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GoPro as an Ethnographic Tool: A Wayfinding Study in an Academic Library

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INTRODUCTION

The GoPro camera was used as an ethnographic tool to build upon previous wayfinding research in libraries. Our objective was to evaluate and improve how our users navigate library spaces. Upon viewing the GoPro footage, the library staff were reminded of how it feels to be lost in the stacks. We found that it generated greater empathy among employees and motivated them to improve the user experience.

BACKGROUND

Florida State University (FSU) is a four year public institution with a student population of approximately 42,000. Robert M. Strozier is the main library on campus and has over one million people entering and exiting the building each year. The library contains six publicly accessible floors, including an annex built 30 years after the original construction. Even without doing a formal analysis to objectively measure its complexity, Strozier has a number of known trouble spots.

In 2013, the FSU Library administration requested a comprehensive assessment of the directories and signage in Strozier in order to determine if they were being used and whether or not they were helpful. In the first phase of the wayfinding study, two different surveys were distributed in order to conduct this assessment: 1) a student survey on how they locate materials in the building and 2) a survey of the library staff on what kind of directional questions they receive at the help desks. Survey results confirmed the overall usefulness of the directories, but it was interesting to learn that the majority of students prefer to speak with a human being when looking for directional help (Schoonover & Kinsley, 2014). The surveys also confirmed our hypothesis that the directories were too cluttered, and revisions to simplify the directories according to patron needs are currently underway.

However, the first phase of the study did not show us what students and faculty experienced in real time. We did not learn about significant decision or fail points in the building, how students chose to navigate the library, and what students were actually thinking and feeling as they attempted to locate materials. In order to empathize with our students— to truly understand their behavior and thought processes in the stacks— we decided to replicate the “think aloud” studies conducted at the University of Chicago (Larsen & Tatarka, 2008) and at the University of Illinois (Hahn & Zitron, 2011). In these landmark studies, participants searched for multiple items in the library while researchers followed, taking notes on participants’ wayfinding experiences and behaviors. In the current study (phase two), we expanded upon the methodology of these studies by using a GoPro camera to enhance researcher observation and notations. Our primary hypothesis was that the GoPro, worn by the participants with a chest harness, would provide an important first-person perspective, and that it would confirm what we believed to be trouble spots within the main library. We also hypothesized that males would be less likely to ask for

help and would prefer to be more self-reliant, while females would feel more comfortable asking for directions. Finally, based upon the desire to validate the self-reported responses from the earlier surveys (Schoonover & Kinsley, 2014), we believed that students would prefer to ask for help over using other wayfinding tools. Following up from the first phase of the study, we wanted to confirm whether the directories were really helpful or not. By identifying both wayfinding patterns and trouble spots, we believed the results would prescribe further improvements to the directories and signage, as well as to staff organization and practice.

LITERATURE REVIEW

The following section reviews the latest research on library wayfinding and the use of the GoPro camera as an ethnographic tool by social scientists.

Think aloud protocol in wayfinding studies

There is a good deal of literature on observing library patron wayfinding experiences, which is defined as how “human beings orient themselves and chose paths within a built environment” (Barclay & Scott, 2012, p.37). Three studies that we looked at recruited volunteer subjects unfamiliar with their libraries and asked them to locate selected materials (Eaton, 1991; Hahn & Zitron, 2011; Larsen & Tatarka, 2008). Critical to the methodology of those studies, volunteers were asked to “think aloud” as they navigated the buildings. Researchers followed closely behind, notating the routes taken, finding aids used, decision points, failure points, as well as thoughts and emotions. Important to all three studies was gaining an awareness of both the cognitive and emotional experiences of the individual user. Particularly influential to Larsen and Tatarka, as well as this study, is Peter Morville’s book, *Ambient Findability*, which argues for the “vital importance of empathy for the user” (p. 31).

