



Qualitative Geo-visual Analytics

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Terms

Qualitative

Geo

Visual

Analytics

Topic

Exploring people's
experience in San Diego
neighborhoods





What can we ask based on the topic?

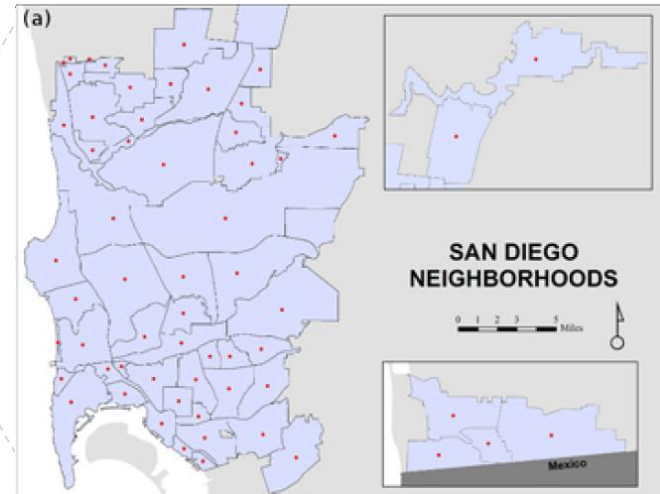


Exploring people's **experience** in San Diego **neighborhoods**

If the experience differs with neighborhoods ?

San Diego Experiment (Skupin, André & Burns, Ryan. 2013)

- ⊙ Participant's **personal information** (sex, age, religion.....)
- ⊙ **Video** for each neighborhood in San Diego (near noon and in evening)
- ⊙ Participant's **impression** on the neighborhood from the video





Participants' Impression (Skupin, André & Burns, Ryan. 2013)

Pre-defined terms

- ◎ *happy, sad, scary, fun, wealthy, angering, lovely, dirty, clean*

Personal Description

- ◎ Conditions seen in the videos (Weather etc.)
- ◎ Participates' familiarity and tacit knowledge of that neighborhood
- ◎ Overall mood during the survey time



**What kind of
data we have?**



Qualitative data (Cope, M., & Elwood, S. (Eds.). 2009)

Contextual Details

Pre-defined terms

- © *happy, sad, scary, fun, wealthy, angering, lovely, dirty, clean*

Interpretations of the situation or process

Personal Description

- © Conditions seen in the videos (Weather etc.)
- © Participates' familiarity and tacit knowledge of that neighborhood
- © Overall mood during the survey time

Qualitative Data

Text

Image

Video

Sound

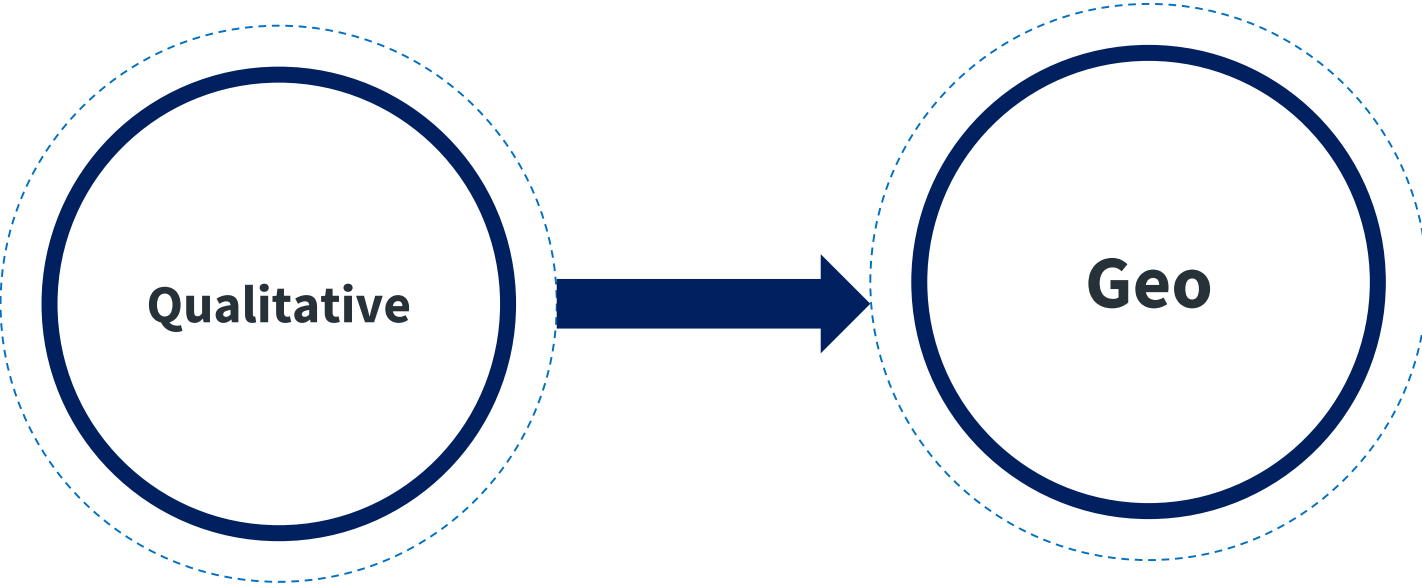
....



