

Navigating Pictorial Maps with Attention Guiding and Narrative Techniques



by SHAHTAJ

Misinterpretation of the map contents can lead to problematic perceptions. Likewise, lack of guidance through a busy map such as a pictorial map can leave the reader at a loss of information about it.

This master thesis finds existing attention guiding and narrative techniques that can be applied on pictorial maps. And evaluates attention guiding techniques by a) comparing a simple pictorial map with an attention guided pictorial map b) comparing the applied attention guiding techniques; based on the responses of users.

OBJECTIVES

- Creation of a taxonomy of attention guiding techniques based on the existing literature and web-based applications review.
- Selection and implementation of chosen techniques in a web-based prototype.
- Evaluation of the applied techniques through a user study and results analysis.

PICTORIAL MAP

"A map or map-like presentation, representing a theme, containing illustrations of actual or imaginary geographical features that are subject to scaling."

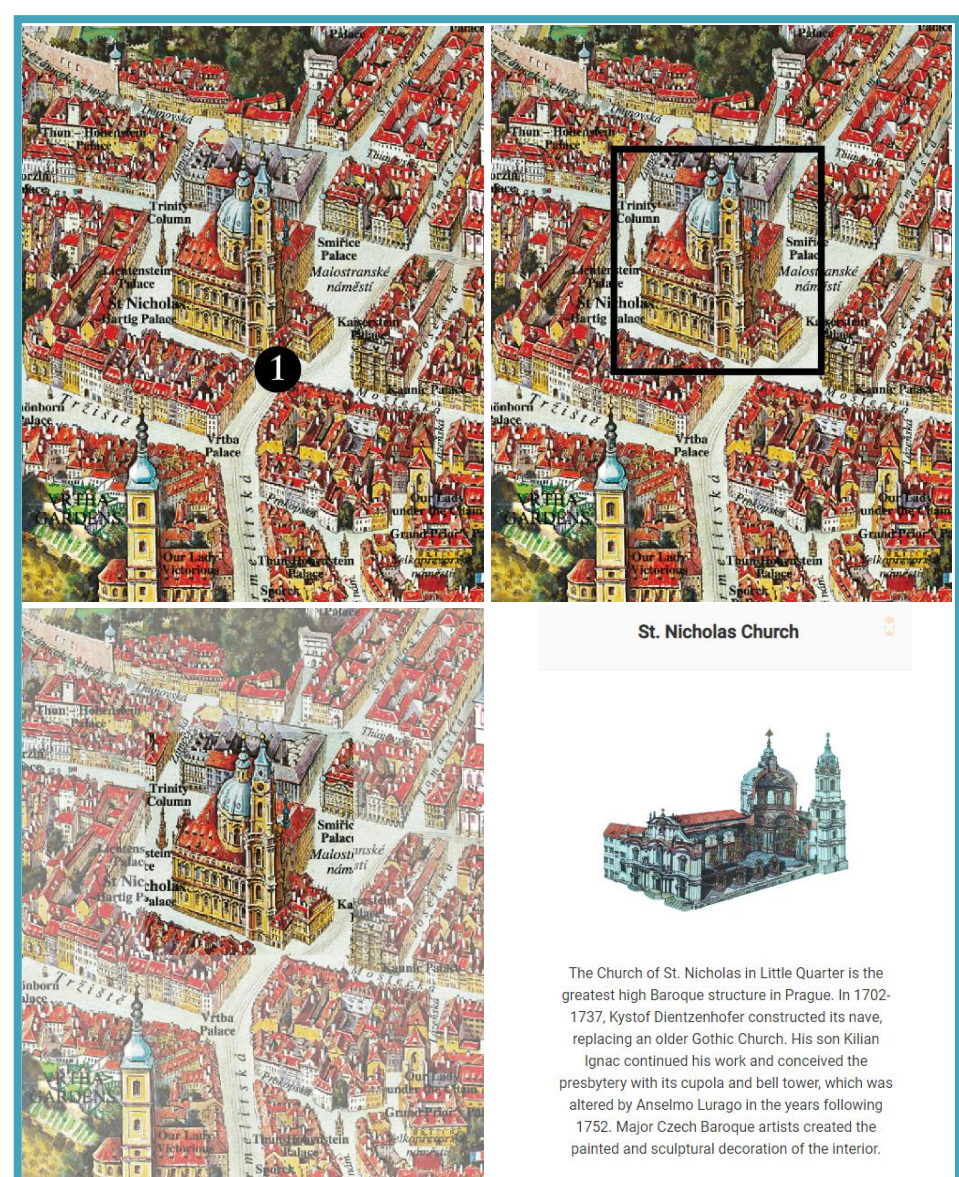


Figure 1: Numbering, Geometric Boundaries, Opacity Mask respectively applied over a pictorial map. Narration of the highlighted Points of Interest (POI) using text and image.