The Burke Library at Union Theological Seminary conducted a more recent wayfinding study that also utilized the think aloud protocol (Baker, Bakkalbasi, & Kamsler, 2015). They sought to measure the effectiveness of their signage and recorded trouble spots for new library users, along with the average time of completion for each series of tasks. The hardest tasks included finding a Library of Congress book in the stacks and a bound periodical on the shelf. Findings from this study were similar to our results: students had trouble finding locations with naming inconsistencies, finding a book in sub-collections (reference), and they did not know how to read call numbers. The researchers in the Burke Library study were able to test the improvements they made by facilitating a second study.

The role of signage in the user experience

“Though plentiful, literature on wayfinding in libraries has often overlooked how signage guides patrons in the book-finding process” (Stempler, 2013, p. 504). Indeed, “signage is frequently

used in libraries to overcome planning and design mistakes” (Schmidt & Cribb, 2011, p. 12). However, in one recent case study of a busy library system in Silicon Valley, library staff specifically worked with a wayfinding consultant to assess and improve signage (Howe & Wilsher, 2014). This was in response to survey results that 48% of their users preferred to quickly and independently locate information rather than ask for help. A consultant was hired because they could look at current signage with the “fresh eyes” of new users” (p. 19). The implementation of simplified signage resulted in the increase of independent computer use and access and decreased the number of computer-related support questions. This helped to defray costs exceeding \$500,000 in staff time spent answering “over 215,000 computer-related questions each year” (Howe & Wilsher, 2014, p. 19). These savings most likely mitigated the wayfinding consultant fees. Another recent library case study found that improvements in stack signage led to increased library circulation of print items (Stempler, 2013).

Building layout and individual behavior

In addition to signage, a library’s layout “created by book stacks (long rows of bookshelves and narrow corridors) both increased layout complexity and decreased visibility at the same time” (Li and Klippel, 2012, p. 24). Combining “space syntax” methods with observations of individual wayfinding behavioral patterns, Li & Klippel (2012) predicted how successful users were in finding their materials (p.21). In contrast, Mandel (2013) found that patrons’ wayfinding behavior to be wildly inconsistent and observed a “variety of wayfinding behaviors” (Mandel, 2013, p. 181). Therefore, to capture this complex interaction between users and their space, researchers need a powerful observational tool, such as a wearable camera. This has prompted a growing number of anthropologists and social scientists to use wearable cameras in their ethnographic studies (Chalfen, 2014).

GoPro as an ethnographic tool

Social scientists have utilized the GoPro in order to gain an “extended first-person perspective” (Kindt, 2011; Thain, 2015; Waters, Waite, & Frampton, 2014). In a critique of the film, *Leviathan*, a documentary filmed entirely with GoPro cameras, critics state that the ability to “observe without distance” can create an embodied sense of the others’ perspective. The result is gaining knowledge or understanding that is both relational and experiential, establishing empathy for the other (Stevenson & Kohn, 2015; Thain, 2015).

Sarah Pink, a professor of media ethnography, also makes a case for “first person perspective recording” in ethnographic research. According to Pink (2015), wearable cameras capture the contextual evidence of the subject’s perspective as they move through the world in relation to people, feelings, and things. First-person perspective recording also helps maintain an unbiased and naturalistic approach to qualitative studies, allowing for experiences to be recorded as they

“emerge on the fly, in the flow of actual activity, and from the very perspective of the actor” (Pink, 2015).

Reflexivity

A researcher can utilize the GoPro camera’s hands-free capabilities, first-person perspective, and contextual evidence to promote a more collaborative research environment— a quality that is particularly necessary to qualitative research. Subjects are treated less like subjects; they have more control over what will be represented in the study, whether it’s expressed verbally in their conversations with the researcher (and recorded by the GoPro), or by physically repositioning the camera to capture something previously outside of focus. Viewing GoPro footage of the researcher and the participant’s interactions is more objective because one can analyze multiple perspectives (Singh, 2011). Creating this kind of collaborative environment demonstrates a researcher’s dedication to self-reflexivity because they lend more authority to the subjects themselves, inviting them to participate in the ongoing conversation regarding their experience. A study that allows for self-reflexivity on the part of the researcher, as well as collaboration between the two parties, promotes a model for objective analysis and social empathy (Jackson, 2004). One is less likely to interpret a subject’s behavior based on one’s bias. The use of GoPro in ethnographic fieldwork encourages a more reflexive approach to participatory research.

