Wayfinding in healthcare environments: A case study and proposed guidelines

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Wayfinding for healthcare environments: A case study and proposed guidelines

by

Kristin Diane Lewis

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Major: Art and Design (Interior Design)

Program of Study Committee:
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ABSTRACT

This thesis consists of a literature review, a case study that was conducted, and a proposal of guidelines for effective wayfinding design in healthcare environments. The research questions investigated were: 1) How does the built environment of a multi-story clinic affect wayfinding? 2) Which elements of a healthcare environment become most important to users who are navigating it? 3) Which elements of a healthcare environment detract from the user’s wayfinding experience? The researcher’s hypothesis was that insufficient signage and a lack of available maps would be identified as the main issues in the wayfinding experience. This hypothesis was developed through the literature review and the researcher’s own visits to the space. Literature written by Mollerup (2005) and Passini (1984) was used as the primary guides by the researcher in analyzing the space and suggesting changes for improvement.

Wayfinding is an important issue in healthcare environments, but there is not a substantial amount of literature available concerning the subject. This thesis aims to apply existing wayfinding research to a specific site within the healthcare field to suggest improvements to the specific site as well as develop a set of healthcare-specific wayfinding guidelines.

The site of the case study was the McFarland Clinic building at 1215 Duff Avenue in Ames, Iowa. Study participants were asked to locate a specific destination within the clinic without any prior directions or help from staff. The participant group for the study was divided into two destination groups. After locating their destination they were surveyed about the experience. The surveys were formatted so that for each question participants either chose an applicable response offered or checked all responses they agreed with, depending on the question. There was also room for comments after each question, and they were encouraged.

The resulting data was analyzed and a list of goals for improvements to the Clinic was created. Specific improvement suggestions for each goal were then detailed. A list of general
guidelines for wayfinding design in healthcare environments was then compiled based on the results of this study in addition to existing literature.
CHAPTER 1. OVERVIEW

Statement of the Problem

Today, healthcare facilities are more architecturally complicated than ever. As what doctors can do for their patients increases, so must the environments that house their practices. As a result, medical facilities have grown quite large. This expansion usually occurs in the form of additions to existing structures rather than a completely new facility. In addition to the overall size of a structure, the pieced-together nature of a medical facility can complicate its navigability.

How users find their way through a healthcare environment often depends largely on signs. Other wayfinding tools typically used are verbal directions from a staff member, maps, guidelines on the floor, landmarks, and other more subtle visual cues such as lighting changes. A successful sign system is visually consistent, recognizable, has accurate information, is legible, and is located at places where users will need to make decisions (Mollerup, 2005). This sounds simpler than it is; complex floorplans can make it difficult to recognize where the best locations for signs are, and it can be tempting for sign designers to create a system that is too stimulating visually to be legible. It is complicated when a department changes location within a medical facility. In this case, a very effective sign system could need to replace some or even many of its signs. Replacing signs can be expensive, so sometimes it is done in stages. Until the signs are all updated, any inconsistencies across information available on the signs could confuse users (Mollerup, 2005).

A user’s experience within a built environment often affects their opinion of the business housed in that environment (Mollerup, 2005). Even if they are provided excellent medical care, they may retain bad feelings towards a healthcare facility if they had a difficult time navigating it. If a facility made users uncomfortable, they may choose a different healthcare provider. A building that is difficult to navigate is bad for business.
In comparing healthcare environments with other buildings of comparable size, it is important to note that the qualities of the particular users of these environments make it even more important that the space is easily navigated. Users of healthcare environments often consist of the elderly, people with limited mobility or vision, and people under varying amounts of stress. Because they often possess these qualities, users of healthcare environments commonly have more difficulty interpreting and navigating complex environments. It is the duty of the wayfinding system to combat architectural complexities such as intersections where more than 2 hallways converge or the connection between two wings with different architectural styles, so that the space is still understandable and navigable.

This particular research project will include a case study and a proposed set of guidelines to follow for effective wayfinding design in healthcare environments. Passini’s (1984) guide to wayfinding design was followed through its step 5 in the research study. The structural framework also introduced by Passini (1984) was utilized in analyzing the site of the case study to suggest changes to improve its navigability.

**Research Questions and Hypothesis**

The research questions investigated were: 1) How does the built environment of a multi-story clinic affect wayfinding? 2) Which elements of a healthcare environment do users identify as being most important when they are navigating it? 3) Which elements of a healthcare environment do users identify as negative components of their wayfinding experience? The researcher’s hypothesis identifies the main issues of the wayfinding experience in a healthcare environment as insufficient signage and a lack of available maps.
Scope

This research project includes a case study conducted in Ames, Iowa at the McFarland Clinic building at 1215 Duff Avenue. Results from the study, along with guidance by Passini’s structural framework, propose recommendations for wayfinding improvement to the Clinic. The study looks specifically at two destinations within the Clinic. Destination 1 is the hallway linking McFarland Clinic with Mary Greeley Medical Center, which is located on the garden level; destination 2 is the gastroenterology department, which is located on the second floor.

The project also includes a chapter of guidelines for wayfinding design in healthcare environments in general. These guidelines are written for use in a variety of buildings within the healthcare field, but are targeted to clinics and hospitals of moderate to large size. They encompass wayfinding needs of both new and existing buildings.

The Study

Participants were asked to locate a specific destination within the clinic without any prior directions or help from staff. After locating their destination they were surveyed about the experience. Participants’ rating of difficulty and number of wrong turns was used to measure the survey’s dependent variable, ease of wayfinding. The survey also measured the effect of the independent variables (signage, maps, lighting, color scheme, furnishings, flooring, staff, and space layout). The surveys were formatted so that each question had participants either choose one applicable response or checked all responses they agreed with, depending on the question. There was also room for comments after each question, and they were encouraged. The participant group for the study consisted of 23 individuals between the ages of 18-40, and was divided into two destination groups.
Results

The analysis of the data created by the study resulted in a list of goals for improvements to the Clinic. Specific improvement suggestions for each goal were then detailed. A list of general guidelines for wayfinding design in healthcare environments was then compiled based on the results of this study in addition to existing literature. This list of guidelines differs in its approach to floor-based wayfinding systems and has a heavier focus on sign details than similar lists of guidelines previously written. The findings of this research study will be presented to the building facilities manager at McFarland Clinic.
CHAPTER 2. LITERATURE REVIEW

Introduction to Design Research

Design research covers such topics as influence of color on human emotions, improving bridge design, sustainable building practices, and many others. A plethora of methods is employed to conduct design research including but not limited to statistical analysis, case studies, and analysis of interviews given. Research concerning wayfinding, how a user navigates a space, is the focus of this literature review.

Despite its direct correlation between the environment and humans, the combination of environmental professions and social and behavioral sciences has only been recognized since the 1950s (Moore et al., 1997). Research areas such as environmental psychology and wayfinding all fall under a category best known as both ’environment-behavior studies’ and “environmental design research” (Moore et al., 1997). The term environmental design research will be used throughout this thesis. During the decades following its creation, the field of environmental design research developed quickly with input from many disciplines including human factors, architecture, urban planning, public administration, psychology, and interior design. Within the larger field of environmental design research is a variety of scales of environments to be studied ranging from the micro-environment (e.g. human factors or within interior design), to the meso-environment (e.g. architecture), to the macro-environment (e.g. in sociology or urban planning; Moore et al., 1997).

Designers are in essence, problem solvers. Their task is to solve a problem posed by a client, whether it is to design a product, a space, or a photo spread. To solve problems encountered by
humans, studying social and behavioral sciences research can be helpful in fully understanding how and why people act the way they do in an environment.

Design is difficult to describe because it includes so many intangible elements such as intuition, imagination, and creativity – which are also essential to research (Zeisel, 2006, p. 19). Palmer (1981, p. 99) has defined environmental or facility programming as the identification of goals, objectives, and values of different users, clients, and designers in the design process. While designers that work in fields that use environmental design research primarily work to change physical spaces, part of their intention is also to influence the behavior of the people that occupy the spaces they design. They want their design work to meet the needs – social, psychological, and developmental – of its users (Zeisel, 2006). To do this, designers must work to understand how and what people perceive environmentally. Moore et al. (1997) recommends more work be done at the meso-scale concerning orientation and wayfinding in complex buildings such as hospitals and shopping centers. Wayfinding aims to provide cues for mobility, direction, and orientation through signs and easily understood design (Moore et al., 1997). The term wayfinding replaced “spatial orientation”, which was used in the beginning of the age of environmental design research (Arthur & Passini, 1992).

Further Defining Environmental Design Research and Wayfinding

Moore et al. (1997, p. 4) defined environmental design research as the study of the mutual relations between human beings and the physical environment at all scales – from the small scale of interior design to the large scale of urban planning. Villecco and Brill (1981) distinguish
environmental design research from other types of research because of its focus on the physical environment, relationships between people, and implications for the quality of life. Further, it is important within environmental design research that people are studied in the everyday physical environment rather than a posed environmental situation created for a research study (Craik, 1968). Gans (1959) agrees with Craik (1968) and advocates studying people in groups as they participate in normal activities.

There is also a resistance in environmental design research to separate research and application or people and the settings they are in (Moore et al., 1997). This is in part because while it is a scientific discipline, environmental design research is problem centered and focused on application. Moore and Golledge (1976) contend that an environment has an impact on its users through their perceptions and conceptions of it. This is closely related to environmental psychology, which Russell and Ward (1982) define as focusing upon intrapersonal processes (i.e. perception, cognition, and learning) that mediate the impact of the environment on the individual.

Wayfinding is an activity that is directly affected by environmental design research. Wayfinding allows people to move through an environment in such a way that allows them to locate items or places they are searching for such as food, shelter, or meeting places (Downs & Stea, 1977; Evans, 1980; Kaplan & Kaplan, 1982). The act of wayfinding can be viewed as a sequence of problem-solving tasks requiring some information about the environment (Passini, 1984). These tasks could include searching for a sign with the needed information, attempting to interpret the color-coding method of a sign system, or identifying landmarks on the path to the desired destination.
The effects of research concerning wayfinding affect how environments are designed. Design with wayfinding in mind aims to choose the appropriate circulation system and shape interior design so that all elements facilitate easy wayfinding among users (Arthur and Passini, 1992).

**Importance of Environmental Design Research and Wayfinding**

One use of environmental design research is to generate knowledge on which public policy is based to resolve issues created by design. As with many forms of research, environmental design research has its own cycle of research and application: (1) environmental policy planning, (2) environmental design, (3) evaluation, and (4) research (Moore et al., 1997). There are a variety of instances where environmental design research has been and can be used to shape public policy.

Children are an example of a specific group that benefits from environmental design research. Children have more serious accidents than people in other age groups, which makes them an obvious target of environmental design research (Moore et al., 1997). Research has been conducted concerning children in natural settings, in home environments, in school settings, and on behavioral issues like environmental cognition and privacy (Weinstein, 1979). Groups that are highly impacted by their environment are those that have the least amount of control relative to their day-to-day functioning in it (Moore et al., 1997, p. 79). These groups typically include the age groups at both ends of the spectrum – children and the elderly – as well as other groups, such as the blind, that span all age groups. Studies concerning noise show that when it exceeds certain levels it can contribute to nervous tension, anxiety, and intensify effects of other illnesses, contributing to psychosomatic
illness, reducing concentration, and affecting learning ability (Farr, 1972; Cohen, Glass & Singer, 1973; Glass & Singer, 1972, Moore et al., 1997). This research showing the higher level of impact that their environment has on these groups is important because many of them are the same groups that spend a greater amount of time in the hospital (i.e. children, the elderly, and those already suffering from an illness).

Another specific area of environmental design research concerns wayfinding. Wayfinding affects anyone looking to navigate a space. Some groups are more affected by wayfinding issues than others. A survey by Passini demonstrated that 90 percent of the blind people in Montreal consider public buildings to be inaccessible because of difficulties associated with wayfinding (Arthur & Passini, 1992). While humans change the environment in many ways, the environment also affects them (Bell et al., 1996). While being lost in a built environment is typically not threatening to a person’s survival, as being lost in the wilderness often is, people still report that the experience is hard on their self-confidence (Bell et al., 1996). People new to a building or environment frequently experience stress and anxiety related to disorientation (Cohen et al., 1986; Hunt, 1984). Not every environment is complex enough to need special attention paid to its wayfinding system. Creating large and complex built environments seems to have become the norm of the current building era as compared to the relatively simpler buildings of the past. Wayfinding today is growing in importance with the scale and amount of complexity in the built environment. The value of wayfinding studies is in identifying the impact of various environmental conditions on human health, comfort, stress, and other performance measures (Moore et al., 1997).
Wayfinding

The works of two different authors were the major guides in wayfinding analysis and design for the literature review and research project. These two authors come from very different backgrounds and have strengths in different areas. Passini (1984) is a psychologist while Mollerup (2005) is a graphic designer. Passini’s psychology background makes his analysis of decision points particularly insightful, but his diagrams aren’t graphically strong. Passini’s work also lacks an exploration of wayfinding in multi-story buildings and spaces as noted by Hao and Yen (2009). Mollerup’s analysis of graphic details in sign systems is very thorough, but his suggestions for wayfinding design are vague.

How a company chooses to enable successful wayfinding in its facilities can indirectly communicate to its users the company’s ability to handle problems and about how it cares for people (Mollerup, 2005). The goal of wayfinding design is to provide the information necessary for users to correctly make and execute decisions within the environment (Passini, 1984). In addition to the obvious reason for wayfinding design, it is also important to note that the wayfinding experience itself establishes a relationship between the user and the environment and the spatial characteristics that distinguish it. Passini contends that wayfinding becomes a fundamental key to environmental appreciation (1984, p. 159). Interpreting a wayfinding system should not take much thinking, but rather relies on good perception and the user’s ability to follow common sense rules rather than follow a route (Mollerup, 2005). As long as the user can see and comprehend the elements of a space, they should be able to find their way through it. One function of wayfinding is to maintain
knowledge of where one is – to not get lost. Being lost in the wilderness holds real danger. While being lost in a built environment isn’t typically dangerous, the sensation of fear is often still associated with the predicament (Passini, 1984). One instance where fear within a built environment relating to wayfinding is truly warranted is of course an emergency scenario. In the event of an evacuation due to fire, for example, reaching the desired destination (presumably a building exit to the outdoors) is the only priority.

**How People Find Their Way**

To find your way, you will follow two general steps (Mollerup, 2005). The first step in finding your way is recognizing where you are. Mollerup (2005) gives four ways that your position within the environment can be recognized; all but one (global positioning systems) are used in the built environment. One’s position can be recognized by having an appearance that makes it recognizable because it is different than its immediate surroundings, whether that difference is a natural or designed quality; a path in a wooded area is an example of this as the path is different than the wooded area, which is how it is recognized. One can identify their position because it is recognizable due to their surroundings; while visiting a toy museum one may recognize themselves as being in the “train room” they saw on a map after seeing the variety of toy trains present. One’s position can also be labeled with identification signs to help users determine where they are (Mollerup, 2005).
The next step in wayfinding is figuring out which direction to go to reach your destination and which route to take. Part of this route decision-making will likely utilize a typical hierarchy of travel routes. People tend to go from smaller or less well-traveled paths to larger paths and then to smaller paths (Calori, 2007; Mollerup, 2005). For example, to visit a shopping mall in Des Moines from Ames, one would leave their home and travel to progressively larger and faster roads (paths) until they were on the interstate highway. When close to the destination, they would need to leave the interstate highway and progress to smaller and slower roads (paths) until arriving at the shopping mall. Wayfinding in a complex building works in much the same way. People instinctively seek out a larger hallway (path) that is more well-traveled and potentially has more information than a smaller hallway (path) until they are close to their destination, at which point they leave the larger hallway (if their destination is not located on the larger hallway) to use a smaller hallway or path to reach their destination.

Passini (1984) writes about the course a user participates in while moving through an environment and its potential for change along the way. While a user may have a route in mind when he begins the journey, wayfinding is an active and dynamic activity and is prone to change from the initial plan the user may have had in mind. The user will formulate predictions about environmental features that he may encounter and then compare these predictions with the information found in the actual environment; this all happens actively as the user moves through the environment (Passini, 1984).
While Passini focuses on the user and its journey through a space, Garling, Book, and Lindberg (1986) identify three broad characteristics of physical environments that are likely to affect wayfinding as the degree of differentiation, the degree of visual access, and the complexity of the spatial layout. These characteristics could be formatted as questions a user may ask themselves: “How ambiguous is this environment; what is different?”, “What can I see that will help me find my way?”, and “How complicated is the arrangement of the different parts of the environment?”

Age can also play a role in a user’s ability to find their way through an environment. Children beyond kindergarten age are competent wayfinders (Bell et al., 1996). Elderly users are more likely to suffer memory loss and become disoriented, which hinders wayfinding ability. No matter what your age or natural wayfinding ability, it is in some ways self-correcting. If a wrong turn is made, the user can turn around and retrace his steps to the point of error and begin again (Bell et al., 1996).

Maps are one way that users seek to assist themselves with wayfinding, but aren’t always fully successful in helping users reach their destination. Many maps are labeled with north as “up”, which puts west as “left”, east as “right”, and south as “down”. This strategy becomes confusing when a user who is traveling north turns a corner and suddenly what was west before (left) is now south. Not all users are able to rotate their cognitive map to accommodate these changes (Bell et al., 1996). Physical and cognitive maps will both be discussed in detail later.
The Wayfinding Experience

While finding the desired destination is key to a user’s primary goal being reached, there are other elements that contribute to make the experience satisfying as a whole. For the experience to be considered satisfying, the environment needs to offer something to the user. Passini (1984) writes that the three major sources of satisfaction from wayfinding in complex environments are from solving problems, being entertained, and acquiring new knowledge. Amos Rapoport (1977, p. 208) made this observation: “The many environments in different areas, eras and cultures which are liked and preferred have one thing in common: they all seem to be perceptually interesting, complex and rich.” Boredom is not conducive to a wayfinding experience in which one learns about and more fully understands the environment, but interest and curiosity are (Passini, 1984). A rich experience comes from the sense of satisfaction gained from an opportunity and ability to solve problems in wayfinding which come from a certain level of architectural and spatial complexity as well as opportunities for exploration (Passini, 1984). Complexity in an environment can create this interest and curiosity, though it can also lead to wayfinding problems when combined with poor design. Environments devoid of features or contrastly, environments that are visually overloaded, combined with complexity are a recipe for wayfinding complications (Passini, 1984). The ideal level of complexity is debated in various areas of design. Some argue that complexity facilitates learning through opportunity for exploration and higher levels of stimuli (Rosenzweig, 1966; Thompson and Heron, 1954), while others argue that complex environments are distracting and reduce the ability to
concentrate (Vernon and McGill, 1957; Wohlwill, 1966). A perfect level of complexity in wayfinding situations is similarly difficult to agree on.