Qualitative
Method

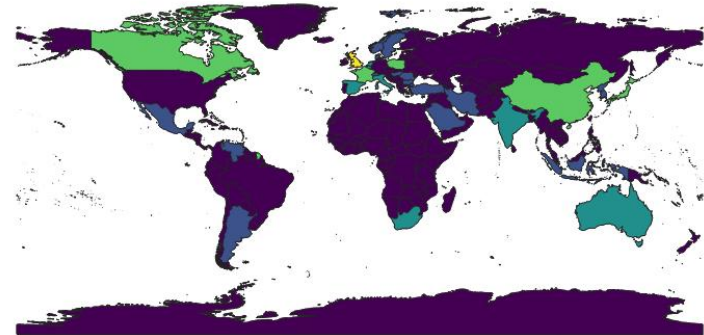
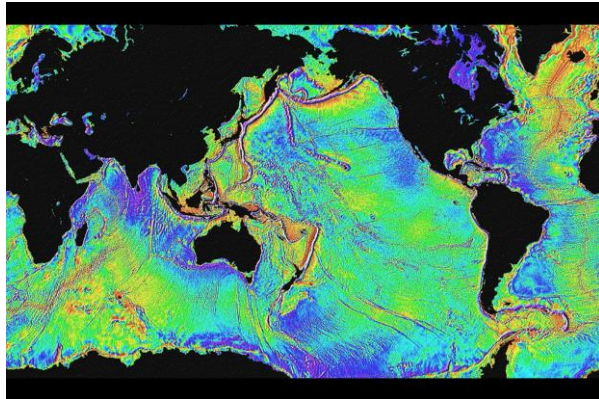


Qualitative GIS



Qualitative GIS

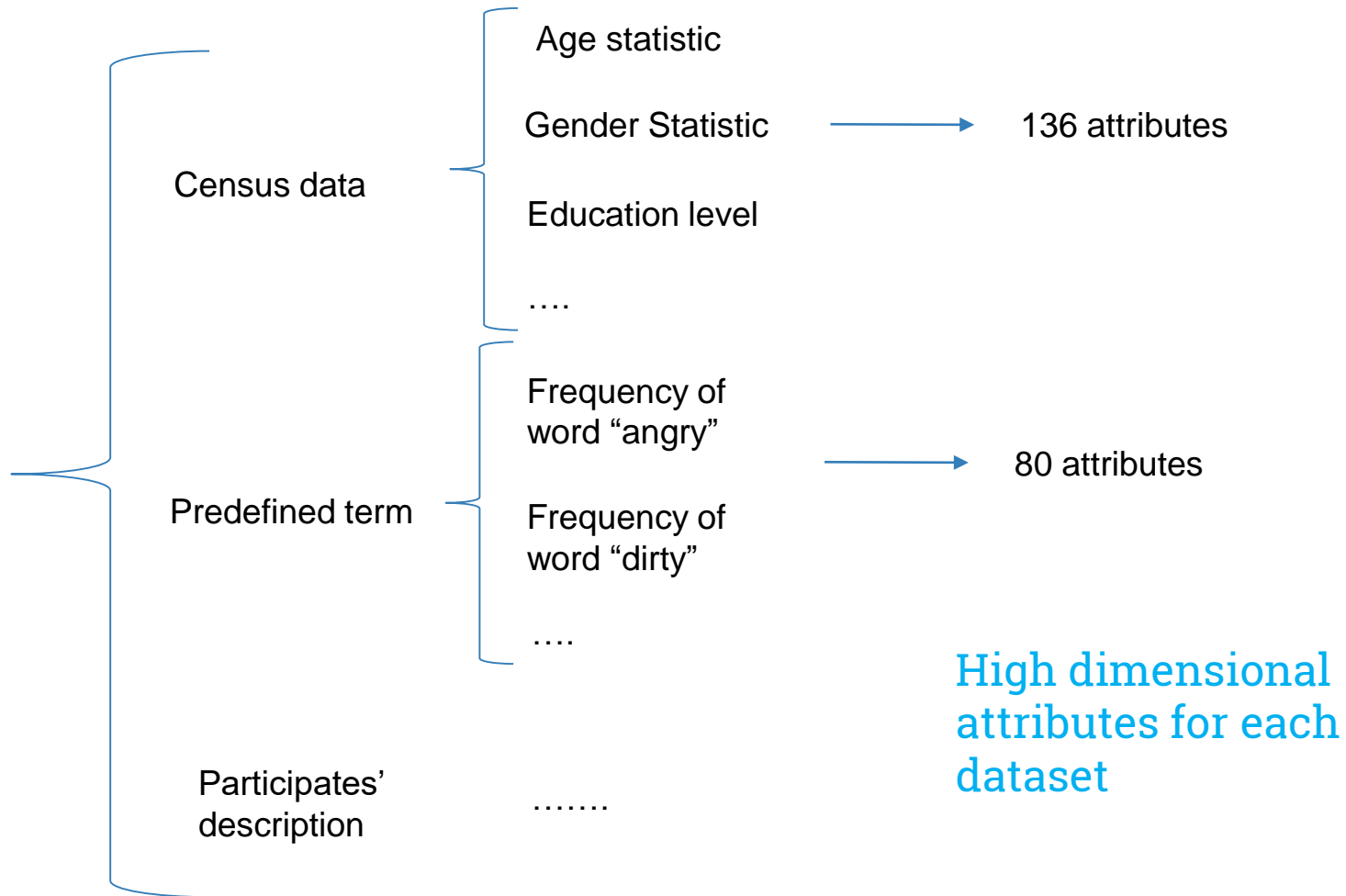
	A	B	C	D	E	F	G	H
1	Working hours per week	1980	1981	1982	1983	1984	1985	1986
2	Argentina							
3	Australia	34.57884568	34.57884568	34.37692261	34.11730722	34.41538415	34.33846107	34.46269184
4	Austria							
5	Bangladesh							
6	Belgium				34	34.48076923	34.59615385	34.21153846
7	Brazil							
8	Canada	34.84999906	34.58076829	34.1807697	34	34.10769184	34.26538555	34.23269184
9	Chile							
10	Colombia							
11	Costa Rica							
12	Czech Rep.							
13	Denmark	31.89807598	31.375	31.57115291	31.45615479	31.39807598	31.12692261	31.19038508
14	Ecuador							
15	El Salvador							
16	Fiji							
17	Finland	35.56346248	35.66923171	35.30638555	35.05192214	34.87884521	34.87307739	34.47499906
18	France	35.42307692	34.76923077	33.94230769	33.80769231	33.57692308	33.28846154	33.07692308
19	Germany							
20	Greece				41.38461538	40.11538462	40.65384615	40.23076923
21	Honduras							
22	Hong Kong, China							
23	Hungary				40.61538462	39.21153846	38.69230769	38.51923077
24	Iceland	35.84615385	35.71153846	35.76923077	35.76923077	35.73076923	35.71153846	35.55769231
25	Ireland			35.76923077	38.09615385	37.76923077	37.90384615	38.53846154