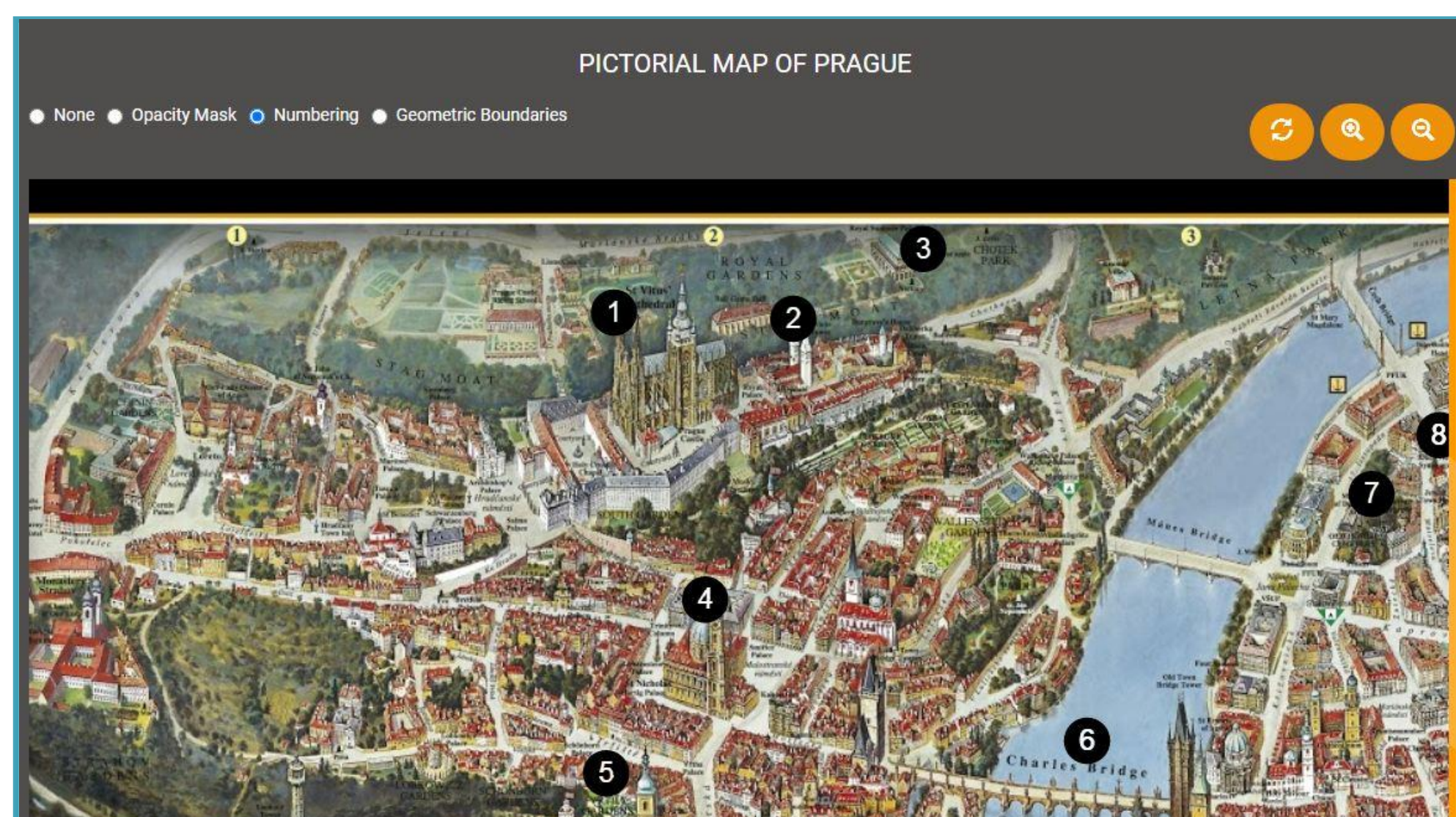


Figure 2: The prototype showing Numbering technique selected over the Pictorial Map of Prague (ATP publishers, 2006) to guide reader's attention to the (POIs) on the map. The techniques can be switched by using the radio buttons on the top left of the window.

METHODOLOGY

The first step of the research is to find existing attention guiding and narrative techniques in literature and in web applications and then choose the ones to evaluate.

These techniques are then integrated in a web-based prototype over a pictorial map. The prototype has both the attention guiding and the narrative techniques implemented. (Figure 2) A user-study evaluates the experience of participants by letting them explore the prototype and asking questions regarding it.