**Wayfinding Design**

Design of a wayfinding system is a complicated and involved process that varies widely depending on the space. Wayfinding consultants are sometimes included on projects from their conception, but often a space is designed and a wayfinding system is added later. Mollerup (2005) said “If architects and other building planners neglect these issues, other planners will need to solve the problems they leave behind. In the worst case, wayshowing becomes repair design for architectural neglect” (Mollerup, 2005, p. 209). While it would be ideal to design a built environment and its wayfinding system simultaneously, all too often Mollerup’s “worst case” becomes standard.

Mollerup (2005) uses the term wayshowing to describe how wayfinding is facilitated, so Mollerup would say that we design wayshowing systems rather than wayfinding systems and that people participate in wayfinding journeys. The wayfinding and wayshowing processes and actions are better described using two separate words rather than using “wayfinding” to describe both, as has been done in past writings about either subject. Mollerup’s (2005) new terminology will be adopted for the rest of the literature review and following chapters in this thesis.
Passini’s Structural Framework

Passini (1984) gives a structural framework to follow when dissecting the wayfinding experience into individual units. He contends that the wayfinding experience has two structural characteristics: decision hierarchies and decision plans. Decision hierarchies read from left to right and show decisions as they relate hierarchically to complete the leftmost decision. Decision plans are similar. They include all of the decisions from the decision hierarchy, but if a particular decision would require other items to complete it, these behavioral decisions become subsets of the original decision point. For example, in the decision hierarchy map and decision plan examples given by Passini (1984) and shown below, the decision plan shown in figure 2.2 has “to sail according to Reef outline” in addition to “to set canoe on new course” as decisions needed to be able to accomplish the “to follow Reef to Big Dip” decision to the left. The second decision “to sail according to Reef outline” is a behavioral decision that is needed in addition to the more general “to set canoe on new course” in order to complete the decision to the left, “to follow Reef to Big Dip”. Hao and Yen (2009) note that Passini’s work follows cognitivist theories, which tend to view people as processing information and acting rationally and logically, while their (2009) work supports the views of post-cognitivist theorists, who believe human activity tends to be irrational.
Passini’s (1984) decision hierarchy and decision plan diagrams are useful in diagramming the
decisions a user of an environment will make in detail to follow a certain route. A weakness of his
diagrams is the element of time. Time is shown at the left of each diagram as an arrow pointing downward signifying that decisions shown farther down on the diagram will take place later in the chronology of the entire journey. Because time is not quantified, it becomes less important to the diagram’s success and usefulness. An alternative might be numbering decisions in each group to show their order, but this should not be necessary as their order is implied by their arrangement in a list. The element of time could be removed altogether without sacrificing the integrity of the rest of the diagram. This is the case in all of Passini’s (1984) diagrams with a similar representation of time.

One of the first and most important steps in wayshowing design is to recognize the moments during a user’s journey where they need to make decisions, and therefore need information (Passini, 1984). If the space has already been built, wayshowing designers can use a sample of wayfinding episodes to find the weakest points in the current wayshowing system. These weak points would be decision points where users are given incorrect, misleading, or incomplete information (Passini, 1984). A way to identify these decision points and determine what information is needed at each is to use a notation system developed by Passini (1984) to create decision diagrams. Each decision (e.g. to find the podiatry department) is broken down into simpler decisions (e.g. to go to fourth floor, to find podiatry department down hallway), which are then broken down into even simpler decisions (e.g. to go to elevator, to go to fourth floor, to turn right after exiting elevator.) These decision diagrams end up essentially being a decision plan for an environment that has already been built. This decision diagram can then be analyzed to ensure that adequate information is available at each decision point to make all of the correct decisions.
The execution of a decision plan is where users tend to lose their way. They will typically have an image in their mind of what to look for to complete the particular decision at hand. Passini (1984) refers to this as the expected image and what the user actually sees as the perceived image. If the two match, the user will act to complete the decision, but if they do not the user will need to engage in further problem solving to continue to follow the decision plan.
Several researchers have outlined their own suggested guidelines for wayfinding design.

The guidelines written by Passini (1984, p. 172-184) are very thorough. They are as follows:

Passini’s 7 steps in his guide to wayfinding design

1) Identification of wayfinding tasks
2) Identification of a user profile
3) Identification of wayfinding conditions
4) Formulating the design requirements (design problem)
5) Planning wayfinding solutions
6) Identifying environmental information
7) Synthesis, information system, and optimal location

While there are several guides to doing successful wayfinding design, not everyone chooses to use them. People often work off of assumptions that are unfounded by research. A good example of this is how in the past, owners of department stores used to purposefully design to confuse shoppers on the assumption that people would buy more merchandise if they could be confused into staying on the premises longer (Arthur and Passini, 1992). There are plenty of guidelines, but each site varies in its size, organization, and the building’s floorplan, which all combine to create wayfinding issues unique to that particular site (Arthur and Passini, 1992). When a user enters a space and assesses the wayfinding issues related to the overall building environment, they will create a decision plan as their solution to the issues present (Arthur and Passini, 1992). To create this decision plan, users will seek information. They will look for both internal information (existing knowledge about wayfinding in general as well as the specific environment) and external information, which includes off-route information (i.e. maps, verbal descriptions, and other advance information) and on-route information (i.e. cues given by signs and the environment itself; Mollerup, 2005).

Some argue that modern technology, such as GPS, could replace typical wayfinding strategies (Mollerup, 2005). Relying too heavily on technology is a dangerous choice as it can fail; equipment malfunctions, software isn’t kept up to date, and batteries lose power. Technology can enhance the wayfinding experience, but it is doubtful that it will actually replace these wayfinding strategies in the near future.
In addition to designing sign systems, wayshowing can be improved through other elements of the environment as well. Mollerup (2005) gives a list of suggestions, which are below with his original descriptions modified or added to:

1) Generally – Make destinations recognizable by variety, hierarchy, relative position and identification signs.

2) Track following – Use corridors, hallways, and other paths to guide users

3) Route following – Design so that the route is clear. Include on-route identification signs and landmarks.

4) Homing – Avoid creating one-way, dead-end routes for better circulation.

5) Educated seeking – Organize using common patterns that users will recognize from other environments they are familiar with.

6) Inference – Use sequentially ordered designations and consistent locations so that users can infer locations of places within a structure. This would include using a logical pattern for room numbering.

7) Screening – Organize space systematically so users can understand its organization after only quickly scanning the area.

8) Aiming – Use landmarks to aim the user and lead them in the correct direction.

9) Map reading – Coordinate nomenclature on maps and signs to lessen confusion.

10) Compassing – Use compass directions in names. Users that are aware of their cardinal directions within the space will be able relate to them and all users should remember the
names better than an arbitrary name given to them. “West Elevators” may be easier to remember and locate than “Prescott Elevators”.

The strength of Mollerup’s (2005) writing lies in his knowledge of specific elements, such as color, and the roles they play in wayshowing. His wayshowing suggestions have some use, but tend to be vague and require interpretation. They are also lacking in direction as to when or where they should each be applied. Combining Passini’s (1984) analysis of an environment through decision diagramming and steps to wayshowing design with Mollerup’s (2005) guidance in the design of specific wayshowing system elements would capitalize on the strengths of each.

One wayshowing strategy typically used in hospital settings is putting colored guidelines on the floor to direct users to specific locations (figure 2.5). Guidelines in principle seem to be effective, but in reality have several problems that make them unappealing as wayshowing elements. They are bidirectional, making it easy for users to become confused and accidentally follow it the wrong direction and end up either where they started or somewhere else altogether. If a user is colorblind, it will be more difficult for them to keep track of which guideline they are supposed to be following. Also, if a user is focused on following a guideline on the floor, they may not see important signage located at eye level or above.
Figure 2.5. Guidelines at Hvidovre Hospital in Denmark as shown in Mollerup’s (2005, p. 150)

Wayshowing.

Color is typically important in systems utilizing guidelines, so it is important to point out that while there are an infinite number of colors, it is difficult to find more than about 7 that can be easily recognized and not confused with one another. Mollerup (2005) points out that the maximum number of colors most people can remember is four to five, so having more than five colored guidelines would likely become confusing to most users. One way to effectively utilize the floor in wayshowing design is to have different flooring types in different areas. Obvious differences in the flooring and walls, particularly their color, will help alert users to a change in the area (i.e. moving from the
pediatric department into the radiology department); these types of changes are especially helpful to visually impaired users (Mollerup, 2005).

Maps

Physical maps are some of the oldest and most obvious tools people utilize to find their way through new or complex environments. The oldest known map dates from 2500 B.C. (Beck and Wood, 1976). A map’s general purpose is to let a user determine a route to their destination from their current position, so it is most effective when all three of these items (current location, route, and end destination) are all visible on the map. Maps are also useful in that they help users comprehend the place(s) represented on it. Maps that emphasize Lynch’s (1960) five basic elements (landmarks, paths, districts, edges, and nodes) will aid in user comprehension of the map (Passini, 1984). While in some situations, users may study the map in depth before beginning or resuming their journey towards the destination, most map reading, like sign reading, takes place in glances (Passini, 1984). While maps typically offer an aerial view of a site, they have distinct advantages over an actual aerial view of a site; maps are portable, maps typically offer only relevant information, and maps give the names of relevant wayfinding tools, such as roads (Mollerup, 2005).

Toponomy is the discipline of giving names to places. Often, the naming and numbering of places is not thought of from a wayfinding perspective, which can create problems. For cities designed on a Roman grid, such as all streets north of Greenwich Village in New York City, or most cities here in Iowa, wayfinding is enabled through street numbering. In a Roman grid system, street
numbers point to each other in the same manner as floor numbers in a building do (Mollerup, 2005); so a building at 2043 Ivy Street would be located at a similar place to a building at 2043 Dogwood Street if those two streets were parallel to each other. For cities not laid out on a grid pattern, numbering becomes more complex and less helpful to wayfinding. It is the same with buildings; the more complex the building, the more thought out its numbering and naming systems must be so as to not confuse users and to encourage easy wayfinding. When numbering rooms within a building, a general rule to follow is that numbers should start at the main entrance of that particular floor; the main entrance is from the elevators or staircase, or from the street on a ground floor (Mollerup, 2005). Following these numbering rules within buildings will help facilitate easy wayfinding as well as make maps easier to understand.

The word map covers a wide variety of items. There are several ways to break the many maps down into categories. People that design maps (cartographers) distinguish between three main categories of maps: maps deal with land, charts deal with seas, and plans deal with cities and floors (Mollerup, 2005). Graphic designers sometimes separate them into maps and diagrams (Mollerup, 2005). And the two designations used most in wayshowing – area maps, which describe a designated area and are usually to scale, and route maps (figure 2.6), which concentrate specifically on a route through an area (Mollerup, 2005). Route maps are extremely clear and easy to understand, but don’t have much information beyond the exact route they depict.
Conversely, an area map showing the same route would have much more information available about the area shown, but the route itself might not be as clear. Map design is a delicate balance between information load and clarity; whichever the map favors is a good indicator of the maps purpose and possibly the type of user expected to utilize it.

The orientation of maps is a much-studied map detail. Levine *et al.* (1984) suggest that wayfinding maps are most effective when oriented so that what is forward on the ground is up on the map. Their experiments on map orientation show that the misalignment of you-are-here maps from this standard orientation by 90 degrees or more seriously misleads people. The most surprising part
of that study is that it had the same results when people were notified of the misalignment. Levin et al. (1984) also showed that this alignment principle is regularly violated in a variety of buildings including offices and airports. Creating maps can be time consuming, so often one map is designed and posted in all needed locations without rotating it and adjusting its elements so that it is correctly oriented for each place it is posted. In general, two things are obvious: simpler maps tend to be more successful (Borun, 1977; Talbot et al., 1993), and maps that clearly portray a setting and identify the user’s location in that setting are more effective than those that do not (Bell et al., 1996).

**Variations in the User**

The design of a wayshowing system is completely under the control of its creators, but how users will react and respond to it is not. Perception and cognition have a big impact on how a user will respond to an environment. *Perception* is the study of what is detected using the senses in the environment. It is commonly defined by immediacy and stimulus dependency (Moore & Golledge, 1976). *Cognition* is the process of understanding the environment based on one’s perception of it (Moore & Golledge, 1976). In addition to how users perceive and understand the environment, they can also depend on how others give directions. The ability to give useful directions depends on spatial skills and verbal ability (Vanetti and Allen, 1988). Vanetti and Allen (1988) found that in following directions, there is little difference in the ability to follow directions, but those with higher spatial ability tended to suggest a more efficient route more often than those with a lower spatial ability. Directions that the user seeks can vary in type as well. Individual users have preferences
concerning the information used to direct them to their destination; some people prefer linear and sequential directions while others prefer to receive directions that are more spatial and global in nature (Arthur and Passini, 1992). These individual preferences make it difficult to write directions that appeal to all users.

When users are planning a journey, they use the knowledge available to them at the time. This will include off-route information sources (i.e. maps, guides, and timetables) as well as their own knowledge about the environment to be traveled through. Knowledge often reduces planning in two ways. A lack of knowledge and off-route information sources would lead to less planning, though the user could compensate for this by doing more planning while on-route. Also, a user with an abundance of knowledge about the route to be traveled could do less initial planning and then later compensate with on-route planning (Mollerup, 2005). Most people tend to spend more time planning for long journeys than short ones. Long distance travels tend to have more risks, while doing all-encompassing planning for short journeys may not be worth the time planning takes (Mollerup, 2005).

**Gender Differences**

Some differences between the two genders in wayfinding abilities and tendencies have been studied. In studies with both cognitive mapping and paper-and-pencil tasks, differences between the genders were found in the paper-and-pencil tasks, but not for the cognitive mapping activities (McNamara, 1986). McGuinness and Sparks (1979) found that there is no difference in the accuracy
of maps drawn by either gender, but women emphasize districts and landmarks while men tend to emphasize the path structure. A common misconception about gender differences in wayfinding is that women are not as adept as men at using cardinal directions and mileage estimates; the difference is that women prefer not to (Bell et al., 1996).

**Cognitive Maps**

Although cognitive mapping had been introduced earlier, it only became a popular topic of study after the publication of *The Image of the City* by Kevin Lynch in 1960. A cognitive map is an organized mental representation of the spatial arrangement of a physical environment (Bell et al., 1996). People tend to be more successful at wayfinding than cognitive mapping (Bell et al., 1996). When planning a journey, it is important to be able to reference a cognitive map and visualize using a set of given directions. The user’s cognitive map can be used to link information regarding landmarks and paths previously seen or known to the directions or planned path for an upcoming journey; this enhances the user’s wayfinding ability (Bell et al., 1996).

Cognitive maps are not perfect representations of the physical environment; rather they are rough approximations that vary greatly from user to user. They are typically incomplete and distorted. People do not usually estimate intersection angles correctly and also tend to overestimate the size of familiar areas (Bell et al., 1996), both of which then affects users’ cognitive maps. Sometimes users even add nonexistent features to their cognitive maps, an occurrence known as augmentation (Bell et al., 1996). Cognitive maps tend to focus on either the elements as they would
be encountered sequentially in a journey or spatial organization of landmarks and districts (Bell et al., 1996).

One important quality of cognitive maps to note is that they are not static; they constantly evolve as the user encounters and processes new information about an environment, whether from the environment directly or from off-route sources (Mollerup, 2005). So in general, people who have spent more time in an environment tend to have more comprehensive and accurate maps (Beck & Wood, 1976). While cognitive maps improve over time as more information is added to them, they can also degrade over time as users forget previously known details about an environment (Mollerup, 2005). Arthur and Passini (1992) state that cognitive mapping is a mental structuring process as it integrates information perceived in parts into a whole cognitive map.

**Signs**

Bell et al. (1996, p. 66) stated, “The environment contains more information than we can comprehend at once, so we must selectively process it”. Signs are one way that people alter the environment to condense the vast amount of information available or add to highlight the information actually needed to help users find their way. Signs do not guarantee that the information presented on them will be understood. Mollerup (2005) quotes Lorenze as having said, “…saying something is not the same as being heard, that being heard is not the same as being understood, and that being understood is not the same as convincing somebody”. According to Mollerup (2005), users need information in four situations: when users must choose between multiple options, when they are in a
new situation, where they are unsure, and when the user’s safety could be affected. Placing signs in
an environment has the potential to improve user wayfinding tremendously, but it is just that –
potential. Signs can be ineffective in several ways: a sign is too small to be seen easily, a sign’s
message is not easily understood, a sign’s location makes it difficult to see, or because people did not
trust the sign’s information and therefore ignored it (Arthur and Passini, 1992).

When designing a wayshowing system for an existing environment, the main task is typically
to design a signage system (Arthur and Passini, 1992). The addition of signs to an environment is
usually ordered by those in charge; signs therefore become a symbol of authority (Mollerup, 2005).
While a well-informed employee could likely be more helpful than a static sign, people like to have
the tools to help themselves rather than rely on someone else to assist their wayfinding needs.
Sometimes unofficial signs pop up as a consequence of a lack of signs or architecture not conducive
to easy wayfinding (Mollerup, 2005). While it might be tempting to over-sign to avoid this
consequence of unofficial signs being added to the official sign system, the least number of signs
necessary should be the goal of every sign system (Mollerup, 2005). When there are an abundance of
unnecessary signs, users experience information overload, which then inhibits users’ abilities to
process information. Another term for this is cognitive overload, which Bell et al. (1996) define as
too much information taxing perceptual and cognitive abilities. A guideline to follow to reduce the
threat of information overload is to have three items at most on a sign; or if more than three items are
needed, they should be assembled into groups not larger than three (Arthur and Passini, 1992). Bell
et al. (1996) also notes that people who are already experiencing information overload are not likely to stop and look at a cluster of signs.

The basic functions of signs are for them to be both noticed and read (Mollerup, 2005). To be noticed, they need to be placed in a good location. Information needs to be perceived at, or shortly before, a decision point if it is going to be noticed (Arthur and Passini, 1992). Something that makes this easier to accomplish is if users can identify an informational display before it can be read. People will start to recognize which signs are part of a system after having seen them only once or twice (Arthur and Passini, 1992). Often there can be signs from multiple signage systems in the same environment. Consistency in sign placement and design will help differentiate a sign system from others in the same environment, such as advertisements (Passini, 1984). For signs to be easily read, first care should be taken to make sure the information on the sign is visually grouped into no more than three items per group so that each group can be easily recognized at a glance (Passini, 1984). Mollerup (2005) discusses the importance of grouping information on directional signs so that all arrows pointing the same direction are next to each other (figure 2.7). Next, the sign itself should be legible. Legibility concerns primarily come from three issues: vagueness of the information given, inaccessibility of information, and information overload (Passini, 1984).
Figure 2.7. Sign with information grouped into groups of three or less and so that arrows pointing the same direction are grouped together as shown by Mollerup (2005, p. 122).