Qualitative Knowledge

<https://www.carbonbrief.org/interactive-satellites-used-monitor-climate-change>

Data Transformation (Skupin, André & Burns, Ryan. 2013)



What I can ask based on data

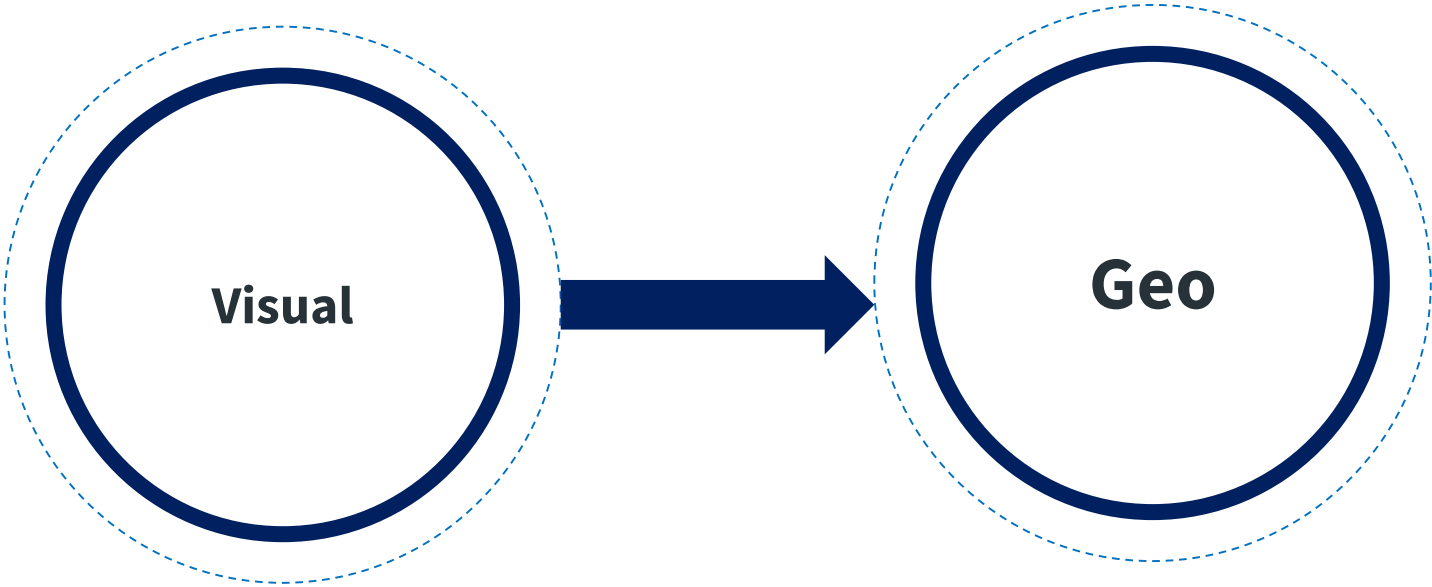
If the experience differs with neighborhoods ?

