

Analysis of Point Symbols used in Online General Purpose and Tourist Maps

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Abstract:

Nowadays tourist maps are one of the most popular and familiar type of maps worldwide. As the available data, technological innovations, and human demands are increasing rapidly, it is essential to improve maps that are used for travel purposes in order to succeed better information transmission and communication between the map and the user.

This article aims to research the symbolization utilized in online tourist and general-purpose maps that can be used by tourists. In this research framework, a number of available online maps were selected taking into account criteria such as the popularity (downloads and reviews), the portrayal of a variety of POIs, and the map interactivity and were classified into four categories; general-use maps, maps included in on line travel guides, maps produced by National Tourist Organizations, and touristic web applications. In total, fourteen online maps are studied: Google Map, Open Street Map, Bing Map, Maps.me, Sygic Travel Map, Offline Map and maps in travel guide; Roadtrippers, Orange Smile, Visit Norway.com, Visit Esthonia.com, HERE WeGo, France.fr, Search.ch and Welcome to Warsaw.

The research focuses on the symbols utilized for the Points of Interest (POIs) portrayed on these maps as they are of great interest to the tourists. POIs address various human activities such as accommodation, transportation, facilities, etc. They can be grouped in general categories: Accommodation, Culture, Gastronomy – Entertainment, Leisure, Shops, History, Services, Transportation and Healthcare. Subcategories can be also formed based on the POIs type. For instance, the general category “Accommodation” has the following subcategories: guest accommodation, motel, hotel, camping, etc. In Figure 1, one can see the symbols used for “Hotel” on the maps that are examined:







| Accommodation | ROAD-TRIPPERS | HERE WE GO | BING MAP | SEARCH. CH | FRANCE.FR | OFFLINE MAPS |
|---------------|---|---|---|---|---|---|
| Hotel |  |  |  |  |  |  |

Figure 1. Examples of point symbolization in subcategory “Hotel” for a sample of map-sources

After recording the symbols utilized for each subcategory in the selected map sources, the next stage of the study is the selection of various visual variables that can describe the symbols and can be used for the symbol analysis. Each symbol is divided into two main elements the frame and the pictogram. The frame is considered as the closed border around the symbol, whereas the pictogram is considered the graphic symbol inside of the frame. The variables capture the basic hue which is the dominant symbol hue, the existence or not of a frame, the frame outline color, the existence or not of background in the frame, the frame background color, the frame shape, whether the frame shape is pinned, the pictogram shape, the pictogram color and the frame size in desktop and in mobile phones. The frame shape is coded as square, circle, bubble talk, or pin. The pictogram shape description is based on semantic categories created from the symbols e.g. furniture, human activity, edible items, etc. The analysis is based on the cognitive scheme for interpretation of cartographic symbols (MacEachren, 1995;

Kuveždić Divjak et al. 2020) but three new elements are added such as whether the frame shape is pinned, the semantic description of the pictogram shape and the basic hue. In Table 1, one can see an example of the analysis of symbols used for the “Hotel” in the selected online maps and the values of the proposed variables.

| MAP | GOOGLE MAP | OSM | BING MAP | MAPS.ME | SYGIC TRAVEL MAP | OFFLINE MAPS |
|------------------------|------------|-----------|-----------|-----------|------------------|--------------|
| BASIC HUE | Pink | Blue | Purple | Brown | Green | Brown |
| SIZE DESKTOP (mm) | 9 | 3 | 5.5 | 6 | 5 | - |
| SIZE MOBILE (mm) | 5 | 2 | 4 | 3 | 3 | 3 |
| FRAME OUTLINE | Yes | No | Yes | Yes | No | Yes |
| FRAME OUTLINE COLOR | Pink | - | Purple | White | - | White |
| FRAME SHAPE | Pin | - | Circle | Circle | Circle | - |
| FRAME PINNED | Yes | - | No | No | No | - |
| FRAME BACKGROUND | Yes | No | Yes | Yes | Yes | No |
| FRAME BACKGROUND COLOR | Pink | - | White | Brown | Green | - |
| PICTOGRAM SHAPE | Furniture | Furniture | Furniture | Furniture | Furniture | Furniture |
| PICTOGRAM COLOR | White | Blue | Purple | White | White | Brown |

Table 1. Values of variables for the “Hotel” symbol for each map source

Based on the description of symbols with the selected variables, statistical analysis is applied. Conclusions on the characteristics of the symbols globally and in relation to a specific tourist map, a symbol category or a subcategory are extracted. The results of this analysis record the characteristics of the point symbols that appear on the selected maps and constitute a documentation of modern cartographic practices applied in popular online maps. For example, some characteristics of the “Hotel” symbol based on the majority of the symbols involved in the research are: presented: 1) Basic hue: blue, 2) Existence of frame outline and frame background, 3) Frame outline color: white, 4) Frame background color: blue, 5) Frame shape: circle 6) Pictogram shape: bed. Such statistical analysis refers not only to the variables of each symbol, but also to the map – sources and to the content categories. The main trends that prevail in the design of these symbols are revealed and are commented in relation to traditional cartographic practices for the design of point symbols.

References

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