Case studies

Two poignant videographic studies demonstrate the benefits of first-person perspective and self-reflexivity by capturing the experience of hikers and bicyclists as they move through their respective environments (Ghekiere, Van Cauwenberg, de Geus, Clarys, Cardon, Salmon, & Deforche, 2014; Mausner, 2005). Both studies employ the think-aloud protocol as the wearable cameras record their spontaneous reactions, emotions, and thoughts. Researchers interviewed participants immediately following their experiences, further substantiating the data found in the videos.

METHODOLOGY

Phase II of the FSU Wayfinding Study

Since phase one focused on student self-reported use of library wayfinding tools (Schoonover & Kinsley, 2014), phase two was implemented as a follow-up study to observe and measure the actual wayfinding experiences and navigational behaviors of students. In order to assess how undergraduates, who were generally unfamiliar with the main library, locate print materials, it was necessary to observe their experience first-hand. This experience comprised of locating three books in three different locations in the library. These observations would alert library staff on what improvements to maps, signs, and other finding aids in the library would be

necessary to improve students' experiences. Researchers hoped to learn about the significant decision and fail points in the building, how the students choose to navigate the library, and what students are actually thinking and feeling as they attempt to locate materials.

Participant demographics & protocol

Twenty-four undergraduate students were recruited in the library to participate in an observational wayfinding study in the spring of 2014. Volunteers unfamiliar with the library were selected: 12 females and 12 males were recruited to measure for potential sex differences in tools selected and behaviors observed. This sample size was chosen so that hours of GoPro footage collected could be manageable in the analysis stage. Recurring patterns and themes quickly emerged from the sample population, so no additional subjects were necessary.

Students were required to fill out an informed consent form to participate in compliance with an approved FSU Institutional Review Board Human Subjects Application. Students agreed to wear a GoPro camera via an attached chest harness and be accompanied by a researcher who would take notes and prompt them to think-aloud about their experience. Students were told that the GoPro would be recording their responses and would not reveal their physical appearance, as the camera was pointed away from their face. The researchers told the subjects that they would be observed to assess how effective signs were and how they found resources in the building. They were told that their personal performance would not be evaluated. Participants were aware that the activity could potentially take up to an hour and that a brief follow-up survey would follow the recording. A \$15 gift card to Starbucks was given to each participant at the end of the study. Confidentiality and anonymity were ensured. Videos did not contain information about the participant's name or identity and were not connected to signed consent forms. A form to protect unwilling bystanders from being identified during filming was also carried by the researchers in case anyone approached them during filming that were concerned about being recorded. This form gave the concerned bystander the option of ensuring that their image was deleted entirely from the video or that their image would be blurred.

Data collection & analysis

Once the GoPro was attached with the chest harness and recording, students were given a list of three clues necessary to locate three different books. These particular books were selected because each presented a different level of difficulty or challenge due to the space syntax of Strozier. Note that each book had a different piece of information listed:

A reference item:

The Vampire Encyclopedia

Call number:

D755.7 E8

Book title and call number:

The Kidnap Business

HV6595 B54 1987

Students were instructed to find these items using whatever tools or methods they normally used to find materials in the library. A single researcher accompanied the subjects with a clipboard and copies of each floor map. The researcher recorded the routes taken, where students stopped or got confused, where they asked for help, where they used computers or mobile devices, and where they looked at signs or directories. Researchers also observed and notated the students' behaviors, decisions, thoughts, and emotions. Researchers could not answer questions to aid the participants, but did encourage participants to think-aloud with the following prompts:

1. How are you feeling about navigating the space at the moment?
2. You appear to be _____. Describe your experience in one word.
3. I noticed you seem to be _____. What are you currently experiencing?
4. What are you looking at right now? What are you thinking?
5. From 1 to 10, 10 being the most difficult search, 1 being the easiest, how would you rate finding this item?
6. How was that experience?
7. What suggestions do you have for making the signage better now that you have experienced finding three items?