If good/bad/indifferent experience differs with neighborhoods?

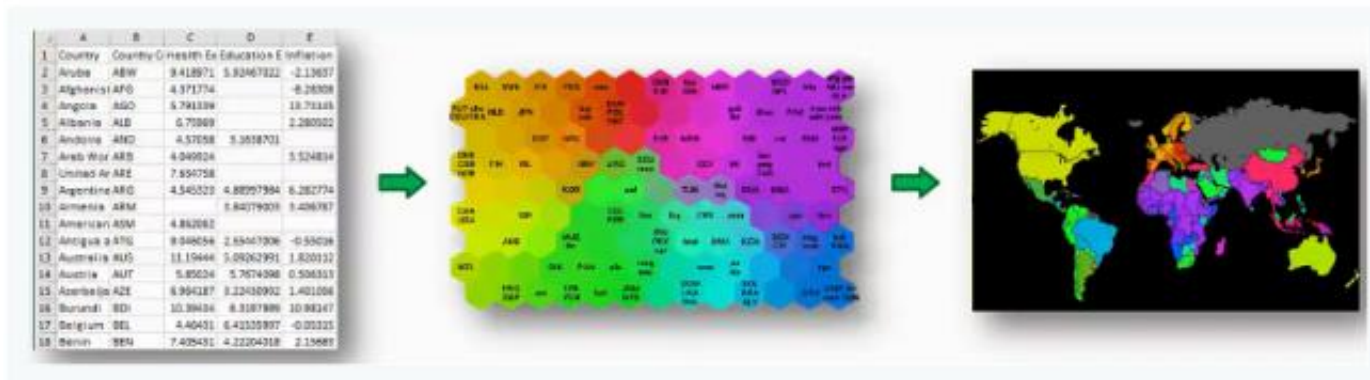
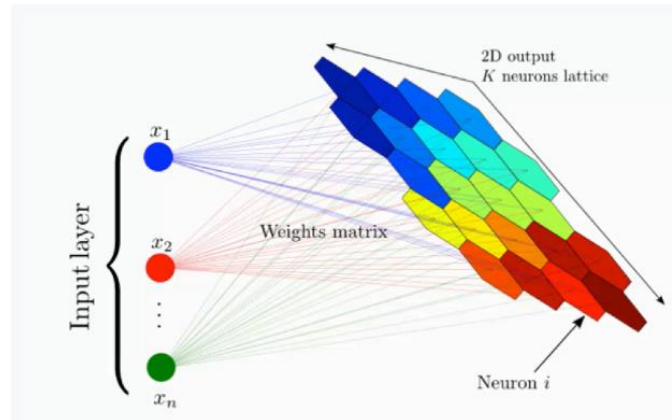
**How can we feel
these data?**



Geo-visual



SOM (Self-organizing Map)



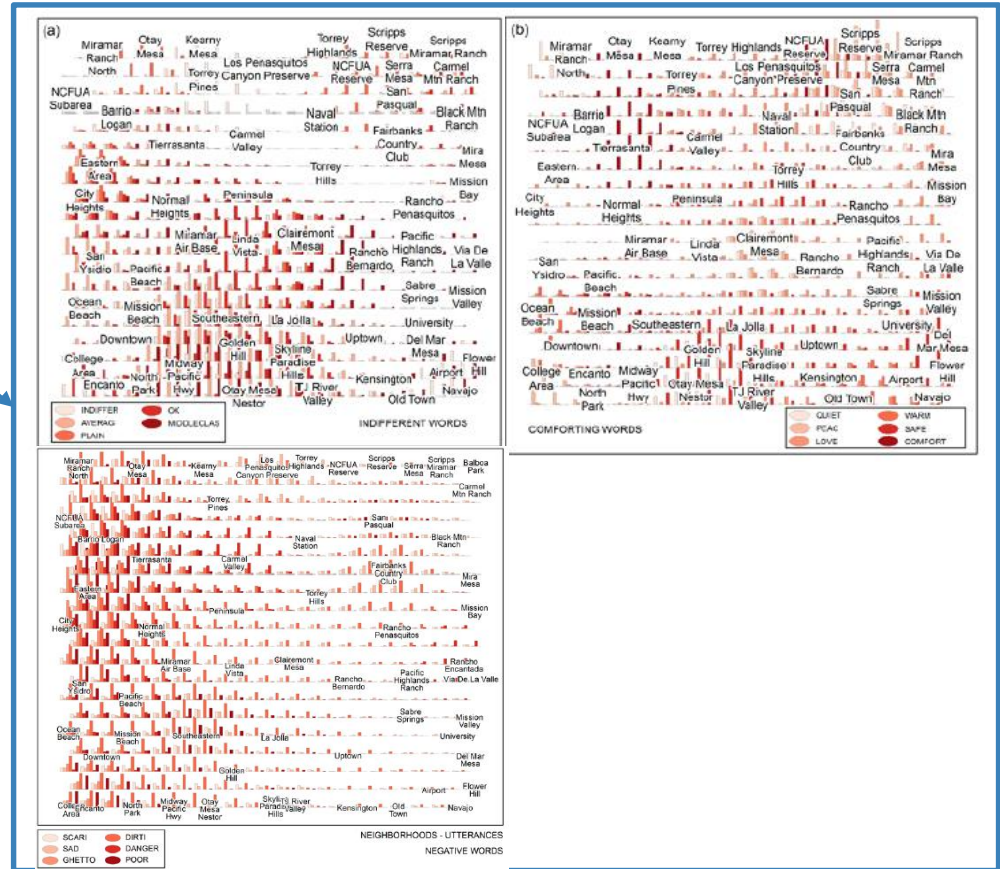
<https://www.superdatascience.com/blogs/self-organizing-maps-soms-how-do-self-organizing-maps-work>

