

Reclaiming Place Through Marginalized Narratives

A Critical Geography and Humanistic Approach to the Cartographic Visualization of Beyoğlu, Istanbul

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This study attempted to develop, document, and evaluate cartographic visualization techniques that are driven by feminist visualization principles in the context of Beyoğlu - *I Will Survive* map, a counter-mapping project that deals with issues of gentrification and urban development [1]. Conventional and unconventional visualization techniques were proposed to visualize memories about places and a quantitative user study was undertaken to assess what was gained and lost when these techniques were used.

Results showed that although the unconventional visualization techniques were more difficult for the map users to understand, they could still be more effective than the conventional ones in fulfilling the aims of the feminist visualization principles. Based on the findings, further recommendations and considerations were identified for counter-mapping practices and cartography at large.

VISUALIZATION DEVELOPMENT AND AIMS

As a first step, a diverse compilation of counter-maps was investigated to understand the needs and characteristics of counter-maps in general [2]. The needs and characteristics of the Beyoğlu - *I Will Survive* map was then identified accordingly. The data used for the project consisted of memories and posed unique cartographic challenges, as they were text-based and rich in information.

Three pairs of maps were created to fulfill different aims of the Beyoğlu - *I Will Survive* map, such as conveying a collective sense of place, raising awareness of the challenges the neighbourhood faces, and encouraging map users to take action. Each pair consisted of a conventional map and an unconventional alternative which was created with feminist principles developed by D'Ignazio and Klein (2020) [3] (See Fig. 1 and Fig. 2 for a sample map pair). The feminist principles relevant to this study were as follows: embrace pluralism; elevate emotion and embodiment; challenge power and aspire to empowerment.

A user study was undertaken to assess whether these identified unconventional visualization techniques served the above-mentioned purposes and what was gained and lost when these techniques were used.

EVALUATION METHODS

In order to evaluate the effectiveness of the visualizations, this research used a questionnaire which allowed for quantitative analysis. For each pair of maps, the users first read a brief informational text that prefaced the maps they were about to see and then were given as much time as they needed to view the maps. Afterward, they were asked to rank several statements on a Likert scale. These statements were formulated to measure the aims of the project and the feminist principles with which the maps were created. Some statements were repeated in each section to assess the overall advantages and disadvantages of the proposed techniques.

The questionnaire was completed by 103 users. The answers to the Likert-scale statements



Fig.1 Map 3A - Conventional map visualizing the content of the memories in text

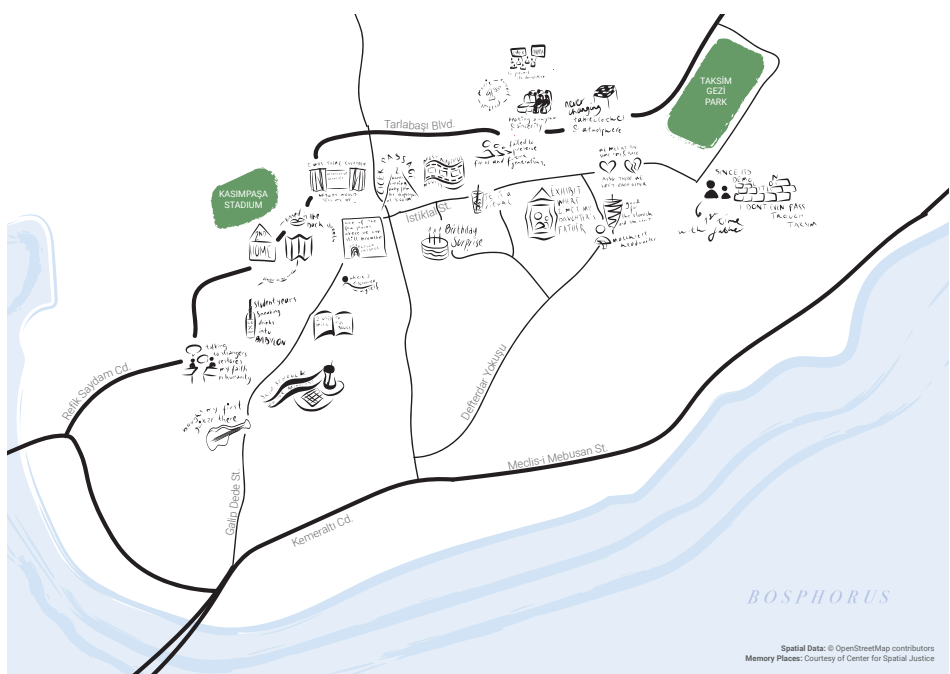


Fig.2 Map 3B - Unconventional map visualizing the content of the memories in sketches

were treated as ordinal and were evaluated by using the median and Wilcoxon Signed-Rank test for hypothesis testing. When a statistically significant difference was found between how the users ranked Map A and Map B, an effect size was calculated to indicate the direction and the strength of this difference. A higher effect size was associated with a stronger difference (See Fig. 3 for the sample results for map pair 3A and 3B).