Immediately following the searches, participants were given a debriefing survey. By having a debriefing survey, we wanted to give the students a chance to reflect on their experiences and provide suggestions for improvement. We felt that it also helped to validate what we observed with the GoPro footage.

All 24 participants were asked to rate their experience finding each of the three items followed by three open-ended questions about their overall experience: (a) what would have helped them find items more efficiently, (b) what was most challenging and (c) what helped them locate items? (See Appendix).

In summary, we analyzed GoPro observation data, observer map notes, and the debriefing survey results. Analyses included qualitative and quantitative data which was used to test hypotheses. Additionally, a grounded theory approach was applied as researchers observed repeated patterns and themes as subjects used wayfinding tools. This approach allows for the "discovery of theory from data" (Glaser & Strauss, 1967, p.1), and was combined with the testing of hypotheses using qualitative and quantitative analyses.

RESULTS

GoPro Observational Data

The GoPro footage for 22 students supplied both qualitative and quantitative data that verified researcher observations and perceptions. Although 24 students were observed, video footage was not recorded for one subject and footage from another subject was stored in a non-readable file. In this section, results for wayfinding tool use, time and frequency, and student comments/emotive responses are shared.

Students used the following wayfinding tools:

- Computer (library catalog)
- Directories (see Figure 1)
- Help (either library staff or non-library persons)
- Smart Phones
- Signs (includes row signs and wall/ceiling mounted signs)
- Maps (includes online or printed floor maps) Note: online floor maps, powered by StackMap software, are available for each physical item in the library catalog. The online map displays a visual of the floor, library stacks, a row number within a call number range and the item's call number (see Figure 2)
- Combination of tools

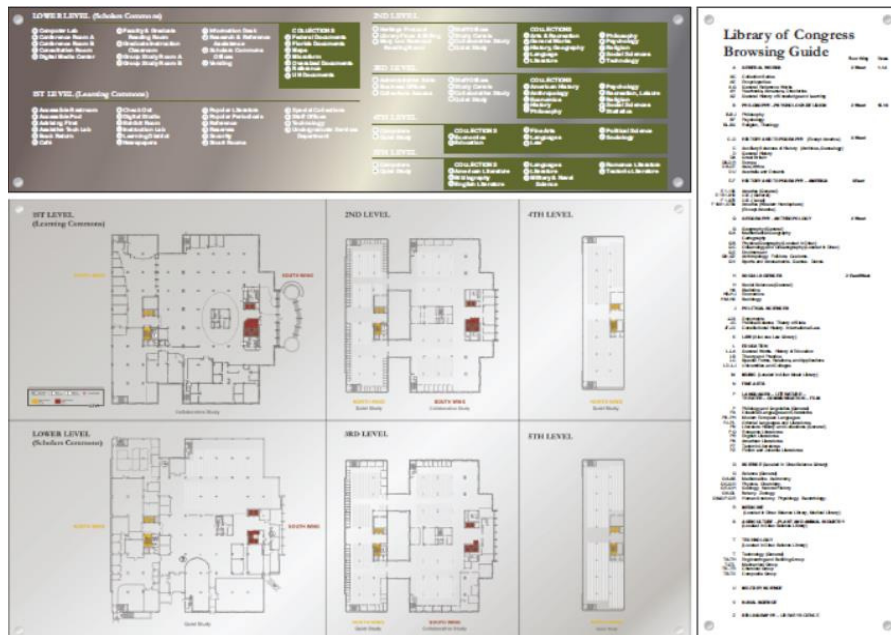


Figure 1. Example of a directory.

