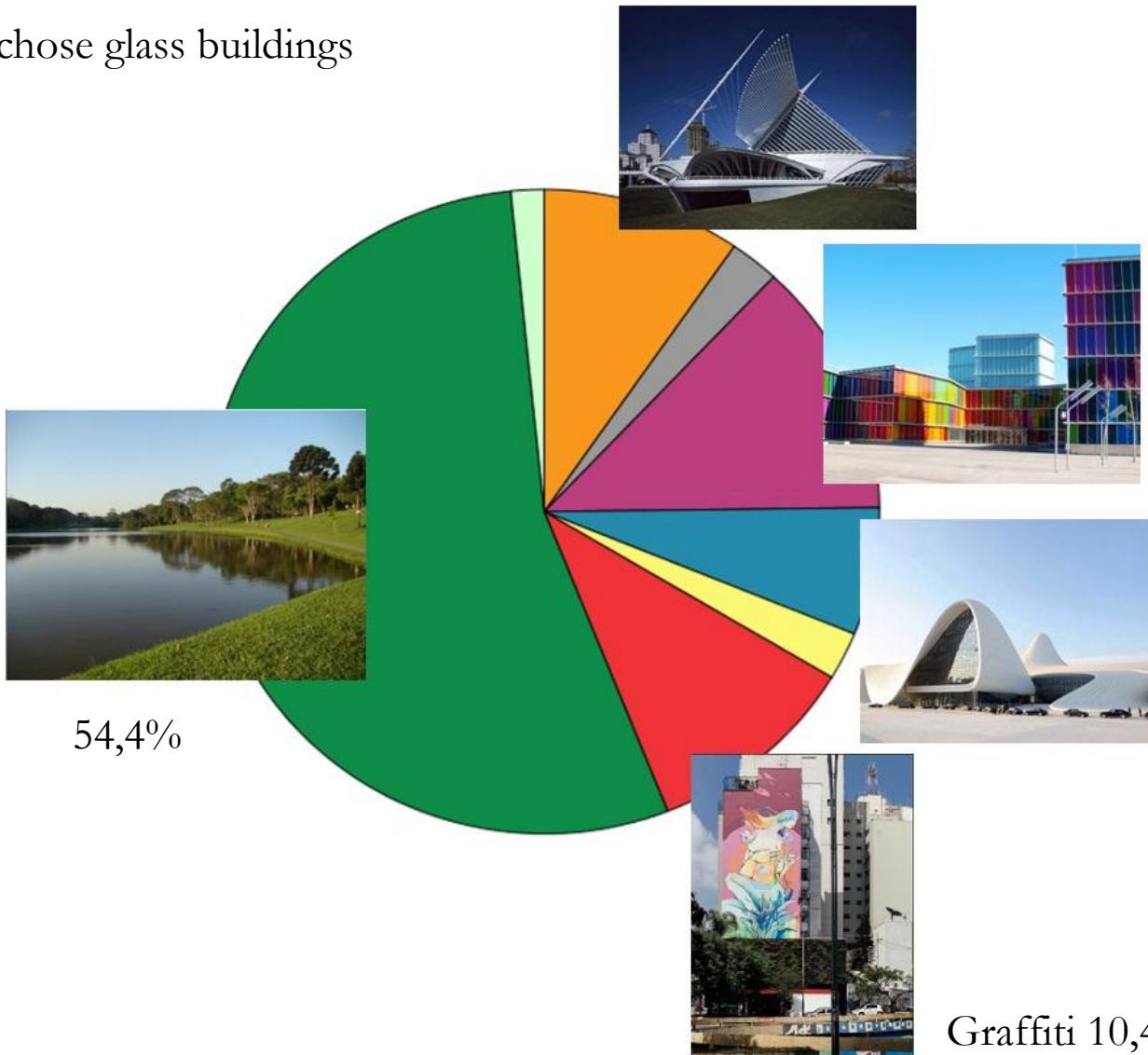
Restorative profiles

Lay people X People with art training



Preference by type of environment

*nobody chose glass buildings



Discussion

The city should not be evaluated as a homogeneous environment

- No profiles were strongly negative
- The importance of good quality stimuli

Green areas are crucial, but they are not the only way to promote restoration in cities

- Promising restorative potential in well preserved urban environments with architectural projects that emphasize features predicted by theory
- Do restorative attributes have different weights in overall restorative potential?
- What about instorative benefits?

There are differences between laypeople and experts

- Results align with Model of Esthetic Experience (Leder et al, 2004)
 - For experts, processing is more focused in formal aspects
 - Expertise intensifies esthetic experience for urban environments (more pleasurable, coherent and accentuated)
- Curatorship of public spaces
 - Architecture needs an introduction



References

Hartig, T. (2004). Toward understanding the restorative environment as a health resource. In *Open space: people space. Engaging with the environment. Conference proceedings*.

Kaplan, R & Kaplan, S. (1989). *The experience of nature. A Psychological perspective.* Cambridge: Cambridge University Press.

Leder, H., Belke, B., Oeberst, A. & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgments. *British Journal of Psychology*, 95, 489-508.

Ulrich, R.S. (1993). Biophilia, biophobia, and natural landscapes. In S.R. Kellert, & E.O. Wilson (Eds.), *The biophilia hypothesis* (pp.72-136). Washington, D.C.: Island Press.

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