Signs have been divided into categories in several different ways by different researchers. Guiraud (1975) gives three sign categories: identification, explanation, and instruction. Mollerup (2005) gives four categories: identification, direction, description, regulation. These different categories are primarily used to differentiate between the purposes of various signs. A sign system might even give specific design qualities to each category of signs in the system to differentiate them; for example, a museum’s sign system might have all identification signs green, explanation signs white, and instruction signs orange.
The design of the signs themselves offers many options. Typography, pictograms, arrows, guidelines, and maps are the five types of content normally found on signs (Mollerup, 2005). Having text that errs on the side of being shorter is a good rule, though it is more important that sign text is clear and easily understood (Mollerup, 2005). Pictograms, also known as icons, are common on signs (figure 2.8). ISO 7001 is the international standard for “public information symbols”, but leaves much to be desired as far as standards go. It includes only fifty pictograms, many of which are sporting symbols. Because of the lack of standard symbols, there is a lot of variation among symbols that mean the same thing.

Arrows are another sign element that comes in many forms. There are standard arrows created by AIGA (an American design association), but other arrow types are often used also. When listing a group of items on a directional sign, those with arrows pointing up should be listed first,
those with arrows pointing left should be next and/or oriented to the left, those with arrows pointing right should be listed next and/or oriented to the right, and those with arrows pointing down should be listed last and/or oriented at the bottom of the sign (Mollerup, 2005). This ordering of arrows is followed on government-posted road signs across America, making it the order expected on signs listing destinations in multiple directions. Sign designers also often use grids to make a sign system more cohesive. Grids help set standards for the layout of content on the sign by using graphic guidelines (Mollerup, 2005).

Color is an especially important design element in sign design. It is typically the first discernable element as it is recognized from longer distances than other design elements, such as text or pictograms (figure 2.9).

Figure 2.9. The color of the café’s exterior is recognized before its text (Mollerup, 2005, p. 68).
Color can be used to differentiate between different areas or different functions within a signage system. Beware though as using too many colors in this way can cause information overload and result in disorientation (Pollet, 1976). Color is obviously an important element in signs, but not everyone has the ability to differentiate between all colors. Approximately 6% of men and 2% of women suffer from some form of color blindness with the most common being red-green color blindness (Mollerup, 2005). Differences in color hue tend to be less important than color contrast. Mollerup (2005) gives four ways that color contrast is used in signage: color contrast between the sign and its environmental background determine how easily the sign is spotted, color contrast between the background and content on a sign determine its legibility, color contrast between different signs in a system helps users differentiate between the different types of messages on each sign, and color contrast between different content elements on a sign helps users differentiate between the different types of messages within that sign.

Some of the more subtle details of signs are often either ADA requirements or have to do with how they are placed, mounted, and lit. To quote Mollerup concerning these details (2005, p. 177), “Done right, nobody talks about them. Done wrong, they can spoil everything”. ADA guidelines specify a level of uniform illumination on sign surfaces of 100-300 lux. Also, other light near the sign should not exceed the illumination level on a sign’s surface (Mollerup, 2005). ADA also requires that tactile letters and braille be included on wall-mounted identification signs. Tactile letters are most easily read when they are in caps (Mollerup, 2005). While most signs tend to be located on walls, buildings, hanging from ceilings, etc., some are freestanding. According to
Mollerup (2005) freestanding signs should be avoided. Users put more trust in signage that seems a permanent part of an environment, and freestanding signs do not have the same feeling of permanence as other mounted signs.

Another component that signage increasingly has to contend with is the branding element (figure 2.10). Some sign systems are designed to include branding elements without forgetting to follow guidelines for effective wayfinding. Others focus on branding and often end up losing their wayfinding qualities (Mollerup, 2005).

Figure 2.10. Exterior signage at Crate & Barrel’s headquarters. Their brand is represented in the sign, but does not detract from its usefulness (Calori, 2007, p. C9).

**Building Form and Space Planning**

“Providing the relevant wayfinding information in the environment is an issue both in architectural and in graphic design”, said Arthur and Passini (1992, p. 45). Ideally, wayfinding analysis and wayshowing design will happen from the very beginning of the design of a built
environment. In reality, this is the exception rather than the rule. The design of a building arguably has the biggest impact on its users’ ability to find their way through it. So this puts much of the wayfinding design, intentional or unintentional, in the hands of architects. It is important also that the space is designed with a user representative of the population in general in mind – not a super-user (Arthur and Passini, 1992). Architects are obviously careful not to design physical barriers within their buildings absolutely preventing wayfinding, but it is important to remember that psychological barriers can also be present. For example, many people have a deep psychological fear of underground parking garages that often drives them to risk heavy fines by parking illegally in other locations (Arthur and Passini, 1992). So if in developing a building complex it is determined that it must have an underground parking garage, the designers should explore ways to reduce this fear and subsequently increase use of the proposed parking garage. Similarly, a dim, narrow hallway in a building could incite fear in users causing them to ignore it even if they know it’s the most direct route to their destination.

Not every wayfinding experience is a completely new one. Even if you haven’t been in a particular building before, having previous experience with a similar type of environment can be helpful in a new environment if it has some familiar characteristics (Bell et al., 1996). Kaplan (1976) found that people with previous experience with natural environments were more accurate at locating distinct natural features such as pine trees and hills. Previous experience in a hospital may guide a user to look for a large nurses’ station to identify arrival in a new department.
More important to wayfinding than familiarity with a building setting is simplicity in floor plans (Weisman, 1981). In a situation of extremes, severe architectural complexity cannot be conquered by any amount of familiarity (Moeser, 1988). When looking to capitalize on users potential familiarity with a similar type of environment to the one being designed, designers should focus on fully understanding the characteristics of that environment type that are memorable to its users (Bell et al., 1996). Simplicity, while guaranteed to make wayfinding easier, does not guarantee an interesting or fulfilling experience. Some complexity can help engage the user, but too much complexity can weaken the wayshowing system (Bell et al., 1996). Moeser (1988) found that in very complex environments with numerous non-perpendicular paths, maps seem to be the best method of route learning. If the wayshowing system is being developed as the building is being designed, Arthur and Passini (1992) suggest starting with a decision diagram that represents how they would like users to solve wayfinding problems in the environment and then develop the spatial organization and circulation system based on that.

**Landmarks**

One important element of wayshowing systems is the landmark. Landmarks are memorable features in an environment that users may employ in finding their way and back again (Bell et al., 1996). While they are often thought of as existing in outdoor environments, landmarks are also useful in indoor spaces as reference points (Mollerup, 2005). Examples of indoor landmarks include a water feature in a shopping mall, a bank of wheelchairs in a hospital, or a painting of the school
mascot in a university campus building. Landmarks can be especially useful in giving or following directions as they can sometimes be easier to remember accurately than a street name or number. For example, in a hospital one might remember “turn right at the hallway whose walls are painted with a mural of the city” more easily than “turn right at the 6th hallway”. Heft’s (1979) research shows that adults rely more on landmarks when learning a route and travel it the first time compared to subsequent uses of the same route. Heft (1979) also points out that while landmarks seem to be important in wayfinding, they are not always represented in maps drawn by the user. Other researchers (Evans et al., 1981; Garling et al., 1986) believe that users first learn the basic path and node structure of an environment and later add details like landmarks to their own cognitive maps as they spend more time in the environment.

Design for Healthcare

Today, people are living longer than ever. This is due in large part to improved health care. As a result, the elderly are the fastest growing segment of the population and have been for several decades (Lawton, 1980; White House Conference on Aging, 1981). Because of this, healthcare facilities have grown to expand with the larger population, and the myriad of health problems that tend to appear at older ages. How well people can navigate a facility plays a large role in their feelings about it, and subsequently, the business owning or inhabiting that facility (Arthur and Passini, 1992).
Carpman (1993) has said that getting lost is the number one thing that people dread about hospitals and healthcare facilities. Unless one is a frequent visitor to a particular healthcare environment, they are likely to be unfamiliar with it. Also, some have poor vision or other diminished abilities, particularly within the elderly population. Users can come from multiple cultures and use a variety of languages. These challenges are all part of a general need for universal design, which is broadly defined as design that is usable and effective for all people.

Colored guidelines are a popular wayfinding tactic among healthcare facilities. Mollerup (2005) contends that they are useful when its users have normal mental ability and as long as the lines do not cross each other. Some users may also become confused and end up following a guideline in the wrong direction. When considering signs in a healthcare environment, there are not typically any differences from signs for wayfinding systems in general. Signs should be located at decision points and in a manner that it will be easily seen and not easily obscured or vandalized (Mollerup, 2005). Some care should be taken to make sure that the contrast ratio between the text and background of signs is high enough that users with vision impairment can still read them.

**Summary**

With the population aging, healthcare environments are becoming busier than ever. These environments are often large and complex. In addition, the stress that their users are often under can make navigating them even more difficult. Studying to fully understand the existing wayfinding research along with potential variations in users of wayfinding elements provides a solid base of
information before adding information on specific environmental features, like signs. Readers should now have a firm understanding of the topics in preparation for the following chapters concerning the case study and proposed guidelines.
CHAPTER 3. METHODS AND PROCEDURES

Guiding Principle

This research project follows the first five of Passini’s seven steps to wayfinding design that were outlined in chapter 2. The five steps followed by this research project are reprinted below:

1) Identification of wayfinding tasks

2) Identification of a user profile

3) Identification of wayfinding conditions

4) Formulating the design requirements (design problem)

5) Planning wayfinding solutions

The end goal of this project was to propose goals follow to improve wayshowing within McFarland Clinic. These goals will be presented to the building facilities manager of the Clinic with hopes that some or all of them will be implemented.

Guiding Framework

This research project follows Passini’s structural framework of wayfinding that was outlined in chapter 2. The framework will be used to analyze the site of the case study. Decision hierarchies for each path (one using each main elevator and each main stairwell location) for each destination will be created. The information currently available at each decision point will be noted and compared to the results of the study so that the researcher can recommend changes to available information. This will result in users having adequate information to create and follow decision plans to efficiently get them to either of these destinations.
Research Study Site

The site chosen for this study is McFarland Clinic, located at 1215 Duff Avenue in Ames, Iowa. McFarland Clinic has over 20 locations throughout central Iowa, but this building is its largest. In addition, it is connected to Mary Greeley Medical Center (the only hospital in Ames), with which it shares many staff members and patients. The researcher became acquainted with the site during a project for a graphic design class. At this time she made contact with the building facilities manager and received permission to conduct this study using the Clinic.

The goal of the study was to determine which elements of the Clinic were in need of improvement to facilitate better wayfinding. To do this, two destinations within the Clinic were first chosen and analyzed by the researcher for potential issues based on knowledge gained through the literature review and interviews and observation conducted by the graphic design class for its prior project. Decision diagrams, similar to those used by Passini in *Wayfinding in Architecture* (1984), were created for each destination utilizing the two main stairwells and two main elevators. The analysis and decision diagrams for each destination follow.

Destination 1

According to facility managers at McFarland Clinic, the link to the adjoining Mary Greeley Medical Center (MGMC) is one of the most confusing wayfinding aspects of the Clinic. It is a hallway with large windows on either side that links the first floor of MGMC to the garden level of McFarland Clinic. While the two medical facilities are two separate businesses, they share many patients and staff, making the link between the two extremely important. In addition to linking McFarland Clinic with MGMC, the hallway also serves as a link to other medical facilities including the William R. Bliss Cancer Center and the Medical Arts Building.

The most confusing aspect is that it does not connect the main level of MGMC to the main level of the Clinic. If coming from MGMC, one must immediately realize that once entering the
Clinic, they are no longer on the main level, they are now on the garden (lower) level. They must then go up one level to the first floor where they need to check in before going to their specific department within the Clinic for their appointment. If coming from the Clinic, one must realize that the link is not located on the main level, go down one level to the garden level, and then make the transition to MGMC.

The garden level of the Clinic is darker than other levels (due to its below-grade nature and lower ceilings), which makes it feel less welcoming. This may cause a visitor to have the feeling that they are not in as public of a place as they are expecting. The hallways located on the garden level are also narrower than those on the first and second floors, which increases this feeling of not being in the correct location. The hallway linking the two buildings is bright with natural light, but the user must go partway down a different hallway and turn a corner before this bright hallway is visible.

In addition, the entrance to the hallway linking the two buildings is at an awkward intersection of four hallways and a staircase. There is not an obvious place for effective signage here.

The researcher’s pre-study analysis is that signage placement, lighting levels, and flooring should be altered to improve wayfinding to destination 1.

Following are decision diagrams using Passini’s (1984) notation method for each path to destination 1.
Figure 3.1. Decision diagram for destination 1 using path A.

Figure 3.2. Decision diagram for destination 1 using path B.
Figure 3.3. Decision diagram for destination 1 using path C.
Destination 2

The second destination in the study is the gastroenterology department. This destination was chosen for its location on the second floor and because it is not visible from any main staircase or elevator. Destination 1 is located on the garden level, and all participants will begin their journey on the first floor. The researcher felt the second floor should also be included in the analysis to fully explore vertical navigation of the site; this destination was chosen for this reason primarily.

Both main exterior entrances (north and east) to McFarland Clinic are on the first floor and the gastroenterology department is on the second floor, which is accessible by elevator or stairs.
There are some small paper signs placed near elevators listing which floor each department is located on, but they are small enough to not be easily noticed. Most visitors that are visiting a department on the second floor would be told of its location by a Clinic employee during their check in process. Should they forget (being elderly or the added stress of being ill could easily contribute to this) there are not obvious signs indicating the location of departments on floors other than the one you are currently on. This is a shortcoming in the sign system.

The study should reveal the level of difficulty in locating a second floor department and specific elements of the interior that are in need of improvement to facilitate the wayfinding process. The researcher predicts that the lack of signage on the main (first) floor indicating departments located on other floors will be the most negative wayfinding aspect to study participants with this destination.

Following are decision diagrams using Passini’s (1984) notation method for each path to destination 2.

![Decision diagram for destination 2 using path E.](image)
Figure 3.6. Decision diagram for destination 2 using path F.

Figure 3.7. Decision diagram for destination 2 using path G.
Research Methods

Following the researcher’s pre-study analysis of the two chosen destinations within McFarland Clinic and receiving approval by the Institutional Review Board, the participant phase of the study commenced. Each participant signed up for one 30 minute time slot during normal business hours at the Clinic between March 2-11, 2010. A maximum of 2 participants could participate at the same time. This was so that there would only be one participant searching for a location at a time so that they were not influenced by other participants who were assigned their same destination.

Participants were instructed to meet the researcher inside the north entrance of the Clinic where they were given an informed consent document to read and sign. They were then given a piece of paper with instructions for part 1 of the study (finding a location) on it and told to ask any questions they may have.
Wayfinding Analysis of McFarland Clinic
Part 1 – Finding a Location

You may exit the study at any time if you become uncomfortable or choose not to fully complete the study for any reason.

Instructions:
1) You will be assigned a destination within McFarland Clinic.
2) You are asked to find the destination without asking for help or assistance from any person (patient, employee, or other). Should someone approach you and ask if you need assistance, you should respond that you are participating in a wayfinding study and no, you don’t need any assistance. If they are concerned, you can inform them that the study has been approved by the building facility manager.
3) After finding your assigned destination, you should return to the main (north) entrance where you were given your assignment.
4) You will be given a survey to take regarding your experience. The survey will consist of questions with room for your own additional comments about the experience.
5) Upon completion of the survey, your participation will be complete. You can expect your entire visit to last approximately 30 minutes.

Assignment:
Your assigned destination is: the hallway linking McFarland Clinic with Mary Greeley Medical Center.

Figure 3.9. Study part 1 – finding a location instruction sheet for destination 1.
Wayfinding Analysis of McFarland Clinic
Part 1 – Finding a Location

You may exit the study at any time if you become uncomfortable or choose not to fully complete the study for any reason.

Instructions:
1) You will be assigned a destination within McFarland Clinic.
2) You are asked to find the destination without asking for help or assistance from any person (patient, employee, or other). Should someone approach you and ask if you need assistance, you should respond that you are participating in a wayfinding study and no, you don’t need any assistance. If they are concerned, you can inform them that the study has been approved by the building facility manager.
3) After finding your assigned destination, you should return to the main (north) entrance where you were given your assignment.
4) You will be given a survey to take regarding your experience. The survey will consist of questions with room for your own additional comments about the experience.
5) Upon completion of the survey, your participation will be complete. You can expect your entire visit to last approximately 30 minutes.

Assignment:
Your assigned destination is: the gastroenterology department

Figure 3.10. Study part 1 – finding a location instruction sheet for destination 2.

After locating their assigned destination, the participants returned to the north entrance location where they had been given their instructions. Here they were given part 2 of the study (survey) and encouraged to write any relevant comments.
Wayfinding Analysis of McFarland Clinic
Part 2 – Survey

You may exit the study at any time if you become uncomfortable or choose not to fully complete the study for any reason.

Instructions:

- Please answer all of the questions below.
- Please write at least one comment on the lines below each question.
- Should you have any questions, please ask the principle investigator conducting the study.

Demographics:

- What is your age?
  - 0-17 years
  - 18-24 years
  - 25-40 years
  - 41-65 years
  - Over 65 years

- What is your gender?
  - Male
  - Female

- How many times have you been to the Clinic before?
  - 0
  - 1-3
  - 4-9
  - 10+

1) How difficult was the location to find?
   - 1 - Very difficult
   - 2 - Difficult
   - 3 - Average
   - 4 - Easy
   - 5 - Very easy

2) Approximately how many wrong turns did you make before finding the assigned location?
   - 0
   - 1-2
   - 3-4
   - 5-8
   - Other ________

3) Did anyone approach you asking if you needed assistance or if you were lost during the experience?
   - Yes – how many people? ________
   - No

4) Check all items that you used to help you find your way to the assigned location
   - Map(s)
   - Sign(s)
   - Lighting (following well-lit paths or not following poorly-lit paths)
   - Changes in flooring
   - Guessing
   - Artworks or other landmarks
   - Other – please make comment

5) Check all items that you found distracting or confusing in the Clinic
   - Signs
   - Lighting
   - Color scheme
   - Flooring
   - Furnishings
   - Staff
   - Space layout of the Clinic
   - Other – please make comment

Figure 3.11. Study part 2 – survey, page 1.
6) Check all items that you found pleasing or helpful in the Clinic
   - Signage
   - Lighting
   - Color scheme
   - Flooring
   - Furnishings
   - Staff
   - Space layout of the Clinic
   - Other – please make comment

10) In regard to flooring in the Clinic, please check all items you agree with
    - Flooring aided your search for the assigned location
    - Flooring did not aid or detract from your experience
    - A floor-based wayfinding system was in place; if so, please comment on its usefulness

11) In regard to furnishings in the Clinic, please check all items you agree with
    - The furnishings aided your search for the assigned location
    - The furnishings detracted from your search for the assigned location
    - The furnishings did not aid or detract from your search for the assigned location

12) In regard to staff in the Clinic, please check all items you agree with
    - The Clinic’s staff aided your search for the assigned location
    - The Clinic’s staff detracted from your search for the assigned location
    - The Clinic’s staff did not aid or detract from your search for the assigned location

13) In regard to the layout of the Clinic (or layout of the building and its departments), please check all items you agree with
    - The space was easy to navigate
    - The space was not easy to navigate
    - The layout did not aid or detract from navigating the space

Figure 3.12 Study part 2 – survey, page 2.
Before giving any documents to participants, they were all numbered with either a 1- (destination 1, participant #) or 2- (destination 2, participant #). All results were tracked using these pre-assigned numbers rather than participants’ names or another method.
CHAPTER 4. RESULTS

Wayfinding Analysis Study

A total of 23 participants were gathered. 56.5% of participants were male and 43.5% were female. 12 were assigned destination 1, and 11 were assigned destination 2. 78.2% of participants were in the 18-24 year age range, while 21.8% were in the 25-40 year age range. Most were current college students. 47.8% of participants had never been to McFarland Clinic previously, while 34.8% had 1-3 previous visits, 8.7% had 4-9 previous visits, and 8.7% had 10 or more previous visits.