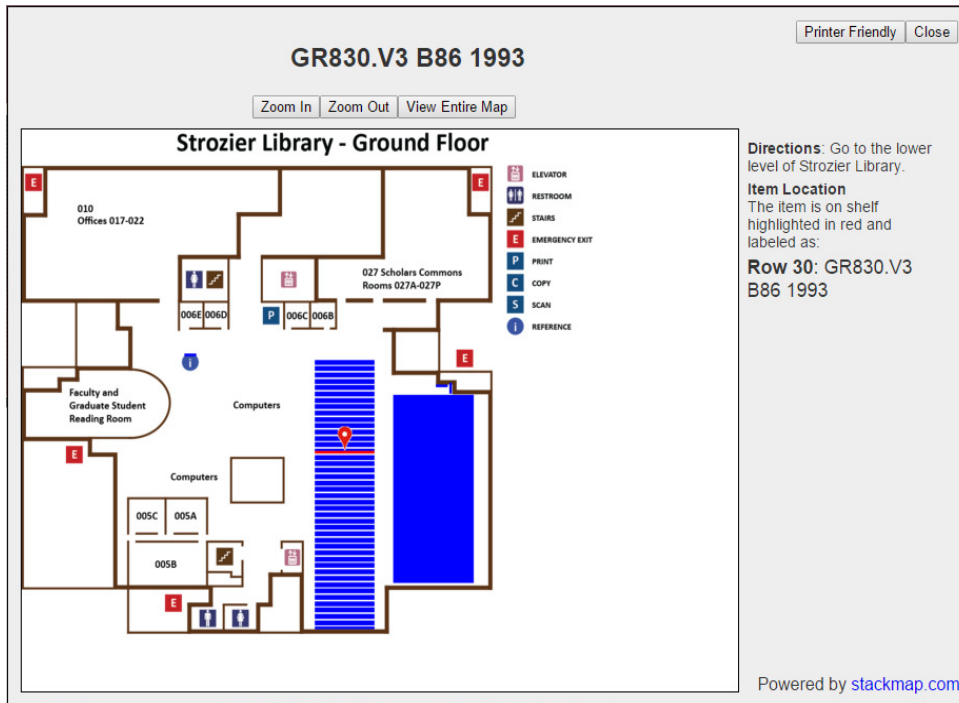


Figure 2. Example of an online StackMap.

Interestingly, people who used directories took longer to find their items. Only 4 out of the 72 total searches were found as a result of using the directories, and a little more than half of the time (56%), people walked away from a directory with no information. Fourteen participants did not use a directory at all (58%).

Although there appear to be no major sex differences in success times, there does seem to be a relationship between the sexes and their choice of wayfinding tools. The most significant difference is the use of the directories: all of the males in the study utilized the directories 21 times, and females only used them 7 times (see Figure 3). Both males and females asked for help 21 and 22 times, respectively. Regardless of sex, the maps and signs were the most frequently used tools, while phones were the least used. Smart phones were only used 4% of the time. Of the 74 uses of signs, 57 were row signs. Subjects had trouble using the row signs because of confusion over the call number system and the layout of the rows.