San Diego Experiment (Skupin, André & Burns, Ryan. 2013)

Predefined terms

Census data

Participants' description



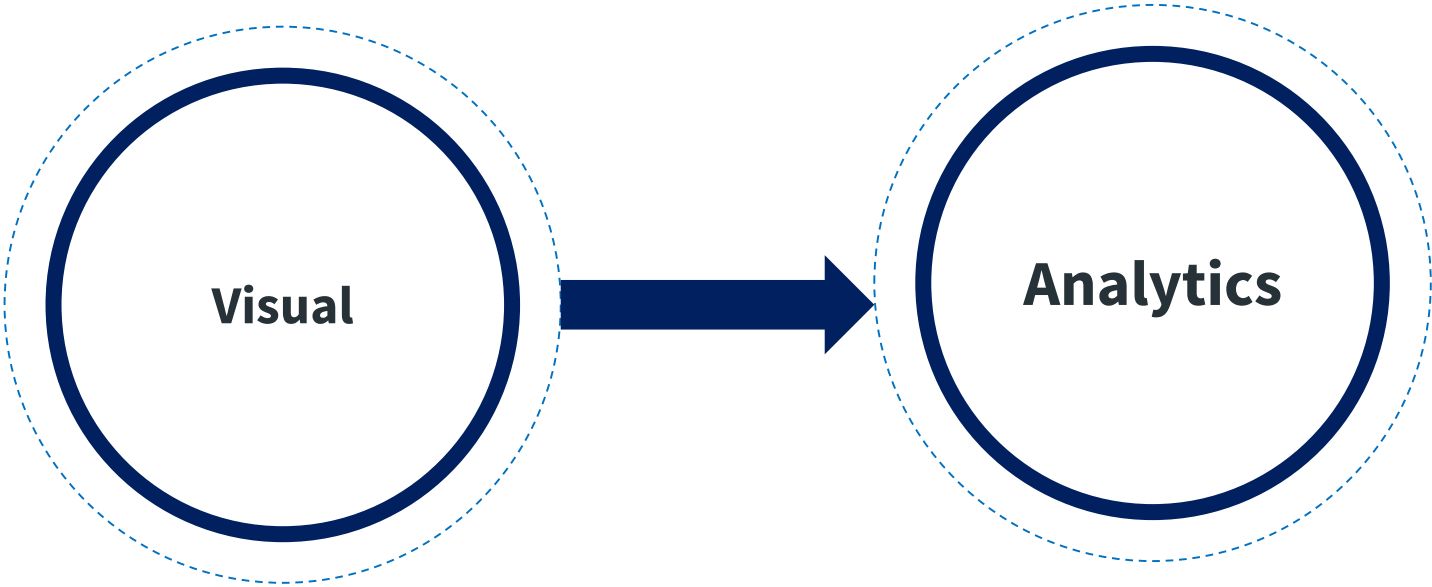
What I can ask based on data

If good/bad/indifferent experience differs with neighborhoods 

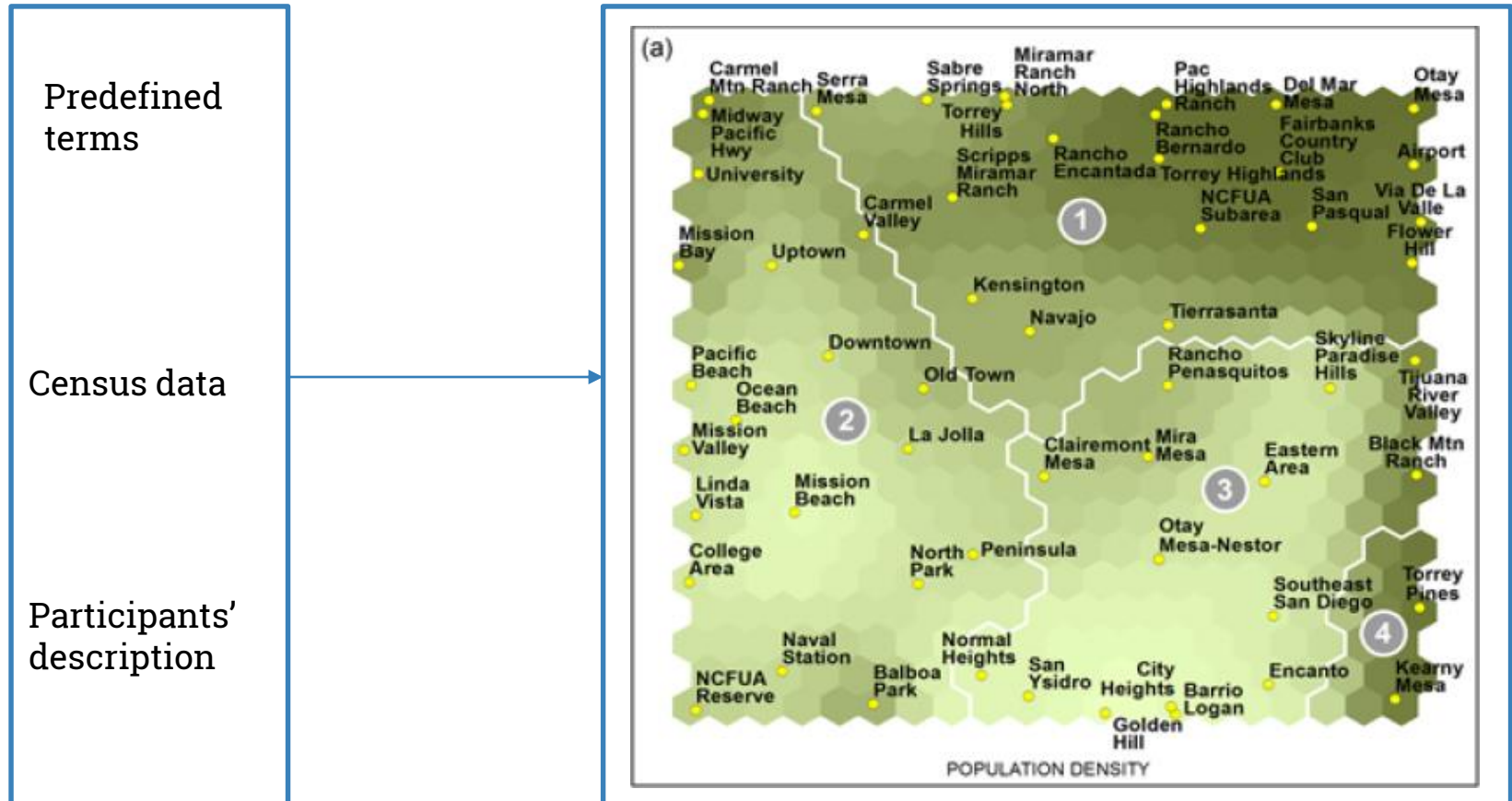
Yes, they are different. There are distinct clusters for different experience in SOM.

What causes such differences?

