| Themes  | Sub-themes   | Codes  |
|---|--|--|
| Effect of Landmark Augmentations on Route Retracing           | Effective retracing                                      | navigate easier; memorize the turns  |
| Effect of Landmark Augmentations on<br>Mental Map Development | Perceive hallway structures                              | notice hallway structures more than before; memorize hallway lengths   |
|   | Increased Focus on Landmarks                             | notice landmarks; identify landmarks; memorize landmarks; locate landmarks; increased reliance on landmarks in navigation  |
|   | Shift in Landmark Selection                              | help notice things may be overlooked; monocular blindness: things in blind spot; pick out important landmarks better; help find functional facilities; offer more information to memorize; start paying attention to once augmented landmarks even without wearing the system; conflict with their own way of identifying landmarks  |
| Experiences with VisiMark                                     | Effectiveness  | effective in retracing; effective in mental map building   |
|   | Comfort  | mentally comfortable; more comfortable without the system; device uncomfort; uncomfortable in public   |
|   | Learnability   | easy to use and understand; short learning curve; tutorial   |
|   | Distraction  | more useful than distracting; eliminate visual noise from a space; very distracting because of learning curve; not overwhelming; overwhelming at some spots; limit the number of augmented landmarks   |
| Taxonomy of Landmarks to Augment                              | Current landmarks in VisiMark                            | similar to those used in wayfinding and mental maps  |
|   | Unique but not visually obvious landmarks                | green double doors   |
|   | Visually challenging but cognitively important landmarks | recessed or flat landmarks; elevators; restrooms   |
|   | Landmarks outside their central view, especially dangers | landmarks above eye level; obstacles on the floor  |
| When the Augmentations Should Occur                           | What to augment only only in preview                     | visually salient landmarks   |
|   | What to augment only in situ                             | common yet important facilities; affordance; small or low contrast prints  |
| Desired Augmentation Designs                                  | Signboards   | have an overview ahead; locate oneself without extra trips; depth perception issues: providing hallway lengths; depth perception issues: help identify dead end; double vision: prefer signboards in central view; monocular blindness: point out possible directions; have scales; small arrows of further connecting hallways; maps of the general layout; colors are helpful cues to remember; confirm on the right track; easier navigation unconsciously; not turn-by-turn color-coded hallways distracting; distinct current colors; primary colors; allow brightness adjustability; allow transparency adjustability; allow more color choices; add dark colored outlines |
|   | In-situ labels   | focus points to tie on; confirm on the right track from a distance; icons are simpler but convey same information; icons help people who cannot read; number of icon categories; unique icon categories; texts are more indicative; should not use abbreviation; more details in descriptions  |
|   | Further customization options                            | specialize based on the building environment; add ability to turn on and off some components; customize personal layers; add ability to zoom in; add ability to adjust position of augmentations   |