The survey had two parts to each question. One part asked participants to check boxes for their response, sometimes more than one if necessary. The other part was room for participants to write comments. First, the results of the first part of each question (the check box responses) will be analyzed. Respondents’ answers will be broken down by destination (destination 1 will be the top bar, destination 2 will be the bottom bar) in a horizontal bar chart format with the bottom axis being the number of respondents who checked the box for the response option shown on the vertical axis. After each bar chart, the researcher will comment on what she believes the responses indicate.

Analysis of Check Box Responses
From the responses to this question, it seems most respondents thought that their destination was neither very difficult nor very easy to find. Destination 1 (the hallway linking McFarland Clinic to Mary Greeley Medical Center) has a higher proportion of “difficult” and “average” responses than “easy”, while destination 2 (the gastroenterology department) is more evenly split across the three, with one respondent answering that the destination was “very easy” to find.

Because the building is not extremely large or complex, the researcher believes it has the potential to be rated “easy” by a larger proportion of users in a future study if its wayfinding elements were improved.
Figure 4.2. Study participants’ responses to survey question 2: “Approximately how many wrong turns did you make before finding the assigned location?”

The large majority of participants made between 0 and 2 wrong turns before arriving at their destination. No participants made more than 6 wrong turns. This may be a reflection on the spatial layout of the building as it is largely one long building with departments located on either side of a major hallway on the first and second floors with the garden level being somewhat more complex.

Figure 4.3. Study participants’ responses to survey question 3: “Did anyone approach you asking if you needed assistance or if you were lost during the experience?”
The facilities manager of the Clinic requested that this question be part of the survey. He was curious as to how often staff members would notice someone looking lost and offer help. Participants were asked to not accept help should it be offered. Two participants in each destination group were offered help, totaling 17.4% of total participants. Several participants reported in the comments section of this question that they were given strange or questioning looks but not approached.

![Bar chart showing study participants’ responses to survey question 4: “Check all items that you used to help you find your way to the assigned location.”](image)

Figure 4.4. Study participants’ responses to survey question 4: “Check all items that you used to help you find your way to the assigned location.”

Signs were the most used wayshowing element with only one participant not reporting having used them. Guessing was the next most popular response. The other choices (maps, lighting, changes in flooring, artworks or other landmarks, and other), all had similar response levels. There wasn’t a noticeable difference between responses from the two destination groups.
Signage was deemed the most distracting or confusing way showing element in the Clinic with at least two more respondents checking it than any other option in both destination groups. The space layout of the Clinic was the second most distracting or confusing way showing element for both destination groups. Neither group checked “staff”. Participants looking for destination 2 said that lighting and the color scheme were distracting or confusing, but no participants in the destination 1 group checked either of these options.
Figure 4.6. Study participants’ responses to survey question 6: “Check all items that you found pleasing or helpful in the Clinic.”

Signage was the most pleasing or helpful wayshowing element for both groups, but had a much higher percentage of participants checking this answer in the destination 2 group (90.9%) than the destination 1 group (66.7%). It would seem likely that signage is less helpful in finding destination 1 than in finding destination 2. Space layout of the Clinic was another area that differed between the destination groups. 27.3% of destination 2 participants checked that it was pleasing or helpful, while only 8.3% (1 participant) of the destination 1 group responded this way. A third of destination 1 respondents checked that the color scheme was pleasing or helpful, while none of the destination 2 group responded this way. A possible explanation for this is that when entering the hallway that the destination 1 group was asked to find, the logo of the hospital that is displayed above
the opening to the hallway is in a different color, signifying a change in building. The rest of the responses were of similar amounts.

Figure 4.7. Study participants’ responses to survey question 7: “In regard to signs in the Clinic, please check all items you agree with.”

Responses concerning the details of signs in the Clinic showed similar feelings among both destination groups. More than half of all respondents between both destination groups felt that the size, font, and location of the signs were all good (69.6% checked “signs were of an appropriate/useful size”, 82.6% checked “the font used on the signs is easily legible”, and 73.9% checked “most signs are located in useful places.”) Less than half of all respondents (43.5%) felt that the color scheme of the signage was effective, but only 8.7% of all respondents felt that it was distracting (both of these respondents were in the destination 2 group.)
Figure 4.8. Study participants’ responses to survey question 8: “In regard to lighting in the Clinic, please check all items you agree with.”

An overwhelming 95.7% of all respondents felt that the lighting level was adequate in the Clinic. 3 participants also responded that the low level of lighting in a particular hallway made them feel less willing to use it.

Figure 4.9. Study participants’ responses to survey question 9: “In regard to the interior color scheme in the Clinic, please check all items you agree with.”

100% of participants from both destination groups responded that the color scheme did not aid or detract from their search for the assigned location. This obviously signifies that the color
scheme is not a problem area, but also supports that it could have potential to be used as a wayshowing tool should it be altered in the future.

Figure 4.10. Study participants’ responses to survey question 10: “In regard to flooring in the Clinic, please check all items you agree with.”

For most participants, flooring did not seem to play a role in their wayfinding experience (75% of destination 1 participants and 90.9% of destination 2 participants checked “flooring did not aid or detract from your experience.”) 25% of destination 1 participants said that flooring aided them, while none of the destination 2 participants checked this response. One destination 2 participant checked that a floor-based wayfinding system was in place, but did not comment on it as requested.
This question’s responses showed a great difference between destinations 1 and 2. 91.7% (all but one participant) responded that the furnishings did not aid or detract from their task; the last destination 1 participant responded that furnishings detracted from their search, as did one participant from the destination 2 group. Approximately half of the destination 2 participants responded that the furnishings did not aid or detract from their search, while the other half responded that furnishings did aid their search for their assigned destination.

Both groups would have seen furnishings on the first floor of the Clinic, but the destination 1 group would not have experienced any other furnishings after arriving at the garden level, while the destination 2 group would have continued to see furnishings on the second floor after arriving there. This difference is likely part of the reason a sizable portion of the destination 2 group felt that the furnishings helped their wayfinding experience.
Figure 4.12. Study participants’ responses to survey question 12: “In regard to staff in the Clinic, please check all items you agree with.”

Almost all participants responded that the Clinic’s staff did not aid or detract from their search. Several participants commented that either they were offered help but turned it down (as requested in the study instructions) or that they felt that had they asked, the staff would have given help gladly. One participant responded that the staff detracted from their search but did not offer an explanation in the comments section of the question.

Figure 4.13. Study participants’ responses to survey question 13: “In regard to the layout of the Clinic (or layout of the building and its departments), please check all items you agree with.”
Overall, more destination 2 group participants felt that the space was easy to navigate (72.7%) than those who felt it was not easy to navigate (27.3%), and none responded that the layout did not aid or detract from navigating the space. Participants in the destination 1 group were more evenly split with 41.7% of participants responding that the space was easy to navigate and another 41.7% responding that it was not easy to navigate. Two destination 1 participants (16.7%) responded that the layout did not aid or detract from navigating the space but did not explain their choice in the comments section. The researcher surmised that these two participants may have felt that the navigation issues had more to do with the location of the link to the hospital than the layout of the rest of the Clinic.

**Analysis of Comments Given**

To analyze the comments written by participants, the researcher used the coding method described in *Qualitative Methods in Social Research* by Kristin G. Esterberg (2002). This method consists of reading through wordy data and assigning categories to responses. Esterberg (2002) encourages categories to be developed by reading the data and interpreting what categories exist within it rather than first creating categories and then fitting the data into them.

Ten categories were identified within the set of comments, and then all of the comments were reread and coded with them. The categories and resulting number of comments that fit within each are as follows:

- Need for signs listing locations on other levels (25 comments)
- Existing signage is lacking (19 comments)
- Liked the soft lighting theme (12 comments)
- Negative criticism of floor plan or space layout (9 comments)
- Need or wish for maps or better maps (8 comments)
- Participant took a wrong turn or made a lucky guess at a decision point because of inadequate signage at a decision point (6 comments)
- A change in flooring either was helpful or would have been helpful had it existed (6 comments)
- Furnishings indicated the location of a department and/or a lack of furnishings indicated a main path or hallway (6 comments)
- Encouraged more use of color or a color scheme (5 comments)
- Previous knowledge of Mary Greeley Medical Center’s general location helped or having a general idea of how they are connected would have helped (3 comments)

All comments that were coded under the furnishings category came from participants in the destination 2 group, which was given the gastroenterology department to locate. The researcher determined this as meaning that furnishings can have a significant impact on the wayfinding experience of clinic users visiting medical departments within the Clinic.

**Analysis of Information Available at Decision Points**

Each path from the north entrance to each destination was analyzed using the decision diagrams from chapter 3. Decision points were identified by comparing the decision diagrams with the floorplan of each level of the Clinic. There were four possible paths to each destination. Each path used a different main stairwell or elevator to reach the necessary floor. The other main entrance (the east entrance) was not analyzed as it did not include any decision points not included in paths from the north entrance.
Figure 4.14. Analysis of information available at decision points on path A to destination 1.
Figure 4.15. Analysis of information available at decision points on path B to destination 1.
Figure 4.16. Analysis of information available at decision points on path C to destination 1.
Figure 4.17. Analysis of information available at decision points on path D to destination 1.
Figure 4.18. Analysis of information available at decision points on path E to destination 2.
Figure 4.19. Analysis of information available at decision points on path F to destination 2.
Figure 4.20  Analysis of information available at decision points on path G to destination 2.
Figure 4.21. Analysis of information available at decision points on path H to destination 2.

**Conclusion of Results**

The researcher’s hypothesis that insufficient signage and a lack of available maps would be identified as the main wayfinding issues was supported by the analysis of check box responses from the survey, the comments provided by survey participants, and the analysis of existing information at
decision points for both destinations. Other trends that emerged from the analysis of the check box responses and comments from the survey included a warm response to the current lighting scheme, the formatting of the signs being deemed acceptable, flooring change as helpful to wayfinding, the floorplan being viewed negatively, color not being utilized, and the presence of furnishings identifying a department location.
CHAPTER 5. CASE STUDY PROPOSAL

Proposal Goals

The five most popular of the categories developed from the participants’ comments were chosen to focus on to guide suggestions for future improvements to the Clinic to better facilitate wayfinding. From these five categories, the following goals are taken:

- Improve signage
- Improve maps available
- Maintain soft lighting scheme
- Combat complexities in floorplan

In addition to these, two more goals were made by the researcher based on her observations of the Clinic:

- Make sure naming of the link to the hospital is consistent and update any other confusing or inaccurate signage
- Suggest changes to better differentiate medical departments from hallways

Proposed Changes to Improve Wayfinding in McFarland Clinic

Goal: Improve Signage

Study participants often commented that the signage available was helpful, but they wished there were more prominent signs indicating what was on the other floors. Currently there are small signs posted by elevators and stairwells that give a list of departments on every floor, but few participants seemed to notice them.

The formatting used on the current sign system was relatively well received by study participants with most participants agreeing that the font, size, and location of the signs were good.
While only two participants commented that the color scheme of the signs was ineffective, less than half agreed that the color scheme was effective. This seems to indicate room for improvement in the color scheme of the signage. The medium-tone grey background and white text of the signs don’t offer as much contrast as some visually impaired users may need to be able to easily read them. The grey background of the signs also tends to blend into its surrounding environment as the various wall and ceiling surfaces where signs are located are largely white in color.

In a discussion with the facilities manager of McFarland Clinic, the idea of replacing the entire sign system came up. He said that to do that, it would likely cost at least $25,000, which is a considerable amount for the facilities budget to provide. Instead of proposing an entirely new system, the researcher suggests a format for new signage that is introduced into the system. This new signage should be similar enough to the current signage that it will be recognized as part of the system, but will have a higher contrast level between the text and background colors than the current system. As the facilities budget allows, the existing signage will be replaced by this new signage. The proposed new signs use text in the same font and white color as the current system and a grey background that is a darker shade than the current grey tone. An example is below:

Figure 5.1. Current sign in McFarland Clinic.
Figure 5.2. Comparison between existing signage and proposed new signage to improve contrast level between text and background.

In addition to suggesting this new background color for new signage, the researcher recommends that the Clinic add new orientation signs as soon as possible. Some study participants expressed that having an idea of where their destination was located would have been helpful, rather than relying on following the signs. Some people prefer being able to look at a map and some prefer verbal directions, while still others prefer written directions. Making all three available should increase the effectiveness of the wayshowing system for users of the Clinic.

The proposed orientation signs would include a map of the current floor and a list of departments located on each floor. These orientation signs should be located at the two main stairwells and the two main elevators as shown below.
Figure 5.3. Locations of proposed orientation signs on garden level.
Figure 5.4. Locations of proposed orientation signs on first floor.
Figure 5.5. Locations of proposed orientation signs on second floor.
Figure 5.6. Example of new orientation sign. This particular sign would be located on the first floor near the north entrance to the left of the west stairwell.
Goal: Improve Maps Available

Currently there are maps located throughout the Clinic. Most are printed on 8 ½” wide paper and many are not oriented so that up on the map is forward in the space, which is the most effective way of orienting maps. Some are oriented in this manner, but were just turned 90 degrees, so the text is now sideways and therefore difficult to read.

Figure 5.7. Map located at bottom of the east stairwell.

In addition to the size and orientation of the current maps, they include destinations that non-staff do not need to know about. This introduces extra information, making the map less legible. It can also become confusing for visitors to the Clinic if they consult a map and mix up the name of the
department they are looking for with the name of one that is only for staff use. This kind of misunderstanding could compromise medical data or information. An example is the laboratory. There is a laboratory for patients on the first floor of the Clinic. There is another laboratory for staff use only located on the garden level. Both laboratories are listed on the maps, but neither is specifically designated for patient or staff use.

The maps will be redesigned to only include relevant information and to be larger, have a you-are-here arrow, include color, and mounted as part of the sign system. Including the maps as part of the sign system will make them more credible. A solid sign mounted to a wall is given much more respect than an easily changed piece of paper. One benefit of paper signs is that they are easily updated. To keep this flexibility, the new map sign should have a slot for a paper sign that can be changed as departments move and the maps need to be updated. The new map should be larger than will fit on an 8 ½” x 11” piece of paper to increase legibility, but the exact size can be determined by the facilities staff.
Figure 5.8. Redesigned map of second floor. This particular map would be part of the proposed orientation sign placed on the north wall across from the west stairwell.
Figure 5.9. Redesigned map of first floor. This particular map would be part of the proposed orientation sign placed on the south wall next to the west stairwell.
Figure 5.10. Redesigned map of garden level. This particular map would be part of the proposed orientation sign placed on the west wall at the bottom of the east stairwell.

**Goal: Maintain Soft Lighting Scheme**

Several users commented on the lighting in the Clinic. Most thought it was softer and dimmer than they had expected but liked it. There were a few comments that specific areas were a little too poorly lit for their comfort; these areas included a stairwell and the north entrance.

The soft lighting in the Clinic is created by recessed can lighting with baffles to diffuse light and sconce-like fixtures mounted above eye level that provide uplighting. The north entrance does feel a little dim compared to other areas of the Clinic. This is probably due to the natural light that is admitted through the all-glass entrance. In comparison, the lobby area in front of the check-in area
feels a little dark. As a user moves through the space, their eye adjusts to the light level of the Clinic. So while the lobby area at the north entrance may feel dimmer, it probably has a light level consistent with the rest of the Clinic. Using light bulbs that have a slightly higher wattage level in the existing fixtures in this area could raise the light level slightly without needing to change fixtures to make the transition from the day lit exterior to the interior lighting scheme more gradual.

Both of the main stairwells in the Clinic are well lit. The study participant who commented that they were in a dim stairwell was probably in one of the other two stairwells that are mainly used by staff. If signage was improved to better direct patients to the main stairwells, it should lessen the chance of non-staff using these other stairwells. The wattage of light bulbs used in these alternative stairwells could be increased to improve the light level there also. This isn’t a priority though as only one participant (4.3% of total participants) commented on it.

**Goal: Combat Complexities in Floorplan**

The layout of the Clinic on the first and second floors is largely simple; there is one main hallway that runs in an east-west direction with a staircase and elevator access at each end. The west staircase is more visible as it is a spiral staircase and directly in front of the north entrance. There are two elevators directly to the right of the west spiral staircase. The staircase at the east end of the Clinic is located about 20 feet south of the main east-west hallway. The elevator at the east end is not next to the staircase. It is located on the north side of the main hallway and is approximately 30 feet away from the east staircase.

The fact that the elevator and staircase for the east end of the Clinic are not next to each other is less confusing when going between the first and second floors than when going down to the garden level. The layout of the garden level is much different than the upper two floors. The garden level also has a main east-west hallway, but it is much narrower and the departments located there are largely staff-only areas. All of the hallways on the garden level are narrower, which can give users a
sense that they are not in a public area any more. For users who are looking for the hallway linking McFarland Clinic with Mary Greeley Medical Center (destination 1 in the study), the different layout of the garden level can be confusing. When a user takes the east stairwell to this destination, they arrive at the bottom of the stairs at an intersection of several hallways. The link to the hospital is a hallway with big windows that let in a lot of natural light, but the hallway is not visible from the bottom of the stairs as it is around a corner. Effective signage to direct users is important here. If using the east elevator, the user will arrive on the garden level farther away from the destination than users taking the stairs and will need to take more turns to get there. More effective signage would ease this transition through the garden level. This improved signage would also help lead users coming from MGMC to the Clinic. When a patient comes from MGMC, the first thing they must do is go up to the first floor to check in before their appointment with a specific department. Users coming from MGMC could experience similar difficulty navigating the garden level. Below is an image showing proposed placement and information to include on signs to improve user wayfinding on the garden level from the east elevator and stairwell to the hallway linking the Clinic to Mary Greeley Medical Center (MGMC).
Figure 5.11. Suggested placement and design of signs on the garden level to improve wayfinding between the east stairwell and elevator of McFarland Clinic and Mary Greeley Medical Center.