CONCLUSION AND OUTLOOK

The findings from the user study showed that unconventional visualization techniques that were too unfamiliar and abstract, such as distortion and the application of open-world assumption, also did not achieve their goals and aims from the feminist visualization principles. Techniques such as the integration of text and sketch-style maps met their goals; however, they were still found more difficult to understand compared to their conventional counterparts.

Overall, this thesis concludes with the overall finding that when maps are designed with feminist principles, a necessary condition is to innovate visualization techniques, because the cleanest, easiest, and the most aesthetically pleasant option is not always the most successful in achieving the intended aims. Inspiration for such visualization techniques can be found from existing counter-maps developed for similar purposes.

Unconventional maps can be effective; however, when they employ techniques that are not familiar, they are not always easy to understand and interact with. When counter-mapping, it is necessary to set goals and priorities from the beginning with the context and the use case in mind. Going forward, it is recommended to either use unconventional methods that have been previously tested, like those used in this study, or undertake a pre-test to assure that the needs and intentions of the case are met.

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YEAR

2021

KEYWORDS

Counter-mapping, critical cartography, feminist cartography, Beyoğlu, Istanbul, visualization

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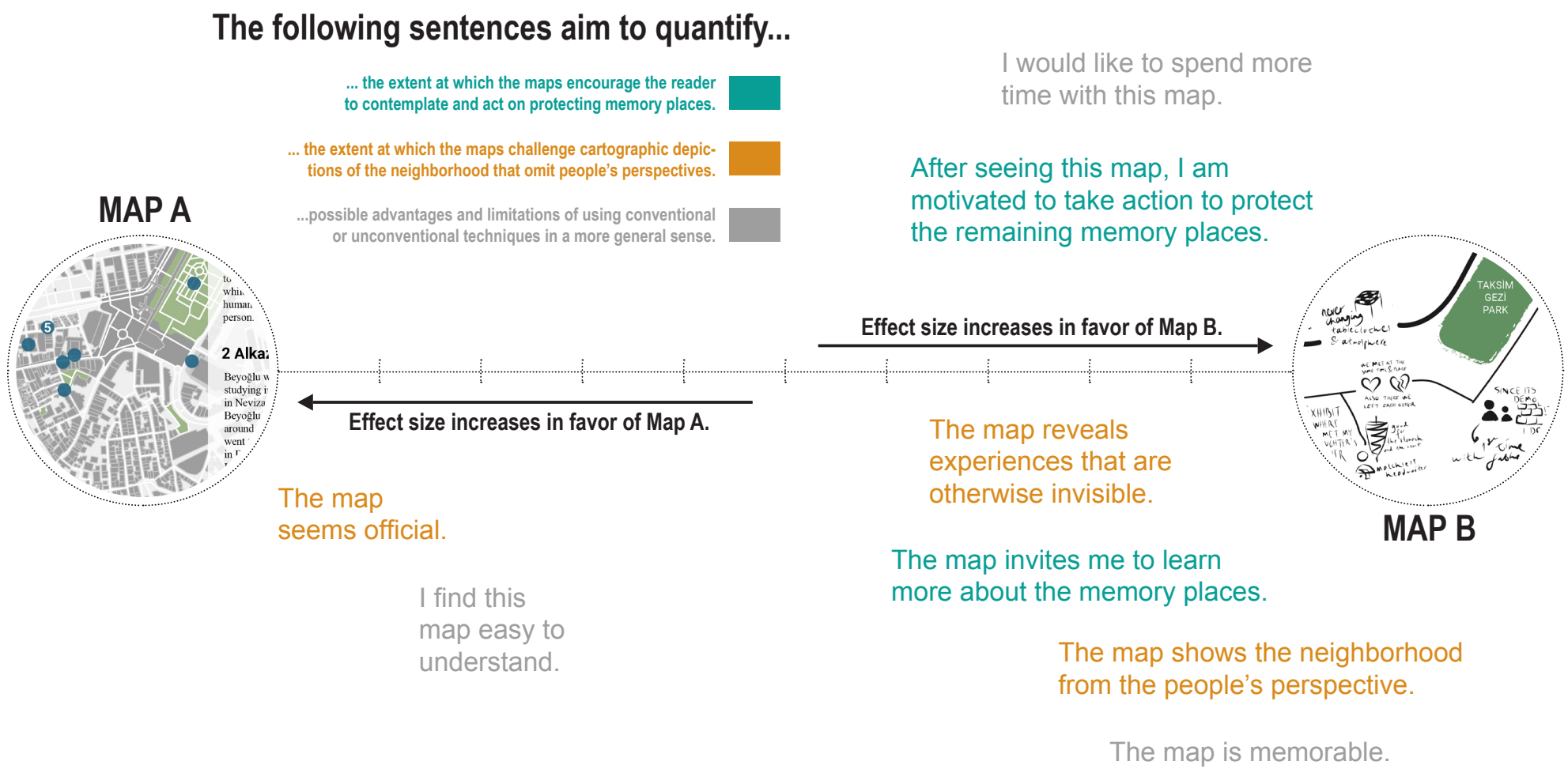


Fig.3 The results showing the effectiveness of the conventional and unconventional visualization techniques for map pair 3A and 3B