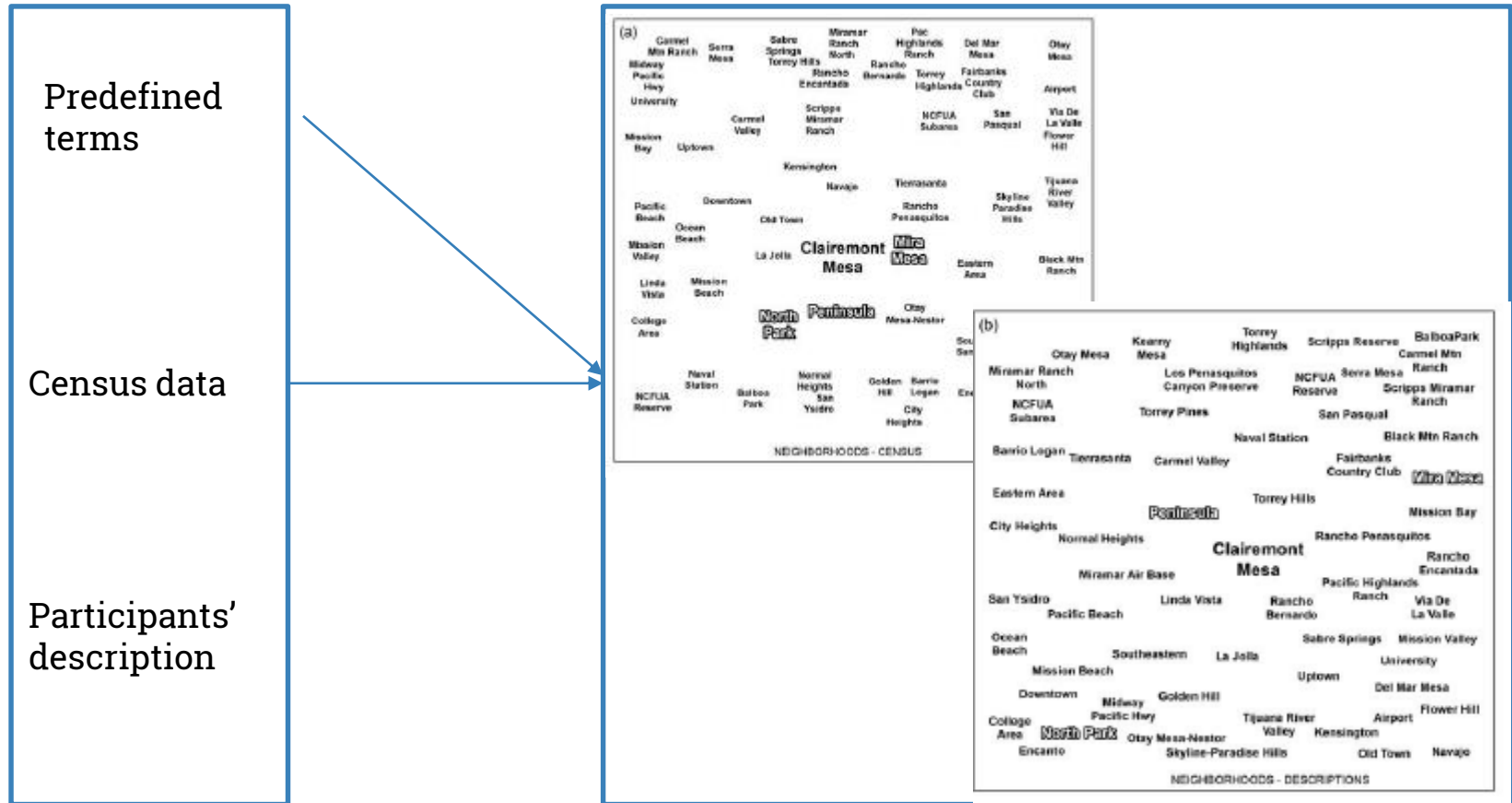
Visual Analytics