**Goal: Update Terminology Used on Signage**

Most of the terminology used on signage within the Clinic is consistent, but there are a few exceptions. This is an easy thing to fix and an important one. Even if it seems obvious that “Link to Hospital” and “Mary Greeley Medical Center” both are referring to the hallway linking the two
buildings, a user experiencing both terms may wonder if they are still on the correct path or if one of the terms is referring to a different location. This particular naming issue is the most obvious one existing in the Clinic. The researcher suggests changing all signage to say "Link to Hospital Buildings". While the hallway links directly to Mary Greeley Medical Center, there are other buildings that can be accessed via this link. Using a term that encompasses all that can be accessed by this hallway will make the signs more helpful for people looking to find one of these other buildings, such as the Medical Arts Building, which is part of McFarland Clinic, but is separate from the main building at 1215 Duff Avenue and accessible by the hallway linking the main Clinic with MGMC.

Figure 5.12. Examples of existing signage showing different names for the suggested “Link to Hospital Buildings” hallway.
Goal: Suggest Changes to Better Differentiate Medical Departments from Hallways

Several of the study participants in the destination 2 group commented that the presence of furnishings helped them identify those areas as medical departments. One participant commented that “…it seemed as though different departments had different colors of waiting room furnishings.” While this participant was incorrect, it would be a way to help differentiate different departments from one another. The Clinic currently has upholstered seating in three colors throughout the Clinic and arranged so that all of the colors are present in each waiting area. If the existing furniture was rearranged so that each waiting area had the same color of seating, it could be considered another way showing element. This would be particularly useful for those giving verbal directions in the Clinic. For example, a receptionist at the main check-in desk could tell a patient to “go all the way down the hall and radiology will be on your left with the green chairs.” This gives the user a landmark to look for – the waiting room full of green chairs on the left.

Another way to differentiate hallways from medical departments is to have different flooring in the two different areas. The carpeting currently in the Clinic works well for a clinic environment. It muffles sound, is comfortable to walk on, and is less painful to fall on than a hard surface (an issue that could concern the elderly or those with impaired walking ability.) The facilities manager has informed the researcher that the carpeting in the Clinic is quite new and therefore won’t be replaced for quite some time. It is recommended then that in the future, when the carpeting wears out in the hallways (where it will likely wear out first as they are more highly trafficked than the medical departments), a carpet that is similar in physical properties to the current carpet be selected. This carpet should be different in color than the current multi-colored carpeting, which would likely remain in the medical departments. Choosing one of the colors in the current carpet and using it as a solid color path through the halls would work well.
Figure 5.13. Suggested changes in flooring as shown on the second floor.
Figure 5.14. Suggested changes in flooring as shown on the first floor.

Some participants in the destination 1 group commented that flooring aided their search because the flooring was different in the hallway they were searching for. A suggestion to improve wayfinding to this particular location would be to continue the tile found in the hallway further into the Clinic so that it is visible from the bottom of the east stairwell as shown below.
Figure 5.15. Suggested flooring changes on garden level.
CHAPTER 6. PROPOSAL OF GUIDELINES

Guidelines to Follow in Wayfinding Design for Healthcare Environments

Following is a list of guidelines to follow when designing a wayfinding system or looking to improve one for a healthcare environment. They were compiled from research done by Christopherson (2008), Carpman, Grant, and Simmons (1986), the literature review in chapter 1, and from the study detailed in this thesis.

1) Avoid floors linking with other floors that aren’t the same number. This can be difficult to avoid in healthcare buildings in particular as they are often built incrementally or joined by a hallway at a later date. In the case of McFarland Clinic and Mary Greeley Medical Center, a wayshowing challenge is presented because Mary Greeley Medical Center’s first floor is linked with McFarland Clinic’s garden level (one floor below the Clinic’s first floor.) If different levels must be linked, alert users to the change.

Figure 6.1. Proposed sign to place at the entry to McFarland Clinic from link to hospital buildings alerting users that they are on the garden level and identifying where they likely need to go next (Check In).

2) If the building changes architecturally, such as from entering into a new addition, signs should be present to reassure users that they are still on the right path.
3) When numbering rooms, the lowest number should start at the main entrance. If the basic floorplan is the same from floor to floor, the room numbers should also coordinate. So, for example, if room 1022 is directly to the left of the west elevator on the first floor, and the second floor has a similar floorplan, room 2022 should also be directly to the left of the west elevator. Also, room numbers should be placed next to doors rather than on them. This allows the room to be identified even if the door is open.

![Hospital room with room number positioned to side of door.](http://www.thedoorswitch.com/images/dsc00305_j7me.jpg)

Figure 6.2. Hospital room with room number positioned to side of door.

4) When there are multiple main entrances, guideline 3 can be difficult. In this case, it becomes more important that the number of the room relates to the floor it is on (i.e. number 1028 is on the first floor, 3221 is on the third floor, etc.) This is helpful even when there is only one main entrance.
5) Incorporate landmarks into interior environment. Landmarks are especially helpful for first-time users. Landmarks can be created with architectural elements, unique lighting, plants, artwork, or even standard fixtures like a drinking fountain.

Figure 6.3. Plants are good landmarks. Someone giving verbal directions might incorporate the plant landmark in their directions by saying, “When you come down the stairs, there will be a plant at the bottom, go down the hallway with the plant.”

6) Adequate lighting should be provided throughout the space, with special care to light important areas or details such as check-in desks, signs, or public stairwells with adequate or increased lighting levels.
Figure 6.4. Pendant lights above the desks at Check In increase light levels.

7) If there could be any confusion in differentiating between a hallway and another department, care should be taken to alter the appearance of the department so that users don’t walk into it thinking they are still on a different path. Ways of doing this include a different color scheme, different flooring, or different lighting fixtures.

8) Utilize flooring to delineate spaces, particularly to highlight the difference between main hallways and departments that are connected to the hallway but not separated by a door. Floor-based wayshowing systems can be helpful when an important destination is located in a place that makes it extremely difficult to find. This is often the case when the important destination is in a distant area of the hospital and there are many complex turns to reach it. It
can be easier to tell a user to follow a green line on the floor rather than trust that they will see every sign necessary to reach the destination.

Figure 6.5. A red line on the floor guides users to “Transfer B” in this building.

9) Naming should be consistent and easily understood. Inconsistent naming of departments or areas on signage will confuse users. Healthcare environments serve all people, including those with limited literacy. Names should be used that can be easily understood by people with a maximum 6th grade reading level.
Figure 6.6. “Otolaryngology” shown on the sign has the same meaning as “Ear, Nose, & Throat” (also on the same sign). Having the more complex term is not necessary as not every user will know its meaning, while “Ear, Nose, & Throat” is more universally understood.

10) Place orientation signs at each main entrance. These orientation signs should include information that new users will need to orient themselves in the space such as you-are-here maps and the names of departments within the space with arrows pointing users to their location. The signs should also be located in a place and designed so that users will notice them immediately. Including a list of departments located on other floors is also helpful to users.

11) Locate informed employees within sight of each main entrance so that users can easily consult staff for assistance in wayfinding should they prefer verbal directions over the signs
available. All staff should be trained on how to give directions, the wayfinding system in place, and the layout of the healthcare environment and any adjoining buildings.

Figure 6.7. Check In areas with full-time staff are located at each main entrance, as highlighted on the map above.

12) When choosing sign types, consider that medical departments change location. Using signs that have removable panels with the signs’ identification or directional text on them. These panels can then be removed and replaced without the higher expense of replacing an entire sign.

13) Signs should be placed at decision points within the environment. This includes major intersections (i.e. intersections of two public hallways rather than intersections of a public
hallway with a non-public one) and areas where the environment changes (i.e. entering a new
description that has different flooring and/or wall treatments.)

Figure 6.8. The view as seen when entering McFarland Clinic from Mary Greeley Medical Center. Note the flooring change, sign to the right with the text “To McFarland Clinic”, and the McFarland Clinic logo on the wall at the end of the hallway. These are all signs that the user is entering a new space. The text on the sign and under the logo reassures the user that they are on the correct path if their destination is McFarland Clinic.

14) Information should be located consistently so that users know where to seek it. If users walk past three doorways that have department names located to the left of them and then they come to a doorway that has no name to the left of it, they might think it is a staff-only area because they didn’t see its name. This same doorway could in fact be the one they were searching for but its name was located above the doorway rather than to its left.
15) Do not rely on color coding for a wayfinding system to be effective. People typically can’t easily remember more than five colors. Most healthcare facilities have more than five departments, so color coding departments without overlapping colors is difficult. Colors can help characterize a department, which can be helpful for staff giving verbal directions (i.e. “turn left at the drinking fountain, it will be the second department on your right and will have yellow walls.”)

16) Text on signage should be in a font that is easy to read and in a color that has a large amount of contrast to that of the background. Designers may be tempted to use a more complicated font or a color scheme that doesn’t offer a high level of contrast between the font and background, but both of these qualities are key to sign legibility.

17) If symbols are used, they should be consistent in color, style, shape, and background. Symbols that keep these details consistent are easily recognized as part of a system by users after seeing only one or two symbols.
Figure 6.9. A group of symbols developed for the Network Rail system in the UK that are easily recognized as belonging in the same group.

18) Make sure all signs meet ADA (Americans with Disabilities Act) requirements. This includes tactile (i.e. raised) lettering and braille on room identification signs.

Figure 6.10. Tactile lettering and braille on an identification sign.


19) Maps should be simplified to highlight only the hallways that are for public access.

Destinations that are used by staff only should not be highlighted on maps. Unnecessary
information makes it more difficult for users to differentiate which information is applicable to them and which is not.

Figure 6.11. Current map of McFarland Clinic’s garden level. It includes many locations that are for staff use only.
Figure 6.12. Proposed new map design for McFarland Clinic’s garden level. Non-public locations have been removed and color coding has been added to emphasize the purpose of different destinations (i.e. all restrooms are orange making it easy to look at the color key, see that restrooms are orange, then look at the map and quickly identify the closest restroom by color rather than reading all of the text on the map).

20) If the map is a you-are-here map, the arrow showing the user’s location should be pointing at the spot the user is facing while looking at the map. The map should be oriented so that up on the map is forward in the environment. All text and symbols should be rotated correctly as well.
Figure 6.13. This map is oriented correctly (i.e. up is forward in the environment), but the text has not been rotated as well. There is also no arrow showing the user’s current location.
CHAPTER 7. SUMMARY AND DISCUSSION

Conclusions

This study’s primary focus was the case study involving McFarland Clinic. The results of the case study were able to aid the researcher in answering the research questions posed in chapter 1. The first question, “how does the built environment of a multi-story clinic affect wayfinding?” proved to be the most important in understanding the particular wayfinding issues found in the Clinic. Participants in the wayfinding analysis study commented that the existing signs were helpful, but they needed more to tell them what was on the other levels. There are some small signs with a list of departments on each floor near stairs and elevators, but most participants did not notice them. Some participants also commented on a need for maps. Introducing orientation signs at major entrances to each floor should solve both the lack of information about other levels and lack of maps available to users of the environment.

The second question, “which elements of a healthcare environment become most important to users who are navigating it?” was also answered by the study. Participants relied heavily on signage, but did note that other interior elements contributed to helping them find their destination. Comments included: changes in flooring indicated entering a new area, seating indicated the location of a medical department, and adequate lighting made them feel welcome.

The third question, “which elements of a healthcare environment detract from the user’s wayfinding experience?” interestingly had some of the same answers as the second question. Signs were both the most helpful and the most detracting elements analyzed by the study. Participants seemed to find the existing signage helpful, but the sign system as a whole detracted from their experience because it was lacking in some areas. Most confusion for participants came from not seeing a helpful sign or having to guess which level their assigned destination was on because they
did not know. The researcher’s hypothesis that the Clinic’s signage and a lack of maps would be identified as the main issues in the wayfinding experience was supported by the study.

Though the hypothesis was proven, there were some surprises in the study results. The researcher expected that participants might think that the contrast level between the text and background colors was not high enough to be easily read. There were no comments to this effect. The researcher is still recommending a change in the background color to improve contrast as the study did not include any participants that were elderly. The elderly is a group that tends to have problems with sign reading when there is not an adequate amount of contrast. Because this group is a frequent user of McFarland Clinic specifically as well as medical facilities in general, the researcher felt it was an important improvement to recommend. As the researcher expected, participants found destination 1 more difficult to find than destination 2, but the results were closer than anticipated.

The goals for improvement posed in chapter 5 were aimed to improve issues identified by the study as well as maintain any interior elements that participants commented on as helpful. The complete set of goals and their associated diagrams and designs should provide the building facilities management staff at McFarland Clinic a thorough guide to improving the wayfinding experience for users of the Clinic.

The guidelines written in chapter 6 were intended to be of use to wayfinding design in both new structures and existing buildings. Wayshowing design is not always given much thought until a structure is already in use and wayshowing problems start to appear. Therefore, the guidelines are most likely to be used by those seeking to improve wayshowing within existing buildings.

**Need for Future Study**

This study looked at two specific locations within McFarland Clinic. Future studies looking to improve the Clinic should look at other locations as well. The participant phase of the study
would not necessarily need to be repeated, but Passini’s notation method and structural framework could be consulted for the other locations within the building.

If the study was repeated, it would be interesting to ask participants to draw a map showing their path through the space. These maps could be analyzed for common wrong turns. This research study described cognitive mapping and some research done on the subject in chapter 2 but did not focus on it in later chapters. Asking participants to draw a cognitive map would provide another way to analyze the Clinic environment and how users navigate it.
APPENDIX A. PROTECTING HUMAN RESEARCH PARTICIPANTS
ONLINE TRAINING

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Kristin Lewis successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 08/28/2009
Certification Number: 274179
APPENDIX B. IRB SURVEY APPROVAL

The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University. Please refer to the IRB ID number shown above in all correspondence regarding this study.

Your study has been approved according to the dates shown above. To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- Use only the approved study materials in your research, including the recruitment materials and informed consent documents that have the IRB approval stamp.
- Obtain IRB approval prior to implementing any changes to the study by submitting the “Continuing Review and/or Modification” form.
- Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences involving risks to subjects or others, and (2) any other unanticipated problems involving risks to subjects or others.
- Stop all research activity if IRB approval lapses, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- Complete a new continuing review form at least three to four weeks prior to the date for continuing review as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Research investigators are expected to comply with the principles of the Belmont Report, and state and federal regulations regarding the involvement of humans in research. These documents are located on the Office for Responsible Research website http://www.compliance.iastate.edu/irb/forms/ or available by calling (515) 294-4566.

Upon completion of the project, please submit a Project Closure Form to the Office for Responsible Research, 1138 Pearson Hall, to officially close the project.
APPENDIX C. INFORMED CONSENT DOCUMENT

INFORMED CONSENT DOCUMENT

Title of Study: Wayfinding Analysis of McFarland Clinic

Investigators: Kristin Lewis (graduate student and principle investigator)
Jihyun Song (major professor overseeing Lewis’ thesis study)

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

INTRODUCTION

The purpose of this study is to assess wayfinding conditions within McFarland Clinic and to identify which elements of the building are attributing to or detracting from effective wayfinding. You are being invited to participate in this study because your membership in the Students 2 Students program on the Iowa State University campus leads me to believe that you have an interest in healthcare and would therefore likely want to help with a study aimed to improve a healthcare setting.

DESCRIPTION OF PROCEDURES

If you agree to participate in this study, your participation will last for one visit to McFarland Clinic which I expect will last approximately 30 minutes. During the study you may expect the following study procedures to be followed: You will meet the principle investigator at the main (east) entrance to McFarland Clinic, where you will be assigned a location within the Clinic. You will then be asked to find that location, paying attention to what you see or what happens to you during your search. After locating the desired spot, you will then return to the entrance where you will be given a survey by the principle investigator. You may skip any question on the survey that you do not wish to answer or that makes you uncomfortable.

PARTICIPANT REQUIREMENTS

All participants must be 18 years of age or older to participate in this study.

RISKS

All participation will be voluntary and no identification outside of you being a study participant will be required. Nor will any type of identification be recorded other than the total number of participants. There are no foreseeable risks at this time from participating in this study.

BENEFITS

If you decide to participate in this study there will be no direct benefit to you. It is hoped that the information gained in this study will benefit society by identifying facets of wayfinding in McFarland Clinic needing improvement so that recommendations can be made to McFarland Clinic officials for potential implementation, which would benefit future users of the Clinic.
COSTS AND COMPENSATION

You will not have any costs from participating in this study. You will however, be asked to provide your own transportation to the study’s location (McFarland Clinic). You will not be compensated for participating in this study.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: surveys will be numbered for identification rather than using your name, the surveys will be kept at the home of the principal investigator where she lives alone, and any spreadsheets or other computer files generated with survey results will be on the principal investigator’s password-protected computer. If the results are published, your identity will remain confidential.

QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study.

- For further information about the study contact Kristin Lewis (graduate student and principal investigator) at 646.703.2878 or Jihyun Song (major professor overseeing Lewis’ thesis study) at jsong@iastate.edu
- If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

PARTICIPANT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study.

Participant’s Name (printed) ____________________________________________
INVESTIGATOR STATEMENT

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits and the procedures that will be followed in this study and has voluntarily agreed to participate.

(Signature of Person Obtaining Informed Consent)  (Date)
APPENDIX D. STUDY INSTRUCTIONS

Wayfinding Analysis of McFarland Clinic
Part 1 – Finding a Location

You may exit the study at any time if you become uncomfortable or choose not to fully complete the study for any reason.

Instructions:
1) You will be assigned a destination within McFarland Clinic.
2) You are asked to find the destination without asking for help or assistance from any person (patient, employee, or other). Should someone approach you and ask if you need assistance, you should respond that you are participating in a wayfinding study and no, you don’t need any assistance. If they are concerned, you can inform them that the study has been approved by the building facility manager.
3) After finding your assigned destination, you should return to the main (north) entrance where you were given your assignment.
4) You will be given a survey to take regarding your experience. The survey will consist of questions with room for your own additional comments about the experience.
5) Upon completion of the survey, your participation will be complete. You can expect your entire visit to last approximately 30 minutes.

Assignment:
Your assigned destination is: the hallway linking McFarland Clinic with Mary Greeley Medical Center
Wayfinding Analysis of McFarland Clinic

Part 1 – Finding a Location

You may exit the study at any time if you become comfortable or choose not to fully complete the study for any reason.