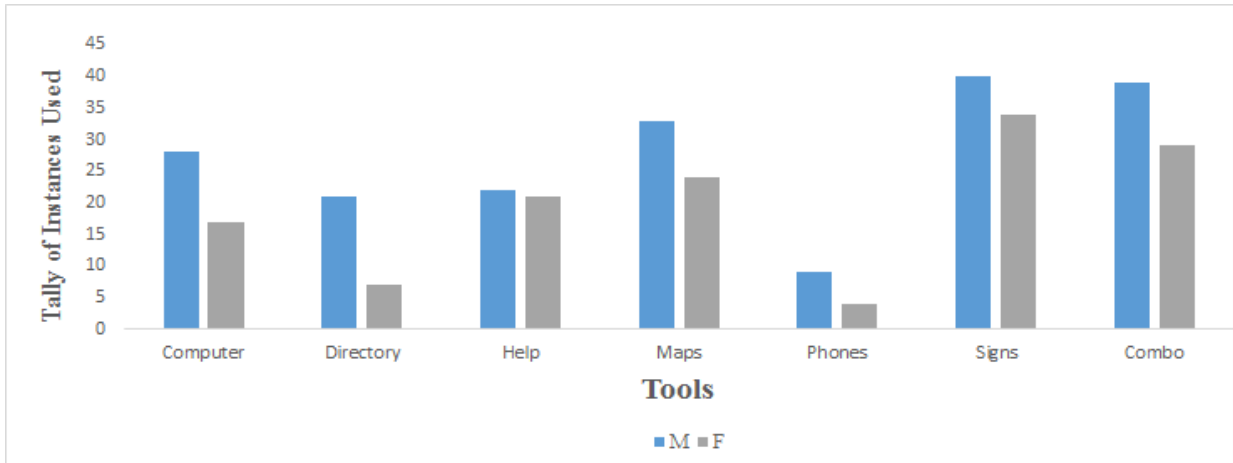


Figure 3. Tool usage by sex.

Those who used the StackMap function in the online catalog had a marginally faster search time (1%). However, not all participants used the online floor map correctly. The most successful participants used both the call number and the row number provided in the StackMap display (see Figure 2).

The overall average time to find one item was 12 minutes, while 6 out of 22 found all three items in under 15 minutes (see Figure 4). Viewing the help desk interactions showed that students who asked for help at the beginning of the process found their items faster and were more successful in their searches. In general, it took longer to find the items that were in areas we already knew were trouble spots in the building (i.e., the reference collection and the 4th floor items).

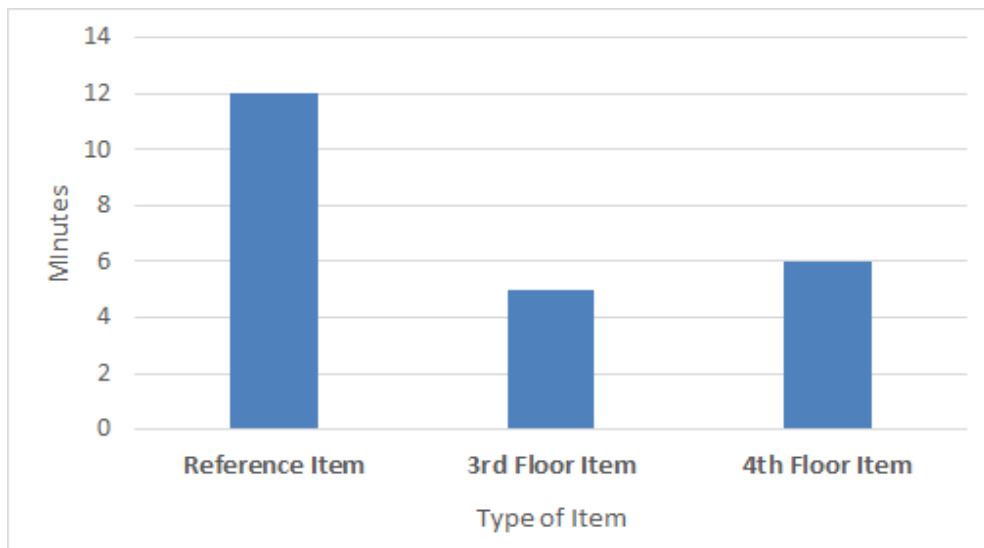


Figure 4. Average time in minutes by type of item.

Comments and emotive responses were connected to specific locations in the building (see Figure 5). We captured repeated phrases like, “It’s a little intimidating now,” “Shit, that’s confusing!,” and “I feel overwhelmed.” In addition, subjects commented on the numerous names we have for the Lower Level (i.e., Lower Level, Basement, Scholars Commons, and Ground Floor).



Figure 5. