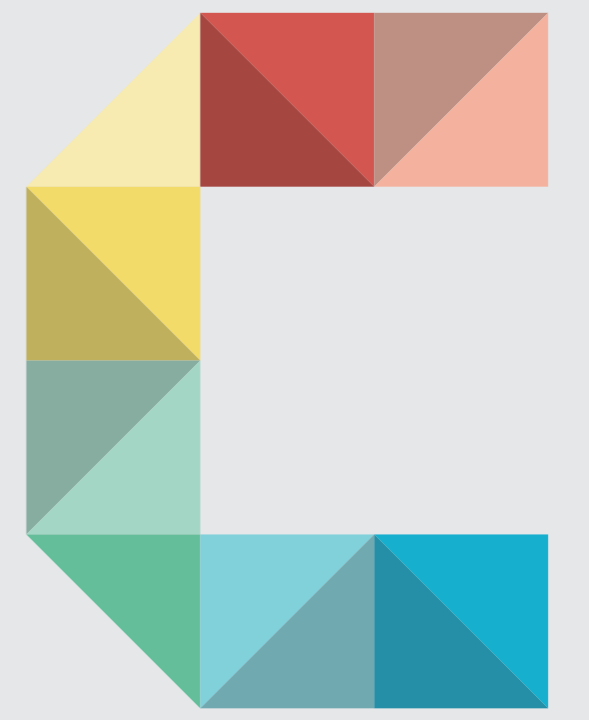


An Empirical Evaluation of the Story Focus Concept – The Example of a Map Telling the Story of “The Legend of Meng Jiangnu”

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This research was motivated by the concept of mapping stories designed by Mocnik and Fairbairn (2018) [1] in their publication which they termed “story focus” where maps are modified to incorporate the various aspects and characteristics of a story in a map representation.

This study implemented story focus as a concept and gained empirical knowledge of its effectiveness in communicating a story compared to its text version.

RESEARCH OBJECTIVES

1. Explore existing web mapping frameworks and implement a story in a single cartographic representation by incorporating the structural aspects comparable to the ones often found in narrative text.
2. Determine the effectiveness of modifying conventional maps to incorporate characteristics often found in the narrative text by empirical experiments.

METHOD

Using an example story of “The Legend of Meng Jiangnu”, a cartographic representation was created. Leaflet.js, an open-source webmapping framework was used to visualize the story (Fig. 1).

The story used is:

“More than 2000 years ago, there lived Fan Qiliang and Meng Jiangnu, who later got married. Three days after their wed-



Fig. 1: Scan QR-Code or visit <https://storyfocus.herokuapp.com> to read the visualization.

(Desktop browser is recommended)



Fig. 2: A scene of the story visualization showing the main characters of the story (Meng Jiangnu & Fan Qiliang), each in a “story bubble”. Other components are a timeline, legend and mini-map.

ding, the government comes to their home and takes Fan away for the labour force of building the Great Wall.

Seeing that her husband was taken away, Meng experienced such a hard time, and she cried for days as she missed him terribly. Meng loves her husband so much, so she takes some warm clothing and departs for the Great Wall where her husband works after a year of not hearing from him.

She finally gets to the Wall and hears the bad news that her husband is dead from exhaustion while building the Great Wall. She is so desperate and cries three days at the Wall. Suddenly, the Wall collapses 800 kilometres away, and she can see her husband’s bones.”

Methods of eye-tracking, questionnaires and semi-structured interviews were used to empirically evaluate the created cartographic representation (Fig. 2). The participants (16) read the story visualization using an eye-tracker and then the text.

RESULTS

By combining the eye movement, questionnaire and interview data, both quantitative and qualitative analyses were performed.

Eye movement data were processed as heat maps and gaze plots. Total fixation duration, duration to first fixation, first fixation to click and duration of visits were some of the data processed from the selected Areas of Interest (AOIs) of the

story visualization.

All readers had similar visual strategy. Story bubble first before moving to the legend, then the mini-map and finally the timeline. Where they were animation buttons, readers had their gaze fixated last there.

Fixation occurred most in the story bubble than on any part of the map, suggesting an efficient focus guiding technique.

CONCLUSION

Readers' preference of both the story visualization and the text (Fig. 3) suggests that both media complemented each other. That is, some aspects of the story were effectively communicated in the map, and others, in the text. For instance, besides spatial context, time and atmosphere were perceived from the visualization. However, while reading the text version, readers were able to perceive time and atmosphere of the story more explicitly.

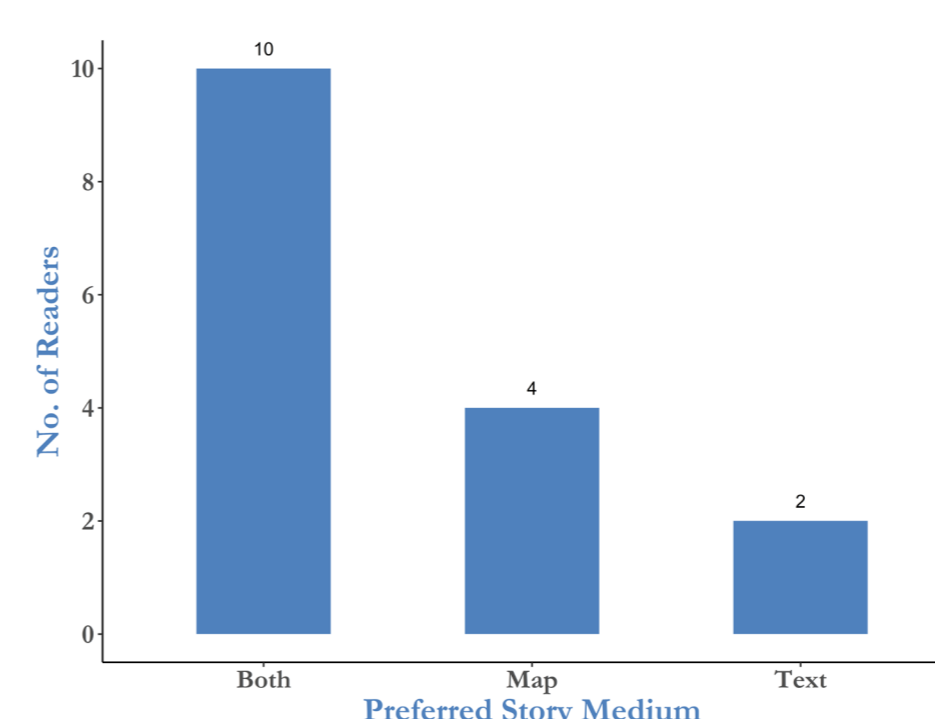


Fig. 3: Readers' story medium preference

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- [1] Mocnik, F. B., & Fairbairn, D. (2018). Maps Telling Stories? Cartographic Journal, 55(1), 36–57. <https://doi.org/10.1080/00087041.2017.1304498>