Instructions:
1) You will be assigned a destination within McFarland Clinic.
2) You are asked to find the destination without asking for help or assistance from any person (patient, employee, or other). Should someone approach you and ask if you need assistance, you should respond that you are participating in a wayfinding study and no, you don’t need any assistance. If they are concerned, you can inform them that the study has been approved by the building facility manager.
3) After finding your assigned destination, you should return to the main (north) entrance where you were given your assignment.
4) You will be given a survey to take regarding your experience. The survey will consist of questions with room for your own additional comments about the experience.
5) Upon completion of the survey, your participation will be complete. You can expect your entire visit to last approximately 30 minutes.

Assignment:
Your assigned destination is: the gastroenterology department
APPENDIX E. STUDY SURVEY

Wayfinding Analysis of McFarland Clinic
Part 2 – Survey

You may exit the study at any time if you become uncomfortable or choose not to fully complete the study for any reason.

Instructions:
- Please answer all of the questions below.
- Please write at least one comment on the lines below each question.
- Should you have any questions, please ask the principle investigator conducting the study.

Demographics:
- What is your age?
  - □ 0-17 years
  - □ 18-24 years
  - □ 25-40 years
  - □ 41-65 years
  - □ Over 65 years

- What is your gender?
  - □ Male
  - □ Female

- How many times have you been to the Clinic before?
  - □ 0
  - □ 1-3
  - □ 4-9
  - □ 10+

1) How difficult was the location to find?
- □ 1 - Very difficult
- □ 2 - Difficult
- □ 3 - Average
- □ 4 - Easy
- □ 5 - Very easy

2) Approximately how many wrong turns did you make before finding the assigned location?
- □ 0
- □ 1-2
- □ 3-4
- □ 5-6
- □ Other ______

3) Did anyone approach you asking if you needed assistance or if you were lost during the experience?
- □ Yes – how many people? ______
- □ No

4) Check all items that you used to help you find your way to the assigned location
- □ Map(s)
- □ Sign(s)
  - □ Lighting (following well-lit paths or not following poorly-lit paths)
- □ Changes in flooring
- □ Guessing
- □ Artworks or other landmarks
- □ Other – please make comment

5) Check all items that you found distracting or confusing in the Clinic
- □ Signage
- □ Lighting
- □ Color scheme
- □ Flooring
- □ Furnishings
- □ Staff
- □ Space layout of the Clinic
- □ Other – please make comment
6) Check all items that you found pleasing or helpful in the Clinic
☐ Signage
☐ Lighting
☐ Color scheme
☐ Flooring
☐ Furnishings
☐ Staff
☐ Space layout of the Clinic
☐ Other – please make comment

7) In regard to signs in the Clinic, please check all items you agree with
☐ The color scheme is effective
☐ The color scheme is distracting
☐ Signs were of an appropriate/useful size
☐ The font used on the signs is legible
☐ Most signs are located in useful places

8) In regard to lighting in the Clinic, please check all items you agree with
☐ The overall level of lighting is adequate
☐ The low level of lighting in a particular hallway made you feel less willing to use it

9) In regard to the interior color scheme in the Clinic, please check all items you agree with
☐ The color scheme aided your search for the assigned location
☐ The color scheme detracted from your search for the assigned location
☐ The color scheme did not aid or detract from your search for the assigned location

10) In regard to flooring in the Clinic, please check all items you agree with
☐ Flooring aided your search for the assigned location
☐ Flooring did not aid or detract from your experience
☐ A floor-based wayfinding system was in place; if so, please comment on its usefulness

11) In regard to furnishings in the Clinic, please check all items you agree with
☐ The furnishings aided your search for the assigned location
☐ The furnishings detracted from your search for the assigned location
☐ The furnishings did not aid or detract from your search for the assigned location

12) In regard to staff in the Clinic, please check all items you agree with
☐ The Clinic’s staff aided your search for the assigned location
☐ The Clinic’s staff detracted from your search for the assigned location
☐ The Clinic’s staff did not aid or detract from your search for the assigned location

13) In regard to the layout of the Clinic (or layout of the building and its departments), please check all items you agree with
☐ The space was easy to navigate
☐ The space was not easy to navigate
☐ The layout did not aid or detract from navigating the space
## APPENDIX F. SURVEY CHECK BOX RESPONSES

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## APPENDIX G. SURVEY COMMENTS

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<th>COMMENT</th>
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<td>1</td>
<td>1-1</td>
<td>There was a couple signs that could have mentioned the direction to the hospital link. I really think they should have a big sign at the entrance where everything is, but I suppose that's what the receptionist is for.</td>
</tr>
<tr>
<td>1</td>
<td>1-2</td>
<td>Didn't know where to go kind of stumbled upon it.</td>
</tr>
<tr>
<td>1</td>
<td>1-3</td>
<td>It was very easy once there were signs pointing the way.</td>
</tr>
<tr>
<td>1</td>
<td>1-4</td>
<td>I kind of got lucky tho &amp; started in right direction</td>
</tr>
<tr>
<td>1</td>
<td>1-5</td>
<td>Signage was not really existent till you walked down the stairs</td>
</tr>
<tr>
<td>1</td>
<td>1-6</td>
<td>I had to continue to deduce where it was based on directions that didn't exactly say where the hospital was, but I followed signs that I thought would be at the hospital.</td>
</tr>
<tr>
<td>1</td>
<td>1-7</td>
<td>Signs pointing towards it were small and / not numerous</td>
</tr>
<tr>
<td>1</td>
<td>1-9</td>
<td>Signage not good. Didn't see any maps. It almost like I'm not supposed to find it...</td>
</tr>
<tr>
<td>1</td>
<td>1-11</td>
<td>Signage needs to be improved in main level to aid search for hospital connection</td>
</tr>
<tr>
<td>1</td>
<td>1-12</td>
<td>The only difficult part was deciding which direction to start going.</td>
</tr>
<tr>
<td>1</td>
<td>2-1</td>
<td>Had I not seen a posted sign (4x11) by the stairs I wouldn't have had any idea to go up a flight.</td>
</tr>
<tr>
<td>1</td>
<td>2-2</td>
<td>The signs were helpful but there were no signs about the other levels, making it less than easy.</td>
</tr>
<tr>
<td>1</td>
<td>2-3</td>
<td>I was lucky and chose to go upstairs first because I had been on the main floor on a previous visit.</td>
</tr>
<tr>
<td>1</td>
<td>2-5</td>
<td>I made a few lucky guesses like going upstairs first. Large signs at bottom and top of stairs informing people of all departments on said floor might be useful</td>
</tr>
<tr>
<td>1</td>
<td>2-6</td>
<td>When in a situation where I had a choice between left &amp; right, the signage was adequate &amp; not confusing.</td>
</tr>
<tr>
<td>1</td>
<td>2-7</td>
<td>I got lucky</td>
</tr>
<tr>
<td>1</td>
<td>2-10</td>
<td>The destination was on the second floor &amp; the only sign I saw on the first floor was tiny &amp; written on a sheet of paper that I would easily miss</td>
</tr>
<tr>
<td>1</td>
<td>2-11</td>
<td>There were no signs on the main floor to assist me.</td>
</tr>
<tr>
<td>2</td>
<td>1-1</td>
<td>I went right at the bottom of the stairs to look at a map, which was pretty worthless, a simple &quot;You are Here&quot; arrow would have been nice.</td>
</tr>
<tr>
<td>2</td>
<td>1-2</td>
<td>Sort of wandered around aimlessly then saw the &quot;Link to hospital&quot; sign.</td>
</tr>
<tr>
<td>2</td>
<td>1-4</td>
<td>Again, I feel like I found the right direction right away</td>
</tr>
<tr>
<td>2</td>
<td>1-5</td>
<td>Lucky guessing</td>
</tr>
<tr>
<td>2</td>
<td>1-6</td>
<td>Followed signs to an orthopedic portion which ended up being a dead end.</td>
</tr>
<tr>
<td>2</td>
<td>1-7</td>
<td>Went upstairs at first - there is no connection up there</td>
</tr>
<tr>
<td>2</td>
<td>1-8</td>
<td>I looked into several areas to see if the hallway continued, but it didn't so I kept going down the main hallway,</td>
</tr>
<tr>
<td>2</td>
<td>1-12</td>
<td>I just wandered down the hallway until I saw the first sign.</td>
</tr>
<tr>
<td>2</td>
<td>2-1</td>
<td>Once I was on the right floor my dept. was listed on the overhead signs.</td>
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<tr>
<td>2</td>
<td>2-2</td>
<td>I didn't realize my location was or could be on the 2nd floor so it took longer.</td>
</tr>
<tr>
<td>2</td>
<td>2-3</td>
<td>I turned left upstairs at first but it was right.</td>
</tr>
<tr>
<td>2</td>
<td>2-5</td>
<td>The route was easy to determine after going up the stairs as at the top there is essentially only a right turn</td>
</tr>
<tr>
<td>2</td>
<td>2-8</td>
<td>Just one wrong turn right away</td>
</tr>
<tr>
<td>2</td>
<td>2-9</td>
<td>Took long way - didn't see a sign that would have led me on a more convenient route</td>
</tr>
<tr>
<td>2</td>
<td>2-11</td>
<td>By chance I went up the stairs, thus avoiding any more wrong turns</td>
</tr>
<tr>
<td>3.1</td>
<td>1-1</td>
<td>A couple people looked at me.</td>
</tr>
<tr>
<td>3.1</td>
<td>1-4</td>
<td>I pretended I knew where I was going</td>
</tr>
<tr>
<td>3.1</td>
<td>1-9</td>
<td>Friendly. She saw me starring @ signage.</td>
</tr>
<tr>
<td>3.1</td>
<td>1-10</td>
<td>Actually helped because it caused me to stop and look around to locate a hidden sign.</td>
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<tr>
<td>3.1</td>
<td>1-12</td>
<td>No one approached me.</td>
</tr>
<tr>
<td>3.1</td>
<td>2-1</td>
<td>Got a weird eye from a receptionist.</td>
</tr>
<tr>
<td>3.1</td>
<td>2-2</td>
<td>When I got to my location the receptionist asked if I was lost.</td>
</tr>
<tr>
<td>3.1</td>
<td>2-5</td>
<td>But only walked around for approx. 2 minutes and didn't take any wrong turns</td>
</tr>
<tr>
<td>3.1</td>
<td>2-9</td>
<td>Asked if I needed help finding something</td>
</tr>
<tr>
<td>3.1</td>
<td>2-11</td>
<td>But there were people around</td>
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| 4.1  | 1-1 | There was one "Link to Hospital" sign, which just pointed to the stairs. 1 or 2 more signs would have helped. |
| 4.1  | 1-3 | At first I just guessed until I found signs that lead me there. |
| 4.1  | 1-4 | X by artwork/landmarks: mostly to find my way back again; Definitely signs on ceiling/wall. I also knew I was @ hallway b/c tile changed |
| 4.1  | 1-6 | Was mainly just following signs that lead me to the link between the clinic & hospital |
| 4.1  | 1-7 | When I came upon Dr's offices I knew I had gone astray |
| 4.1  | 1-9 | Changes in flooring, lighting, and my sense of direction |
| 4.1  | 1-10 | I figured location had to be on main floor or close eliminated upper floors. |
| 4.1  | 1-12 | Note by maps: maps would have been helpful! I looked for some but didn't find any; The only indicator I saw was the overhead sign - from there, there were a lot of signs that easily led me to the |
| 4.1  | 2-1 | Guessed by going East on the main floor first |
| 4.1  | 2-2 | I was on the 1st floor when I looked up and saw a sign for the department. I guessed how to get up there. |
| 4.1  | 2-3 | I guessed to go upstairs and looking at the signs helped me to find the destination. |
| 4.1  | 2-4 | I kept walking down main hallways looking at overhead signs. I stopped to look at a sign on the wall that had a list of departments and it said the place was on the second floor. |
| 4.1  | 2-5 | I knew that there wasn't much on first floor outside of check-in services and the pharmacy |
| 4.1  | 2-7 | There was no map, no system. No color codes. Just signs. |
| 4.1  | 2-8 | The signs helped quite a bit and it was a little bit of luck that I chose to go up instead of down a floor. |
| 4.1  | 2-9 | Note by landmarks checkbox: [elevator]; A sign at the elevator oriented to me to the second floor - ceiling signs/arrows confusing |
| 4.1  | 2-10 | A map would have been helpful. |
| 4.1  | 2-11 | I didn't even see a map, but that would've been helpful. And there weren't signs for 2nd floor dept by the stairs |
1. I wasn't very concerned with my environment.
2. Was no signage until basically at destination.
3. At first I didn't see signs that pointed the way, especially at the 1st staircase.
4. X by other: my cell phone ;); I feel like I looked @ art to mark my place rather than relying on signs on my return phase.
5. The sign for the "MGMC" was on a wall not easily visible or with other signs.
6. I wish there would have been a sign listing where the hospital was initially. Instead, the sign was pretty close to the destination.
7. Chairs for different offices were just kind of there - didn't seem to be any barrier between them.
8. Lack of signs until you get close to destination.
9. I was not sure how the whole building was laid out in relation to the hospital.
10. Looked for signs w/ my destination on it - none on 1st floor that catch the eye.
11. The stairwell I used to get to the 2nd floor was poorly lit and I felt like I shouldn't be there.
12. This place is huge for a clinic and the layout is just different to me.
13. Nothing was distracting.
14. Spiral staircase? No sign telling me different departments or what was up there.
15. It's kind of dimly lit in this place.
16. Note by color scheme checkbox: No variation to delineate spaces; note by furnishings checkbox: The gastro. Check in didn't have an obvious sign - it was on front desk which is oriented off travel path; note by other checkbox: stairs that I could have taken I passed right by - didn't notice they were there until my way back; - inside of a door, - no large/obvious sign that stairs were through door; Signage arrows are misleading - too general.
17. Not seeing a sign for my destination on a larger sign was confusing - I just started to guess where I needed to go.
18. It was pretty much the same in every dept, so wasn't sure when I was in a new dept.
<p>| 6 | 1-1 | I tried to follow the signs of stuff that would be in the hospital and not in the clinic. |
| 6 | 1-2 | My knowledge of the general direction of Mary Greeley. |
| 6 | 1-3 | I didn't notice anything but the signs. |
| 6 | 1-4 | Liked signs f/ ceiling &amp; walls w/ arrows. Clearly marked hallway &amp; entrance f/ clinic to hospital (big print, obvious) |
| 6 | 1-5 | It has a generally pleasing décor for a hospital. |
| 6 | 1-6 | Although a little frustrating it wasn't listed earlier, the signs that were there helped guide at least in the right direction. |
| 6 | 1-7 | Most signs were large and prominent - unlike the one for the place I was going to |
| 6 | 1-9 | Lighting was the most helpful. I didn't even notice a color scheme because I was so busy looking. Floor changes helped guide. |
| 6 | 1-10 | When I locuted the signs they were helpful. |
| 6 | 1-12 | This clinic actually feels homely, so it wasn't stressful walking around. |
| 6 | 2-1 | Had I asked, the staff usually knows exactly where to send you. |
| 6 | 2-2 | The hallways that weren't lined with chairs made me feel like I was in a more general area as opposed to a specific dept. so I was on the right track. |
| 6 | 2-3 | The signs everywhere are helpful and the lighting and flooring make people feel right at home. |
| 6 | 2-6 | I liked the fact that the clinic departments were broken down by floors @ the elevator. There was no redundant signage. |
| 6 | 2-7 | I don't like bright white, the soft glow was easy on the eyes |
| 6 | 2-8 | Signage was a big help and the space layout was nice &amp; nice wide hallways not overly cluttered. |
| 6 | 2-9 | Note by signage: Did at least tell me if I was going in the right direction; Signs near elevators helpful to find space |
| 6 | 2-10 | Once I found the sign I was looking for it was very helpful. |
| 6 | 2-11 | Hallways were lit &amp; I could see my way |</p>
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<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1-1</td>
<td>Signs are in good places (except for that map) they just need a few more.</td>
</tr>
<tr>
<td>7</td>
<td>1-3</td>
<td>I didn’t notice the color scheme other than the crazy carpet.</td>
</tr>
<tr>
<td>7</td>
<td>1-4</td>
<td>X by color scheme is effective: big blue to mark hospital vs. clinic; X by signs were of appropriate size &amp; by font is easily legible: entrance was bigger; the path &amp; destination signs are easily distinguishable.</td>
</tr>
<tr>
<td>7</td>
<td>1-5</td>
<td>I didn’t really notice the colors. There wasn’t one specifically for the Mary Greenley Medical Center by name till I got to the actual tunnel.</td>
</tr>
<tr>
<td>7</td>
<td>1-8</td>
<td>Might have been helpful to have more signs all along the main hallway instead of just at the end pointing to the hospital</td>
</tr>
<tr>
<td>7</td>
<td>1-9</td>
<td>Signs were big enough, but info on the signs in relation to their placement was ineffective. (Example on back of this sheet)</td>
</tr>
<tr>
<td>7</td>
<td>1-10</td>
<td>The ones I used were appropriate but noticed others that were too small and printed on office paper</td>
</tr>
<tr>
<td>7</td>
<td>1-11</td>
<td>There were no signs on the main floor that even mentioned the hospital.</td>
</tr>
<tr>
<td>7</td>
<td>1-12</td>
<td>I thought there should have been a more prominent sign for the link to the hospital.</td>
</tr>
<tr>
<td>7</td>
<td>2-1</td>
<td>Once on the right floor.</td>
</tr>
<tr>
<td>7</td>
<td>2-2</td>
<td>The signs didn’t really stick out which is good (not distracting) but they could have been at a better level.</td>
</tr>
<tr>
<td>7</td>
<td>2-3</td>
<td>I think the signs are very useful and in all the right places. Very legible.</td>
</tr>
<tr>
<td>7</td>
<td>2-7</td>
<td>Should be bolder color, more coordination w/ color &amp; department. They were only located at destination &amp; not b/f</td>
</tr>
<tr>
<td>7</td>
<td>2-8</td>
<td>They were all nice and big and easy to read and all located overhead.</td>
</tr>
<tr>
<td>7</td>
<td>2-9</td>
<td>Note by appropriate size checkbox: some where; Elev. Signage could be larger because I missed an opportunity to utilize one - because I couldn’t see it</td>
</tr>
<tr>
<td>7</td>
<td>2-10</td>
<td>The only sign I saw directing me to go to my location was very small - needed to walk right up to it to read.</td>
</tr>
<tr>
<td>7</td>
<td>2-11</td>
<td>If there were signs on the 1st floor I couldn’t find them &amp; diff colored dept on signs might help.</td>
</tr>
<tr>
<td>Page</td>
<td>Number</td>
<td>Comment</td>
</tr>
<tr>
<td>------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>8</td>
<td>1-1</td>
<td>I don't think patients want to be blinded with brilliant light, and they aren't.</td>
</tr>
<tr>
<td>8</td>
<td>1-2</td>
<td>I prefer the low lighting. Bright fluorescents would be distracting.</td>
</tr>
<tr>
<td>8</td>
<td>1-4</td>
<td>X by the overall lighting is adequate: lots of natural light too; I feel like I tried to veer towards natural light - like that would mark a major hallway f/ clinic to hospital</td>
</tr>
<tr>
<td>8</td>
<td>1-5</td>
<td>The levels were adequate, but I would prefer a higher level.</td>
</tr>
<tr>
<td>8</td>
<td>1-8</td>
<td>Orthopedics was closed and the lights were off, but I didn't need to go that way anyways.</td>
</tr>
<tr>
<td>8</td>
<td>1-9</td>
<td>Low lighting kept me out of a particular space. Width of halls also affected my way-finding</td>
</tr>
<tr>
<td>8</td>
<td>1-11</td>
<td>The lighting is nice in the fact that it isn't all fluorescent and takes away the institutional feel.</td>
</tr>
<tr>
<td>8</td>
<td>1-12</td>
<td>I liked that the lighting is not the typical stark lighting I am used to in medical settings.</td>
</tr>
<tr>
<td>8</td>
<td>2-1</td>
<td>Lights over important check in desks &amp; over the dept. labels was helpful.</td>
</tr>
<tr>
<td>8</td>
<td>2-2</td>
<td>As I mentioned, the poorly lit stairwell made me feel hesitant to go up it.</td>
</tr>
<tr>
<td>8</td>
<td>2-3</td>
<td>I feel like the lighting is fine just the way it is.</td>
</tr>
<tr>
<td>8</td>
<td>2-4</td>
<td>I liked the natural lighting in stairwells and open space between floors. I would like to see more lighting in the north entrance.</td>
</tr>
<tr>
<td>8</td>
<td>2-5</td>
<td>The lighting is much more dim than in many other clinic settings but I personally find it more inviting than the harsh lighting you often find.</td>
</tr>
<tr>
<td>8</td>
<td>2-7</td>
<td>I like low level lighting.</td>
</tr>
<tr>
<td>8</td>
<td>2-8</td>
<td>The lighting is adequate but somewhat dim in my opinion.</td>
</tr>
<tr>
<td>8</td>
<td>2-9</td>
<td>It is soft and seems constant throughout</td>
</tr>
<tr>
<td>8</td>
<td>2-11</td>
<td>In my halls, was not a problem</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>Number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1-1</td>
<td>Very constant, dull, and boring, just as I would expect from a hospital.</td>
</tr>
<tr>
<td>9</td>
<td>1-2</td>
<td>Didn't really pay attention to it.</td>
</tr>
<tr>
<td>9</td>
<td>1-4</td>
<td>I barely notice the colors of the clothes I am wearing...</td>
</tr>
<tr>
<td>9</td>
<td>1-9</td>
<td>I didn’t notice a color scheme.</td>
</tr>
<tr>
<td>9</td>
<td>1-12</td>
<td>I like the color scheme, but it did not help me navigate any better.</td>
</tr>
<tr>
<td>9</td>
<td>2-1</td>
<td>Just looked for signs.</td>
</tr>
<tr>
<td>9</td>
<td>2-3</td>
<td>I like the color scheme, its very nice but it did not distract me in this study.</td>
</tr>
<tr>
<td>9</td>
<td>2-8</td>
<td>I didn’t really pay attention to the color scheme at all.</td>
</tr>
<tr>
<td>9</td>
<td>2-9</td>
<td>Didn’t notice a difference</td>
</tr>
<tr>
<td>9</td>
<td>2-10</td>
<td>It continued throughout all locations I was at - may have been helpful.</td>
</tr>
<tr>
<td>9</td>
<td>2-11</td>
<td>I'm sure it could be better but it wasn't a factor</td>
</tr>
<tr>
<td>Page</td>
<td>Line</td>
<td>Text</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>10</td>
<td>1-1</td>
<td>A floor-based wayfinding system would be interested, but I didn't see it.</td>
</tr>
<tr>
<td>10</td>
<td>1-4</td>
<td>Carpet -&gt; tile was an obvious factor in my search for major hallway</td>
</tr>
<tr>
<td>10</td>
<td>1-9</td>
<td>I ended up going down a weird hallway (concrete?) with narrow walls. Although I was hesitant, I still entered in search of destination.</td>
</tr>
<tr>
<td>10</td>
<td>1-11</td>
<td>Carpet makes someone feel more at ease and allows them to feel less out of place in a clinic.</td>
</tr>
<tr>
<td>10</td>
<td>1-12</td>
<td>I did not really notice the flooring.</td>
</tr>
<tr>
<td>10</td>
<td>2-1</td>
<td>Same colored carpet.</td>
</tr>
<tr>
<td>10</td>
<td>2-3</td>
<td>I didn't notice any difference in the flooring.</td>
</tr>
<tr>
<td>10</td>
<td>2-5</td>
<td>Just ugly industrial carpet.</td>
</tr>
<tr>
<td>10</td>
<td>2-7</td>
<td>This would be nice (referring to floor-based wayfinding system)</td>
</tr>
<tr>
<td>10</td>
<td>2-8</td>
<td>I didn't look at the floor.</td>
</tr>
<tr>
<td>10</td>
<td>2-9</td>
<td>I think the stairs were the only flooring changes that I noticed.</td>
</tr>
<tr>
<td>10</td>
<td>2-10</td>
<td>I really didn't pay attention to the floor.</td>
</tr>
<tr>
<td>10</td>
<td>2-11</td>
<td>Flooring was repetitive every turn I made.</td>
</tr>
<tr>
<td>11</td>
<td>1-1</td>
<td>Furnishings are for the most part kept in separate &quot;departments&quot;, so not in the hallways.</td>
</tr>
<tr>
<td>11</td>
<td>1-4</td>
<td>I barely notice the colors of the clothes I am wearing.</td>
</tr>
<tr>
<td>11</td>
<td>1-7</td>
<td>Chairs everywhere with seemingly no purpose.</td>
</tr>
<tr>
<td>11</td>
<td>1-9</td>
<td>I didn't notice them.</td>
</tr>
<tr>
<td>11</td>
<td>1-12</td>
<td>I didn't think it was particularly helpful, as I didn't notice any helpful indications within the furnishings.</td>
</tr>
<tr>
<td>11</td>
<td>2-1</td>
<td>Didn't pay attention.</td>
</tr>
<tr>
<td>11</td>
<td>2-2</td>
<td>The lack of chairs in some areas made me more confident about where I was going.</td>
</tr>
<tr>
<td>11</td>
<td>2-3</td>
<td>I did notice the furnishings but they didn't affect the finding of my destination.</td>
</tr>
<tr>
<td>11</td>
<td>2-4</td>
<td>Groups of furnishings told me I was arriving in the lobby of a particular department - It was easy to look down hallways to determine if the location might be located in that general location.</td>
</tr>
<tr>
<td>11</td>
<td>2-5</td>
<td>The furnishings didn't harm or help at the time outside of the fact that it seemed as though different departments had different colors of waiting room furnishings.</td>
</tr>
<tr>
<td>11</td>
<td>2-7</td>
<td>I have Add, And excessive flowers etc. make things hard.</td>
</tr>
<tr>
<td>11</td>
<td>2-8</td>
<td>I would say the furnishings aided slightly, seeing a desk would allow you to know you were in some sort of department and not somewhere you shouldn't be.</td>
</tr>
<tr>
<td>11</td>
<td>2-9</td>
<td>Gastro. Name sign on check in of the space told me I had reached the destination.</td>
</tr>
<tr>
<td>11</td>
<td>2-10</td>
<td>The desks at all the different locations were something I knew to look for.</td>
</tr>
<tr>
<td>11</td>
<td>2-11</td>
<td>I didn't even think to check out the furnishings, I was solely using signs.</td>
</tr>
</tbody>
</table>
They did not approach me. Normally I would have gone to the first receptionist.