ATTENTION GUIDING AND NARRATIVE TECHNIQUES

The chosen attention guiding techniques for evaluation are: **Numbering, Geometric Boundaries and Opacity Mask** (Roth, 2020). The chosen narrative techniques are **text and images** to be used in combination for giving information about the highlighted POI (Figure 1).

USER STUDY

It has qualitative and quantitative questions for the evaluation of the participants' experience of the prototype and their preference among the attention guiding techniques. The user study was conducted online through SoSci Survey.

RESULTS

Out of the 73 participants, 81% had knowledge of GIS or Cartography and 84% had seen a pictorial map before. Most participants, 59% found it difficult to find important places on a simple map with no guidance, in their opinion, the important areas should be highlighted. Majority of the participants liked Opacity mask more than the other two techniques.

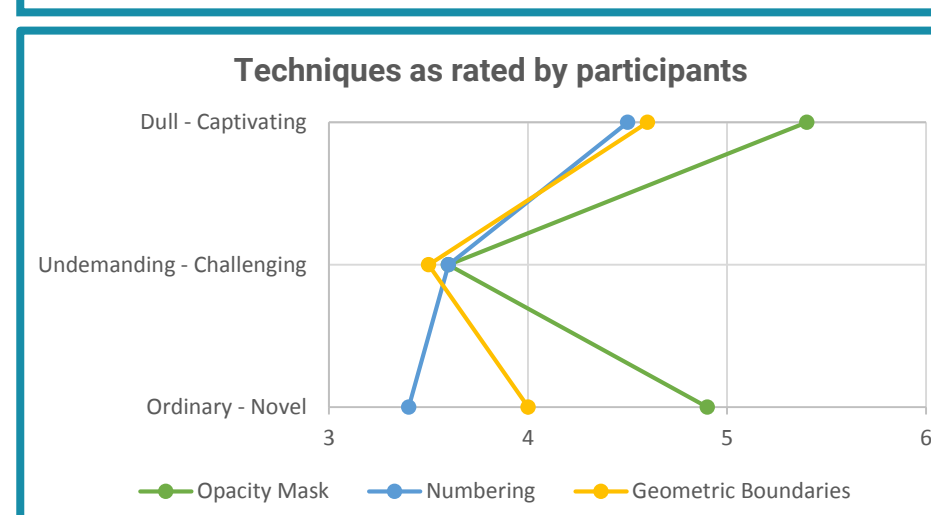
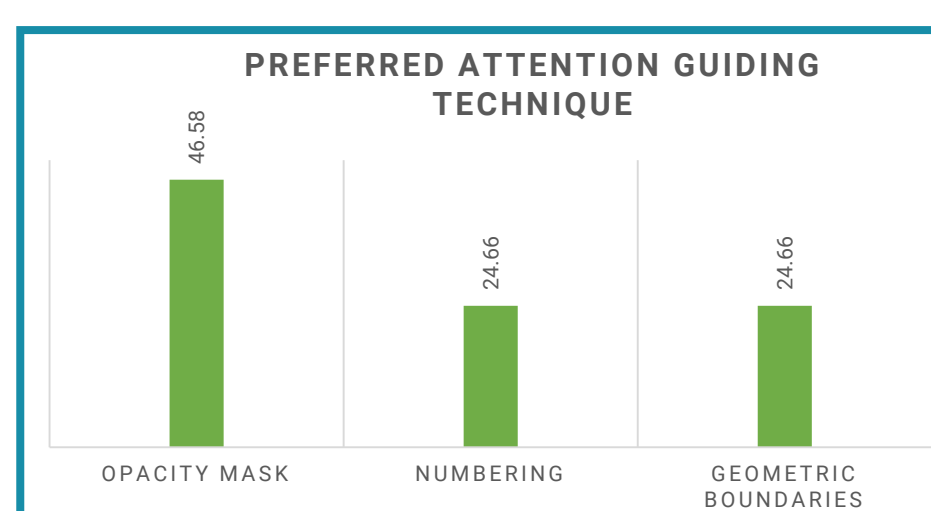


Figure 3: a) The histogram shows the preferred techniques of participants. b) The Likert Chart shows the average rating on the scales to measure the hedonic quality of the techniques.

CONCLUSION

A pictorial map with some attention guiding technique applied to it is preferred over a simple map. Opacity Mask is most liked, it is also found to be more captivating and novel than the other two attention guiding techniques.

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KEYWORDS

Pictorial Map, Attention Guiding Techniques, Visualization, Narrative Techniques, Narrative Visualization, POI, Illustrations.

LINK TO PROTOTYPE

<https://ppmshajta.netlify.app/>

REFERENCES

- Roth, R. E. (2020). Cartographic Design as Visual Storytelling: Synthesis and Review of Map-Based Narratives, Genres, and Tropes. *The Cartographic Journal*, 1–32. <https://doi.org/10.1080/00087041.2019.1633103>
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