

Museum maps play a crucial role in shaping the visitor's experience, and their design can significantly impact navigation and enjoyment. This research can focus on exploring and developing innovative cartographic design techniques to improve museum wayfinding. For example, apart from traditional room numbering, adding visual cues - such as using floor/wall colors or textures to represent room areas on the map - could help visitors intuitively orient themselves within the space. Another approach might involve highlighting specific exhibits, such as famous paintings or artifacts, enabling visitors to quickly and efficiently locate both themselves and nearby key attractions. Additionally, optimal route suggestions could be incorporated to guide visitors through curated paths, ensuring they maximize their experience without unnecessary detours. These approaches aim to reduce the cognitive load on museum visitors, thereby enhancing their overall experience - an outcome that will be subject to user testing. By prioritizing new visual and cartographic techniques, this research aims to make museum navigation more intuitive, effortless, and engaging for a broad audience.

### Key interests

- Museum map design: Layouts, accessibility, clarity, and aesthetics.
- User experience (UX): Navigation, wayfinding challenges, and user satisfaction.
- Cartographic principles in indoor spaces: The application of mapping techniques in non-traditional settings.

### Relevance

Effective museum navigation is essential, yet many current map designs often fall short in intuitiveness and efficiency. By focusing on innovative cartographic techniques, this research addresses a gap in how visual design can reduce cognitive load and improve wayfinding. These insights could inform better map-making practices for museums, ultimately benefiting diverse audiences and contributing to the broader fields of cartography and user experience design.

### Potential steps and research questions

- Analysis of existing museum maps: review of types of maps (floor plans, interactive maps), common visual solutions (colors, symbols, fonts), and their shortcomings in navigation and accessibility.
- Investigate how new visual solutions (e.g., floor/wall color, textures, forms) impact navigation speed and accuracy through user testing.
- Explore if methods like linking map colors to colors used indoors reduce cognitive load using reaction time, error rates, and subjective assessments.
- Prototype development and testing: create a prototype map and test it in comparison to the original museum version. Conduct an experiment with different groups of people, measuring the time spent searching for a specific object.

### Analysis of existing research and potential gaps

Research Area	Existing Research	Potential Gap
<i>Wayfinding and Navigation in Museums</i>	General wayfinding issues are studied, but specific cartographic solutions are rare.	Assess the effectiveness of new techniques (e.g., color/texture mapping, exhibit highlights) in improving navigation.
<i>Visual Cues in Wayfinding</i>	Studies on visual cues in various environments (e.g., airports, hospitals) are abundant, but applying them to museum maps is less explored.	Investigate how combining visual cues (e.g., color mapping, highlights) affects map usability in museums.
<i>Cognitive Load and Wayfinding</i>	Some research on cognitive load in wayfinding exists, but applying it to museum maps is a key gap.	Measure the impact of cartographic techniques on cognitive load, to test their effectiveness.