The clinic’s staff did not speak to me.

Though I did feel stupid turning around in front of all those ppl.

There were people present but all seemed to be otherwise occupied.

I felt one lady was going to ask if I needed help, but then just continued past me.

A nurse/receptionist asked if I needed help finding something. It was tempting.

They asked if I needed help but were informed that I was performing a study.

No one approached me.

Not allowed to aid, but wouldn’t had requested.

They looked at me funny though.

No one approached me to ask if I needed help or stopped me from going anywhere.

I was not approached for help by the staff but I was not walking around for long.

No one approached me during my search

No one interacted w/me

It’s definitely not a planned mate between the clinic & the hospital, but I understand that they were probably not built at the same time, so I am more tolerant.

Mostly open large walkways make it fairly easy to navigate.

Lots of signs, big & small w/ arrows were a big help.

The hallways seemed very winding. And confusing with many subhallways that were the same size, which didn’t create much of a visual hierarchy.

Clinic and hospital didn’t merge well.

You can’t access the hospital from this main level of the clinic, you have to take stairs to a lower level. I find that strange.

But signs need to be consistent.

Once down a floor, the hallways are very cramped. I do not see this extremely handicap accessible in both directions. Also, the hallways break and weave. It is not very easy to navigate and I think there was poor planning.

The space was not difficult to navigate, but I did have trouble trying to understand the layout.

Was easy once to floor 2, but had to search for a small sign by the stairs.

The stairwell was across from a receptionist desk which was confusing.

It is very simple if you look at the signs.

The layout was okay but I believe it would be confusing without the signs. Easily turned around with all the various hallways. It was nice to see "East Stairwell". The directions (North, South, etc) along with locations of departments made it easy to navigate.

The space was mostly easy to navigate but the signage could be improved at key intersections to aid with not taking wrong turns.

There was no one, no overarching system, no fundamental image to catalyze the creation...Boo!

I didn’t really notice an organization to the departments but the layout was relatively easy to navigate.

Lots on intersections couldn’t see a common pattern in layout - sign arrows made this worse.

Besides there not being a sign for my location on the first floor it was easy to navigate & find my way back.

I had enough room to navigate, but again I was only using signs & it was crowded.
<table>
<thead>
<tr>
<th></th>
<th>2-4</th>
<th>Color schemes: The color schemes did nothing for me. I did not notice them and it did not aid in finding my locations.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-4</td>
<td>Stairwells: The natural lighting helped me to see the stairwells and the openings between floors told me there were multiple floors. (once I saw the opening to the second floor opening - I thought my location might be on the second floor)</td>
</tr>
<tr>
<td></td>
<td>2-4</td>
<td>Signs: I used the signs to find my location. It was the easiest/most logical way to find it. I saw a list of departments by floor but I did not!! See any floor plans with departments.</td>
</tr>
<tr>
<td></td>
<td>2-4</td>
<td>Furnishings: Chairs told me waiting area; I believe a sign should be placed in the entrance (North) with a listing of departments.</td>
</tr>
<tr>
<td></td>
<td>1-5</td>
<td>*sketch - main sign, where you are expecting to see something for the Mary Greenley Medical Center</td>
</tr>
<tr>
<td></td>
<td>1-5</td>
<td>*sketch - where the actual sign was the packet containing the sign made it hard to read, it also wasn't the same type of signage as the other sign. Also, it wasn't on a wall that faces you. Also, not full name, just initials were used.</td>
</tr>
<tr>
<td></td>
<td>1-5</td>
<td>There was limited signage leading yo to the space and for the signs they did have the language used for the &quot;MGMC&quot; was inconsistent.</td>
</tr>
<tr>
<td></td>
<td>1-9</td>
<td>*sketch - showing location of good &amp; bad signs</td>
</tr>
</tbody>
</table>
APPENDIX H. UNPROMPTED DRAWINGS BY PARTICIPANTS

The packet containing the sign made it hard to read, it also wasn’t the same type of signage as the other sign. Also, it wasn’t in a well-trafficked area. Yes, also, not full names, just initials were used.

There was limited signage leading up to the space of the signs they did have the language used for the "MSPC" was inconsistent.
APPENDIX I. CODING OF SURVEY COMMENTS

Coding Categories

1) Need for signs listing locations on other levels

2) Participant took a wrong turn or made a lucky guess at a decision point because of inadequate signage at a decision point

3) Existing signage is lacking

4) Need or wish for maps or better maps

5) Liked the soft lighting theme

6) Encouraged more use of color or a color scheme

7) A change in flooring either was helpful or would have been helpful had it existed

8) Furnishings indicated the location of a department and/or a lack of furnishings indicated a main path or hallway

9) Negative criticism of floor plan or space layout

10) Previous knowledge of Mary Greeley Medical Center’s general location helped or having a general idea of how they are connected would have helped
<table>
<thead>
<tr>
<th>Q</th>
<th>#</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-1</td>
<td>There was a couple signs that could have mentioned the direction to the hospital link. I really think they should have a big sign at the entrance where everything is, but I suppose that's what the receptionist is for.</td>
</tr>
<tr>
<td>1</td>
<td>1-2</td>
<td>Didn't know where to go kind of stumbled upon it.</td>
</tr>
<tr>
<td>1</td>
<td>1-3</td>
<td>It was very easy once there were signs pointing the way.</td>
</tr>
<tr>
<td>1</td>
<td>1-4</td>
<td>I kind of got lucky too &amp; started in right direction</td>
</tr>
<tr>
<td>1</td>
<td>1-5</td>
<td>Signage was not really existent till you walked down the stairs</td>
</tr>
<tr>
<td>1</td>
<td>1-6</td>
<td>I had to continue to deduce where it was based on directions that didn't exactly say where the hospital was, but I followed signs that I thought would be at the hospital.</td>
</tr>
<tr>
<td>1</td>
<td>1-7</td>
<td>Signs pointing towards it were small and / not numerous</td>
</tr>
<tr>
<td>1</td>
<td>1-8</td>
<td>Signage not good. Didn't see any maps. It almost like I'm not supposed to find it...</td>
</tr>
<tr>
<td>1</td>
<td>1-11</td>
<td>Signage needs to be improved in main level to aid search for hospital connection</td>
</tr>
<tr>
<td>1</td>
<td>1-12</td>
<td>The only difficult part was deciding which direction to start going.</td>
</tr>
<tr>
<td>1</td>
<td>2-1</td>
<td>Had I not seen a posted sign (4x11) by the stairs I wouldn't have had any idea to go up a flight.</td>
</tr>
<tr>
<td>1</td>
<td>2-2</td>
<td>The signs were helpful but there were no signs about the other levels, making it less than easy.</td>
</tr>
<tr>
<td>1</td>
<td>2-3</td>
<td>I was lucky and chose to go upstairs first because I had been on the main floor on a previous visit.</td>
</tr>
<tr>
<td>1</td>
<td>2-5</td>
<td>I made a few lucky guesses like going upstairs first. Large signs at bottom and top of stairs informing people of all departments on said floor might be useful</td>
</tr>
<tr>
<td>1</td>
<td>2-6</td>
<td>When in a situation where I had a choice between left &amp; right, the signage was adequate &amp; not confusing.</td>
</tr>
<tr>
<td>1</td>
<td>2-7</td>
<td>I got lucky</td>
</tr>
<tr>
<td>1</td>
<td>2-10</td>
<td>The destination was on the second floor &amp; the only sign I saw on the first floor was tiny &amp; written on a sheet of paper that I would easily miss</td>
</tr>
<tr>
<td>1</td>
<td>2-11</td>
<td>There were no signs on the main floor to assist me.</td>
</tr>
<tr>
<td>2</td>
<td>1-1</td>
<td>I went right at the bottom of the stairs to look at a map, which was pretty worthless, a simple &quot;You are Here&quot; arrow would have been nice.</td>
</tr>
<tr>
<td>2</td>
<td>1-2</td>
<td>Sort of wandered around aimlessly then saw the &quot;Link to hospital&quot; sign.</td>
</tr>
<tr>
<td>2</td>
<td>1-4</td>
<td>Again, I feel like I found the right direction right away</td>
</tr>
<tr>
<td>2</td>
<td>1-5</td>
<td>Lucky guessing</td>
</tr>
<tr>
<td>2</td>
<td>1-6</td>
<td>Followed signs to an orthopedic portion which ended up being a dead end.</td>
</tr>
<tr>
<td>2</td>
<td>1-7</td>
<td>Went upstairs at first - there is no connection up there.</td>
</tr>
<tr>
<td>2</td>
<td>1-8</td>
<td>I looked into several areas to see if the hallway continued, but it didn't so I kept going down the main hallway.</td>
</tr>
<tr>
<td>2</td>
<td>1-12</td>
<td>I just wandered down the hallway until I saw the first sign.</td>
</tr>
<tr>
<td>2</td>
<td>2-1</td>
<td>Once I was on the right floor my dept. was listed on the overhead signs.</td>
</tr>
<tr>
<td>2</td>
<td>2-2</td>
<td>I didn't realize my location was or could be on the 2nd floor so it took longer.</td>
</tr>
<tr>
<td>2</td>
<td>2-3</td>
<td>I turned left upstairs at first but it was right.</td>
</tr>
<tr>
<td>2</td>
<td>2-5</td>
<td>The route was easy to determine after going up the stairs as at the top there is essentially only a right turn</td>
</tr>
<tr>
<td>2</td>
<td>2-8</td>
<td>Just one wrong turn right away</td>
</tr>
<tr>
<td>2</td>
<td>2-9</td>
<td>Took long way - didn't see a sign that would have led me on a more convenient route</td>
</tr>
<tr>
<td>2</td>
<td>2-11</td>
<td>By chance I went up the stairs, thus avoiding any more wrong turns</td>
</tr>
</tbody>
</table>
A couple people looked at me.

I pretended I knew where I was going

Friendly. She saw me starring @ signage.

Actually helped because it caused me to stop and look around to locate a hidden sign.

No one approached me.

Got a weird eye from a receptionist.

When I got to my location the receptionist asked if I was lost.

But only walked around for approx. 2 minutes and didn't take any wrong turns

Asked if I needed help finding something

But there were people around

There was one "Link to Hospital" sign, which just pointed to the stairs. 1 or 2 more signs would have helped.

At first I just guessed until I found signs that lead me there.

X by artworks/landmarks: mostly to find my way back again; Definitely signs on ceiling/wall. I also knew I was @ hallway b/c tile changed

Was mainly just following signs that lead me to the link between the clinic & hospital

When I came upon Dr's offices I knew I had gone astray

Changes in flooring, lighting, and my sense of direction

Figured location had to be on main floor or close eliminated upper floors.

Note by maps: maps would have been helpful. I looked for some but didn't find any; The only indicator I saw was the overhead sign - from there, there were a lot of signs that easily led me to the

Guessed by going East on the main floor first

I was on the 1st floor when I looked up and saw a sign for the department. I guessed how to get up there.

I guessed to go upstairs and looking at the signs helped me to find the destination.

