Lost in the Labyrinth: Wayfinding Behavior in a Public Library—Predictable? Maybe Not

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ABSTRACT
Wayfinding is how humans orient and navigate in space, and it requires wayfinders to seek and process spatial information, such as architectural cues, signs, and maps. This topic has been researched in many areas, but rarely in public libraries, facilities that wayfinders enter with both general and spatial information needs (i.e., the need to use spatial information to locate an item that will provide information to satisfy the underlying information need). This poster presents one component of a multi-method case study with the purpose to explore user wayfinding behavior in a medium-sized public library. The poster focuses on how users navigate from the library entrance, which routes are most popular, and areas that experience the highest traffic. Preliminary findings regarding node-to-node (stop-to-stop) connections show that in many cases, multiple people connect the same two nodes via different segments; often, one of these is a predominant connecting segment employed by the majority of cases observed making this connection. These findings indicate that there may be two groups of wayfinders: people who navigate the most direct route and those who navigate another path. This suggests that theories attempting to predict wayfinding behavior need to consider that not all wayfinding behavior may be predictable to the same degree.

Keywords
Wayfinding, library facilities, spatial information behavior.

INTRODUCTION
Wayfinding is the method by which humans orient (locate one’s bearings: North, South, East and West) and navigate (guide one’s direction) in any space, the wilderness or built environments, both external (e.g., cities and towns) and internal (e.g., facilities). Wayfinding is “a problem-solving process with a particularity: it operates in space and requires spatial information” (Passini, 2002, p. 98). This definition brings wayfinding within the realm of information-seeking behavior, and specifically spatial information-seeking behavior.

As with other information-seeking behaviors, wayfinders need information to complete their wayfinding tasks successfully in the built environment. For wayfinding, this information comes from wayfinding systems and tools (e.g., architectural cues, signs, and maps). This is true of all built environments, but the issue is all the more critical in public libraries where users enter the facility with a range of information needs, including geospatial information needs. Library users need to seek geospatial information in order to wayfind through the facility to seek other information; this double-layer of information needs may cause anxiety, possibly interfering with the ability to wayfind successfully.

While wayfinding research has occurred in academic libraries (Bosman & Rusinek, 1997; Eaton, 1991; Hassanain & Mudhei, 2006; Larsen & Taratka, 2008), minimal wayfinding research occurs in public libraries (Loomis & Parsons, 1979; Lubans & Kushner, 1979; Mandel, 2010; Spencer & Reynolds, 1977; Veatch, 1979). If facility designers are to design spaces that consider users’ wayfinding needs in public libraries, empirical research is needed that identifies how users wayfind in public library facilities, what kinds of wayfinding information systems and tools are available to public library users, and why users take certain paths and routes as they navigate the facility to fulfill their information needs.

The author conducted a pilot study prior to the dissertation (Mandel, 2010), in which many routes were observed to occur very frequently or somewhat frequently, but the majority of routes were navigated by only one person. The pilot study was limited by the reliance on only one method: unobtrusive observation. The dissertation, which is guided by Passini’s Conceptual Framework of Wayfinding (1981), includes unobtrusive observation, as well as a document review of the facility’s wayfinding tools and intensive interviews with library users to ascertain why they navigate the way they do. These methods were chosen to address the research purpose of exploring user wayfinding behavior in a medium-sized public library.

The dissertation is fairly large in scope and seeks to investigate multiple questions. This poster presents one
component that relates to two questions: how users navigate from the entrance of a library and which routes are most popular and areas that experience the highest traffic. Answering these questions via unobtrusive observation of users’ wayfinding behavior in the library entry area will begin to offer a more complete picture of how users navigate within the facility. Understanding user wayfinding in the facility will offer guidance towards improving the wayfinding system in the library and, by extension, the information-seeking system within the library.

STATEMENT OF THE PROBLEM

Despite the increasing shift toward electronic resources and digital services, the facility remains crucial to daily operation of a public library. However, little facility evaluation research occurs in public libraries what public library facility evaluation research there is tends to have a practitioner focus, lack a theoretically base, and emphasize collection and furniture space needs rather than user wayfinding needs. Understanding how users actually orient and navigate in public library facilities is an under-represented yet vital piece of the knowledge in the field of public library facility evaluation. In libraries, facility evaluation refers to a group of methods for assessing how well a building serves its purposes, and it tends to focus on post-occupancy evaluations and in-library use research. Wayfinding needs to be included as an area of library facility evaluation because how users navigate the facility is as important a measure of use as what they are doing there.