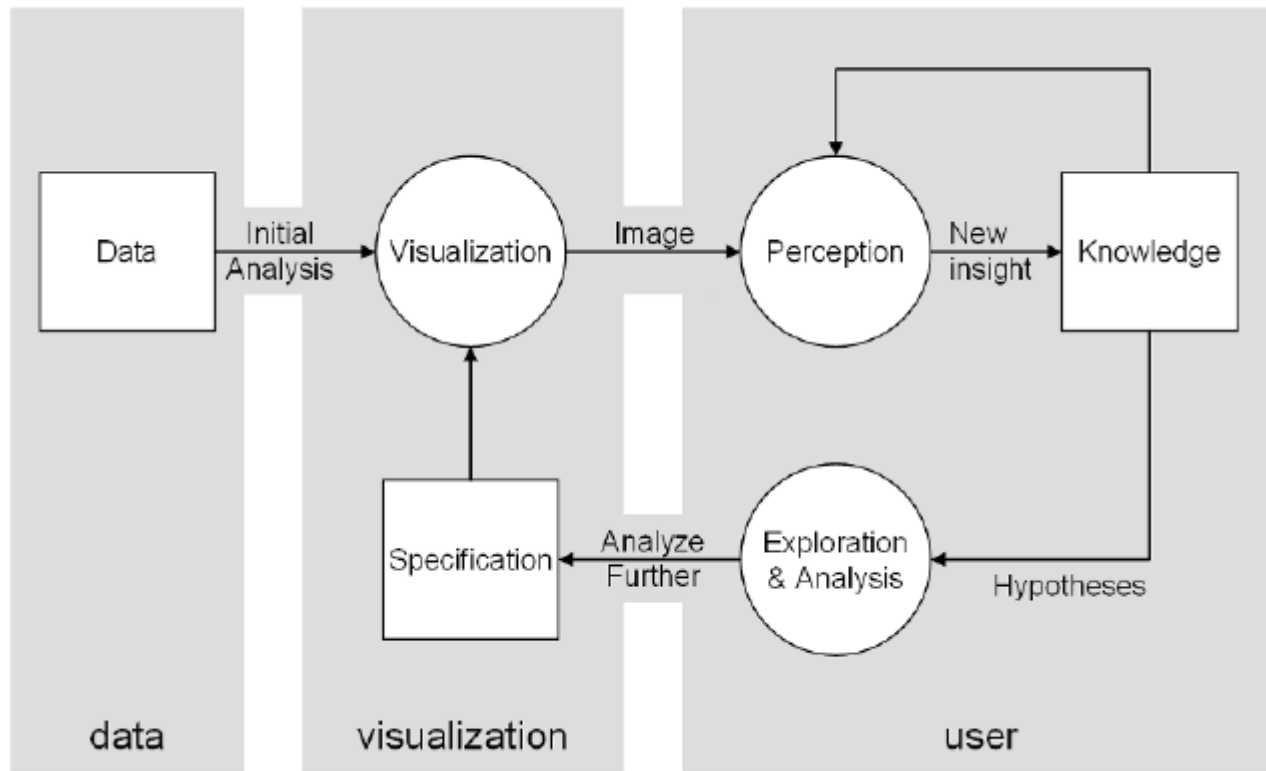
San Diego Experiment (Skupin, André & Burns, Ryan. 2013)



San Diego Experiment (Skupin, André & Burns, Ryan. 2013)



Visual Analytics



(Keim D. et al, 2008)

Summarize



Summarize



It is a great challenge to present **qualitative** data quantitatively



Visualization is no longer a means to present the analytical results but a means of analysis itself
(Pavlovskaya, M. 2009).

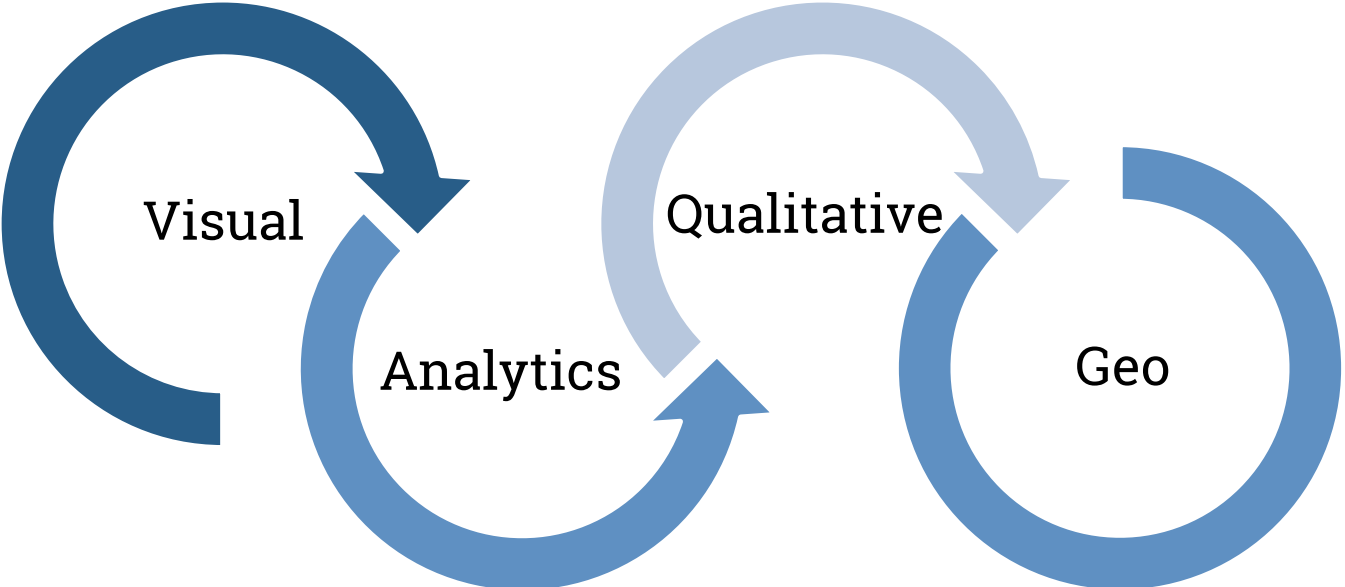


Geo-related information can not only be presented in the geographical space



Analyze is a process of looking deeper into the questions

Summarize





“

***Analyzing** the **Geo** information by
adding **Qualitative** data in the
Visual interface.*

Reference

1. Cope, M., & Elwood, S. (Eds.). (2009). *Qualitative GIS: a mixed methods approach*. Sage.
2. Keim D., Andrienko G., Fekete JD., Görg C., Kohlhammer J., Melançon G. (2008) Visual Analytics: Definition, Process, and Challenges. In: Kerren A., Stasko J.T., Fekete JD., North C. (eds) Information Visualization. Lecture Notes in Computer Science, vol 4950. Springer, Berlin, Heidelberg
3. Pavlovskaya, Marianna. (2017). "Qualitative GIS".
4. Pavlovskaya, M. (2009). Non-quantitative gis. In M. Cope & S. Elwood (Eds.), *Qualitative GIS: A mixed methods approach* (pp. 13-38). London: SAGE Publications Ltd doi: 10.4135/9780857024541.n2
5. Skupin, André & Burns, Ryan. (2013). Towards Qualitative Geovisual Analytics: A Case Study Involving Places, People, and Mediated Experience. *Cartographica The International Journal for Geographic Information and Geovisualization*. 48. 157-176. 10.3138/carto.48.3.1691.



Thanks!

Any questions?