I kept walking down main hallways looking at overhead signs. I stopped to look at a sign on the wall that had a list of departments and it said the place was on the second floor.

I knew that there wasn't much on first floor outside of check-in services and the pharmacy

There was no map, no system. No color codes. Just signs.

The signs helped quite a bit and it was a little bit of luck that I chose to go up instead of down a floor.

Note by landmarks checkbox: [elevator]; A sign at the elevator oriented to me to the second floor - ceiling signs/arrows confusing

A map would have been helpful.

I didn't even see a map, but that would've been helpful. And there weren't signs for 2nd floor dept by the stairs
| 5 | 1-1 | I wasn't very concerned with my environment. |
| 5 | 1-2 | Was no signage until basically at destination. |
| 5 | 1-3 | At first I didn't see signs that pointed the way, especially at the 1st staircase. |
| 5 | 1-4 | X by other: my cell phone ;}; I feel like I looked @ art to mark my place rather than relying on signs on my return phase |
| 5 | 1-5 | The sign for the "MGMС" was on a wall not easily visible or with other signs. |
| 5 | 1-6 | I wish there would have been a sign listing where the hospital was initially. Instead, the sign was pretty close to the destination. |
| 5 | 1-7 | Chairs for different offices were just kind of there - didn't seem to be any barrier between them |
| 5 | 1-10 | Lack of signs until you get close to destination. |
| 5 | 1-12 | I was not sure how the whole building was laid out in relation to the hospital. |
| 5 | 2-1 | Looked for signs w/ my destination on it - none on 1st floor that catch the eye. |
| 5 | 2-2 | The stairwell I used to get to the 2nd floor was poorly lit and I felt like I shouldn't be there. |
| 5 | 2-3 | This place is huge for a clinic and the layout is just different to me. |
| 5 | 2-6 | Nothing was distracting |
| 5 | 2-7 | Spiral stair case? No sign telling me different departments or what was up there. |
| 5 | 2-8 | It's kind of dimly lit in this place. |
| 5 | 2-9 | Note by color scheme checkbox: No variation to delineate spaces; note by furnishings checkbox: The gastro. Check in didn't have an obvious sign - it was on front desk which is oriented off travel path; note by other checkbox: stairs that I could have taken I passed right by - didn't notice they were there until my way back: - inside of a door, - no large/obvious sign that stairs were through door; Signage arrows are misleading - too general |
| 5 | 2-10 | Not seeing a sign for my destination on a larger sign was confusing - I just started to guess where I needed to go. |
| 5 | 2-11 | It was pretty much the same in every dept, so wasn't sure when I was in a new dept. |
I tried to follow the signs of stuff that would be in the hospital and not in the clinic.

My knowledge of the general direction of Mary Greeley.

I didn't notice anything but the signs.

Liked signs f/ ceiling & walls w/ arrows. Clearly marked hallway & entrance f/ clinic to hospital (big print, obvious)

It has a generally pleasing décor for a hospital.

Although a little frustrating it wasn't listed earlier, the signs that were there helped guide at least in the right direction.

Most signs were large and prominent - unlike the one for the place I was going to.

Lighting was the most helpful. I didn't even notice a color scheme because I was so busy looking. Floor changes helped guide.

When I located the signs they were helpful.

This clinic actually feels homey, so it wasn't stressful walking around.

Had I asked, the staff usually knows exactly where to send you.

The hallways that weren't lined with chairs made me feel like I was in a more general area as opposed to a specific dept. so I was on the right track.

The signs everywhere are helpful and the lighting and flooring make people feel right at home.

I liked the fact that the clinic departments were broken down by floors @ the elevator. There was no redundant signage.

I don't like bright white, the soft glow was easy on the eyes.

Signage was a big help and the space layout was nice & nice wide hallways not overly cluttered.

Note by signage: Did at least tell me if I was going in the right direction; Signs near elevators helpful to find space.

Once I found the sign I was looking for it was very helpful.

Hallways were lit & I could see my way.
<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>3-1</td>
<td>Signs are in good places (except for that map) they just need a few more.</td>
</tr>
<tr>
<td>7</td>
<td>3-3</td>
<td>I didn't notice the color scheme other than the crazy carpet.</td>
</tr>
<tr>
<td>7</td>
<td>4-1</td>
<td>X by color scheme is effective: big blue to mark hospital vs. clinic; X by signs were of appropriate size &amp; by font is easily legible; entrance was bigger; the path &amp; destination signs are easily distinguishable.</td>
</tr>
<tr>
<td>7</td>
<td>4-5</td>
<td>I didn't really notice the colors. There wasn't one specifically for the Mary Greenley Medical Center by name till I got to the actual tunnel.</td>
</tr>
<tr>
<td>7</td>
<td>4-8</td>
<td>Might have been helpful to have more signs all along the main hallway instead of just at the end pointing to the hospital.</td>
</tr>
<tr>
<td>7</td>
<td>4-9</td>
<td>Signs were big enough, but info on the signs in relation to their placement was ineffective. (Example on back of this sheet.)</td>
</tr>
<tr>
<td>7</td>
<td>1-10</td>
<td>The ones I used were appropriate but noticed others that were too small and printed on office paper.</td>
</tr>
<tr>
<td>7</td>
<td>2-11</td>
<td>There were no signs on the main floor that even mentioned the hospital.</td>
</tr>
<tr>
<td>7</td>
<td>2-12</td>
<td>I thought there should have been a more prominent sign for the link to the hospital.</td>
</tr>
<tr>
<td>7</td>
<td>2-1</td>
<td>Once on the right floor.</td>
</tr>
<tr>
<td>7</td>
<td>2-2</td>
<td>The signs didn't really stick out which is good (not distracting) but they could have been at a better level.</td>
</tr>
<tr>
<td>7</td>
<td>2-3</td>
<td>I think the signs are very useful and in all the right places. Very legible.</td>
</tr>
<tr>
<td>7</td>
<td>2-7</td>
<td>Should be bolder color, more coordination w/color &amp; department. They were only located at destination &amp; not b/4.</td>
</tr>
<tr>
<td>7</td>
<td>2-8</td>
<td>They were all nice and big and easy to read and all located overhead.</td>
</tr>
<tr>
<td>7</td>
<td>2-9</td>
<td>Note by appropriate size checkbox: some where; Elev. Signage could be larger because I missed an opportunity to utilize one - because I couldn't see it.</td>
</tr>
<tr>
<td>7</td>
<td>2-10</td>
<td>The only sign I saw directing me to go to my location was very small - needed to walk right up to it to read.</td>
</tr>
<tr>
<td>7</td>
<td>2-11</td>
<td>If there were signs on the 1st floor I couldn’t find them &amp; diff colored dept on signs might help.</td>
</tr>
<tr>
<td>8</td>
<td>1-1</td>
<td>I don't think patients want to be blinded with brilliant light, and they aren't.</td>
</tr>
<tr>
<td>8</td>
<td>1-2</td>
<td>I prefer the low lighting. Bright fluorescents would be distracting.</td>
</tr>
<tr>
<td>8</td>
<td>1-4</td>
<td>X by the overall lighting is adequate: lots of natural light too; I feel like I tried to veer towards natural light - like that would mark a major hallway f/ clinic to hospital</td>
</tr>
<tr>
<td>8</td>
<td>1-5</td>
<td>The levels were adequate, but I would prefer a higher level.</td>
</tr>
<tr>
<td>8</td>
<td>1-8</td>
<td>Orthopedics was closed and the lights were off, but I didn't need to go that way anyways.</td>
</tr>
<tr>
<td>8</td>
<td>1-9</td>
<td>Low lighting kept me out of a particular space. Width of halls also affected my way-finding</td>
</tr>
<tr>
<td>8</td>
<td>1-11</td>
<td>The lighting is nice in the fact that it isn't all fluorescent and takes away the institutional feel.</td>
</tr>
<tr>
<td>8</td>
<td>1-12</td>
<td>I liked that the lighting is not the typical stark lighting I am used to in medical settings.</td>
</tr>
<tr>
<td>8</td>
<td>2-1</td>
<td>Lights over important check in desks &amp; over the dept. labels was helpful.</td>
</tr>
<tr>
<td>8</td>
<td>2-2</td>
<td>As I mentioned, the poorly lit stairwell made me feel hesitant to go up it.</td>
</tr>
<tr>
<td>8</td>
<td>2-3</td>
<td>I feel like the lighting is fine just the way it is.</td>
</tr>
<tr>
<td>8</td>
<td>2-4</td>
<td>I liked the natural lighting in stairwells and open space between floors. I would like to see more lighting in the north entrance.</td>
</tr>
<tr>
<td>8</td>
<td>2-5</td>
<td>The lighting is much more dim than in many other clinic settings but I personally find it more inviting than the harsh lighting you often find</td>
</tr>
<tr>
<td>8</td>
<td>2-7</td>
<td>I like low level lighting.</td>
</tr>
<tr>
<td>8</td>
<td>2-8</td>
<td>The lighting is adequate but somewhat dim in my opinion.</td>
</tr>
<tr>
<td>8</td>
<td>2-9</td>
<td>It is soft and seems constant throughout</td>
</tr>
<tr>
<td>8</td>
<td>2-11</td>
<td>In my halls, was not a problem</td>
</tr>
<tr>
<td>9</td>
<td>1-1</td>
<td>Very constant, dull, and boring, just as I would expect from a hospital.</td>
</tr>
<tr>
<td>9</td>
<td>1-2</td>
<td>Didn't really pay attention to it.</td>
</tr>
<tr>
<td>9</td>
<td>1-4</td>
<td>I barely notice the colors of the clothes I am wearing...</td>
</tr>
<tr>
<td>9</td>
<td>1-9</td>
<td>I didn't notice a color scheme.</td>
</tr>
<tr>
<td>9</td>
<td>1-12</td>
<td>I like the color scheme, but it did not help me navigate any better.</td>
</tr>
<tr>
<td>9</td>
<td>2-1</td>
<td>Just looked for signs.</td>
</tr>
<tr>
<td>9</td>
<td>2-3</td>
<td>I like the color scheme, its very nice but it did not distract me in this study.</td>
</tr>
<tr>
<td>9</td>
<td>2-8</td>
<td>I didn't really pay attention to the color scheme at all.</td>
</tr>
<tr>
<td>9</td>
<td>2-9</td>
<td>Didn't notice a difference</td>
</tr>
<tr>
<td>9</td>
<td>2-10</td>
<td>It continued throughout all locations I was at - may have been helpful.</td>
</tr>
<tr>
<td>9</td>
<td>2-11</td>
<td>I'm sure it could be better but it wasn't a factor</td>
</tr>
<tr>
<td>Page</td>
<td>Line</td>
<td>Text</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
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</tr>
<tr>
<td>10</td>
<td>1-1</td>
<td>A floor-based wayfinding system would be interested, but I didn’t see it.</td>
</tr>
<tr>
<td>10</td>
<td>1-4</td>
<td>Carpet -&gt; tile was an obvious factor in my search for major hallway</td>
</tr>
<tr>
<td>10</td>
<td>1-9</td>
<td>I ended up going down a weird hallway (concrete?) with narrow walls. Although I was hesitant, I still entered in search of destination.</td>
</tr>
<tr>
<td>10</td>
<td>3-11</td>
<td>Carpet makes someone feel more at ease and allows them to feel less out of place in a clinic</td>
</tr>
<tr>
<td>10</td>
<td>3-12</td>
<td>I did not really notice the flooring.</td>
</tr>
<tr>
<td>10</td>
<td>3-13</td>
<td>Same colored carpet.</td>
</tr>
<tr>
<td>10</td>
<td>3-14</td>
<td>I didn’t notice any difference in the flooring.</td>
</tr>
<tr>
<td>10</td>
<td>3-15</td>
<td>Just ugly industrial carpet</td>
</tr>
<tr>
<td>10</td>
<td>3-17</td>
<td>This would be nice ((referring to floor-based wayfinding system))</td>
</tr>
<tr>
<td>10</td>
<td>3-28</td>
<td>I didn’t look at the floor</td>
</tr>
<tr>
<td>10</td>
<td>3-29</td>
<td>I think the stairs were the only flooring changes that I noticed</td>
</tr>
<tr>
<td>10</td>
<td>3-39</td>
<td>I really didn’t pay attention to the floor.</td>
</tr>
<tr>
<td>10</td>
<td>3-41</td>
<td>Flooring was repetitive every turn I made.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Page</th>
<th>Line</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>1-4</td>
<td>Furnishings are for the most part kept in separate &quot;departments&quot;, so not in the hallways.</td>
</tr>
<tr>
<td>11</td>
<td>1-7</td>
<td>I barely notice the colors of the clothes I am wearing...</td>
</tr>
<tr>
<td>11</td>
<td>1-9</td>
<td>Chairs everywhere with seemingly no purpose</td>
</tr>
<tr>
<td>11</td>
<td>1-12</td>
<td>I didn’t notice them.</td>
</tr>
<tr>
<td>11</td>
<td>1-21</td>
<td>I didn’t think it was particularly helpful, as I didn’t notice any helpful indications within the furnishings.</td>
</tr>
<tr>
<td>11</td>
<td>2-1</td>
<td>Didn’t pay attention.</td>
</tr>
<tr>
<td>11</td>
<td>2-3</td>
<td>The lack of chairs in some areas made me more confident about where I was going</td>
</tr>
<tr>
<td>11</td>
<td>2-20</td>
<td>I did notice the furnishings but they didn’t affect the finding of my destination.</td>
</tr>
<tr>
<td>11</td>
<td>2-4</td>
<td>Groups of furnishings told me I was arriving in the lobby of a particular department - It was easy to look down hallways to determine if the location might be located in that general location.</td>
</tr>
<tr>
<td>11</td>
<td>2-5</td>
<td>The furnishings didn’t harm or help at the time outside of the fact that it seemed as though different departments had different colors of waiting room furnishings</td>
</tr>
<tr>
<td>11</td>
<td>2-8</td>
<td>I have Add, And excessive flowers etc. make things hard.</td>
</tr>
<tr>
<td>11</td>
<td>2-9</td>
<td>I would say the furnishings aided slightly, seeing a desk would allow you to know you were in some sort of department and not somewhere you shouldn’t be.</td>
</tr>
<tr>
<td>11</td>
<td>2-10</td>
<td>Gastro. Name sign on check in of the space told me I had reached the destination</td>
</tr>
<tr>
<td>11</td>
<td>2-11</td>
<td>The desks at all the different locations were something I knew to look for</td>
</tr>
<tr>
<td>11</td>
<td>2-11</td>
<td>I didn’t even think to check out the furnishings, I was soley using signs.</td>
</tr>
</tbody>
</table>
They did not approach me. Normally I would have gone to the first receptionist.

The clinic's staff did not speak to me.

Though I did feel stupid turning around in front of all those ppl.

There were people present but all seemed to be otherwise occupied

I felt one lady was going to ask if I needed help, but then just continued past me.

A nurse/receptionist asked if I needed help finding something. It was tempting.

They asked if I needed help but were informed that I was performing a study.

No one approached me.

Not allowed to aid, but wouldn't had requested.

They looked at me funny though.

No one approached me to ask if I needed help or stopped me from going anywhere.

I was not approached for help by the staff but I was not walking around for long.

No one approached me during my search

No one interacted w/me

It's definitely not a planned mate between the clinic & the hospital, but I understand that they were probably not built at the same time, so I am more tolerant.

Mostly open large walkways make it fairly easy to navigate.

lots of signs, big & small w/ arrows were a big help.

The hallways seemed very winding. And confusing with many sub hallways that were the same size, which didn't create much of a visual hierarchy

Clinic and hospital didn't merge well

You can't access the hospital from this main level of the clinic, you have to take stairs to a lower level. I find that strange.

But signs need to be consistent.

Once down a floor, the hallways are very cramped. I do not see this extremely handicap accessible in both directions. Also, the hallways break and weave. It is not very easy to navigate and I think there was poor planning

The space was not difficult to navigate, but I did have trouble trying to understand the layout.

Was easy once to floor 2, but had to search for a small sign by the stairs.

The stairwell was across from a receptionist desk which was confusing.

It is very simple if you look at the signs

The layout was okay but I believe it would be confusing without the signs. Easily turned around with all the various hallways. It was nice to see "East Stairwell". The directions (North, South, etc) along with locations of departments made it easy to navigate.

The space was mostly easy to navigate but the signage could be improved at key intersections to aid with not taking wrong turns

There was no one, no overarching system, no fundamental image to catalyze the creation... Boo!

I didn't really notice an organization to the departments but the layout was relatively easy to navigate.

Lots on intersections couldn't see a common pattern in layout - sign arrows made this worse

Besides there not being a sign for my location on the first floor it was easy to navigate & find my way back.

I had enough room to navigate, but again I was only using signs & it was crowded.
- 2-4 Color schemes: The color schemes did nothing for me. I did not notice them and it did not aid in finding my locations.
- 2-4 Stairwells: The natural lighting helped me to see the stairwells and the openings between floors told me there were multiple floors. (once I saw the opening to the second floor opening - I thought my location might be on the second floor)
- 2-4 Signs: I used the signs to find my location. It was the easiest/most logical way to find it. I saw a list of departments by floor but I did not!! See any floor plans with departments.
- 2-4 Furnishings: Chairs told me waiting area; I believe a sign should be placed in the entrance (North) with a listing of departments.
- 1-5 Sketch - main sign, where you are expecting to see something for the Mary Greenley Medical Center
- 1-5 Sketch - where the actual sign was the packet containing the sign made it hard to read. It also wasn’t the same type of signage as the other sign. Also, it wasn’t on a wall that faces you. Also, not full name, just initials were used.
- 1-5 There was limited signage leading yo to the space and for the signs they did have the language used for the "MGMC" was inconsistent.
- 1-9 Sketch - showing location of good & bad signs
BIBLIOGRAPHY


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I am fortunate to have a wonderful family that even when they don’t quite understand me, still backs me and my decisions. Thank you to my father, Mike, for giving me the tenacity to work hard for what I want. Thank you to my mother, Kim, for understanding me when no one else can. Thank you to my brother, Brian, for keeping me on my toes. Thank you to my sister, Brooke, for taking my dog for walks when I’ve been stuck at the College of Design for ten hours, and thank you to my brother, Tanner, for being the calm one – it rubs off on me when I’m with you.

Also, a big thank you to my extended family, my friends, both near and far. You are who kept me sane by talking on the phone for hours about things other than this thesis, encouraging me to escape graduate student life for a while to recharge, and for being my biggest cheerleaders when it comes to chasing the crazy dreams I have. Special thanks to Sarah Zenti, who had to share a room
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Finally, thank you to anyone who has ever and will ever have to encounter my sometimes impractical zeal to meet a deadline that I set for myself. I realize that I was not the only one putting in extra time to reach my goals, and I greatly appreciate the work that others have done to make this thesis a success.