A built environment’s wayfinding information system serves as the basis for users’ wayfinding behavior within that facility (Arthur & Passini, 1992), just as the information system of a library serves as a basis for library users’ information-seeking behavior. Whether library users have an intended destination in the facility or they are meandering through stacks browsing the collection, effective wayfinding tools are necessary to assist users as they orient and navigate in the facility so they can find what they need without getting lost. A need exists for empirical, theoretically guided research into public library facility design and evaluation that emphasizes investigation of user wayfinding behaviors as a guide to designing facilities that users can navigate intuitively. Facilities designed with user wayfinding information needs in mind will be easier for users to navigate while meeting their information needs, possibly increasing satisfaction levels with the facility and comfort with and support for the library as an institution.

ONE COMPONENT OF A MULTI-METHOD CASE STUDY

The facility chosen as the research site is a two-story library building with a second-floor mezzanine. The mezzanine allows the researcher to sit at an unused employee desk on the second floor with an unrestricted view of most of the first and second floors (Figure 1); areas outside of view include those areas located directly below the desk (Librarians’ Office, Computer Lab, Reference, and Laptop Lab) and a portion of the second floor blocked from sight by the Director’s Office (half of the Spanish section). This research focuses on user wayfinding behavior as they enter the facility; the “entry area” is defined as the entirety of the first floor that is visible from the researcher’s vantage point.

The researcher unobtrusively observed library users during three sample weeks—one each in spring, summer, and fall. A systematic random sample of all 10-minute time periods during operating hours produced a sample of 285 (n=95 for each week) time periods. The first adult user entering the facility during each sample time period was observed for 10 minutes, or until exiting the facility if that occurred within the 10-minute observation window.

Observed routes, segments, and nodes (i.e., stops) were mapped using ArcGIS software to produce visual representations of the observed data. Many sets of maps were produced, only one of which is provided here to illustrate an example related to a preliminary finding.

PRELIMINARY FINDINGS

A multi-method case study has myriad findings, and it would be impossible to enumerate them all in a poster. Therefore, this poster will focus on one key finding, namely that although some percentage of wayfinding behavior may be consistent across people (suggesting the possibility of predicting behavior), this is not true of all observed wayfinding behavior. This finding is based largely on data related to node-to-node connections, which were analyzed as to their frequency overall, different connecting segments and frequency and directness of each.

Several node-to-node connections (n=104) were observed more than once during the sample weeks. In slightly more than half of these connections (n=55; 52.88%), all cases were observed making the connections using the same connecting segment. However, in the remaining cases (n=49; 47.12%), multiple observed cases connected the same nodes using different connecting segments, in some cases using three or more different connecting segments.

Figure 1. Visible portion of the library “entry area.”
Maps of these frequent node-to-node connections indicate that, when a node-to-node connection is observed to have multiple connecting segments, one of those segments is the predominant connecting segment. This is most clearly visible in the node-to-node connection between the east entrance and the Circulation line; although observed 38 times with two different connecting segments, 37 cases connected the nodes using the same segment and one case differed (Figure 2). The predominant connecting segment appears to be a more direct path than the one taken by the lone case navigating the alternate connecting segment.

What this finding seems to indicate is that there may be two groups of wayfinders: people who navigate the most direct route and those who do not. This suggests that theories attempting to predict wayfinding behavior, such as the theory guiding the dissertation need to consider that not all wayfinding behavior may be predictable to the same degree or based on shortest distance. It may be possible to predict that a critical mass of wayfinders will opt for the most direct path, but the remaining wayfinders’ behavior may be predictable only with access to additional information regarding the wayfinders’ ultimate information-seeking goals (i.e., if their goals are to browse, perhaps their wayfinding could be predicted to be along a less direct route than someone seeking specific materials).

CONCLUSION
Although this finding (and others from this study) is still preliminary, it includes an important concept that should be considered as researchers attempt to describe and predict human wayfinding behavior. Additional research is needed to further investigate this finding, preferably in the form of experiments or quasi-experiments since unobtrusive observation is limited in that it can only show what people do; it cannot provide any explanation of why or how people do what they are observed doing. Experiments that include think aloud protocols may be more effective in gathering this information and help to expound upon the preliminary findings from this research.

REFERENCES


