



Spatial design and reassurance for unfamiliar users when wayfinding in buildings

Definitions

Wayfinding...

...involves interactions between the traveller and the environment and also involves the ability, both cognitively and behaviorally, to navigate successfully through the environment. Passini, 1984

Unfamiliar user

a user without past experience of a space and therefore without a mental map to draw upon for information, relying instead solely on 'knowledge in the world' (Norman, 1988). This is information held within the environment and communicated through architectural clues, signage and guidance systems (Raubal, 2000).

Principles

Tools:

Derived from existing literature on wayfinding:

information needed in order to complete the wayfinding task

Reassurance:

provides confirmation to people that they are walking in the correct direction

This study focusses on reassurance

Hypotheses

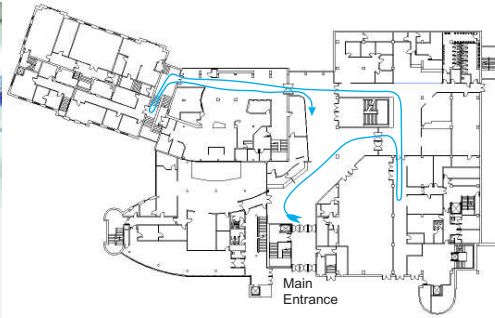
This research investigates four hypotheses by which spatial design of a building affects reassurance when wayfinding. Evidence from literature review suggested that when there is an option to do so, unfamiliar users will tend to

1. maintain a straight bearing
2. avoid a change of level
3. choose a wider route
4. walk towards a brighter space

Exploratory study



Main entrance foyer at Level 3 of the Students' Union from Starting point



Level 3 of Students' Union showing the route taken by one participant

- An observation of the route decisions made by unfamiliar users (new students, n=12) in Sheffield University Students' Union
- The results for the four hypotheses explained wayfinding actions in the majority of cases (Table 1)

Hypothesis	% of option taken at available Decision points
Maintain Straight Bearing	80%
Avoid a Change of Level	100%
Choose Wider Route	76%
Choose Brighter Space	76%

Table 1 Percentage of option taken at available decision points applied to each hypothesis

Applied study



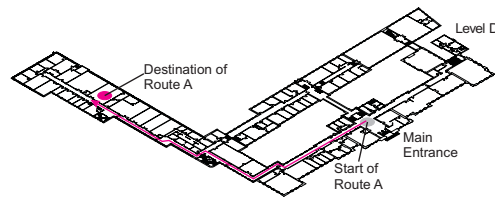
Main entrance of the St George's Building

- Unfamiliar users (n=24) were instructed to navigate five routes within the St. George's Building at Sheffield University campus.
- Difficulty when navigating these routes was predicted before trials by consideration of the four wayfinding reassurance hypotheses.
- Participants undertook the experiment individually, asked to find their way to the destination of each route. Routes were undertaken in varying order so that environmental knowledge gained by the participant during the experiment did not always influence the same route.
- After each individual route, participants gave a rating of route difficulty (1=very easy, 2=moderately easy, 3=moderately difficult and 4=very difficult). After all five routes, participants were asked to put them into a rank order (1=easiest to 5=most difficult)

- Table 2 and Table 3 showing predicted and recorded ratings and rankings respectively
- The Friedman test shows that the ratings applied to each of the five routes are significantly different ($p < 0.001$). Subsequent application of the Wilcoxon signed ranks test to individual route pairs revealed significant differences in ratings of difficulty and these differences followed the a-priori predictions.
- Kendall's W test suggest that the rankings of the five routes are highly concordant ($w = 0.76, p < 0.001$) - participants tended to agree on rankings of route difficulty. The Friedman test reveals significant differences ($p < 0.001$) in the rank order of route difficulty and this is again supported by application of the Wilcoxon signed ranks test to individual pairs of routes.



Main entrance lobby of the St. George's Building



Main entrance level of the St George's Building showing start and destination points of Route A

Route	Predicted difficulty rating (1-4)	Mean rating (Std. dev.)
D	1	1.25 (0.43)
A	2	2.29 (0.54)
B	3	2.83 (0.55)
E	3	3.17 (0.69)
C	4	3.50 (0.50)

Table 2 Predicted and recorded rating of route difficulty in tests

Route	Predicted order of difficulty	Mean ranking (Std. dev.)
D	1	1.08 (0.28)
A	2	2.17 (0.47)
B	3	3.25 (0.66)
E	4	4.13 (1.09)
C	5	4.38 (0.70)

Table 3 Predicted and recorded ranking of route difficulty in tests

Summary

To design for ease of wayfinding: to...
DE-SIGN
Wayfinding is not just signage

These results suggest that spatial design does provide reassurance when wayfinding in a unfamiliar building

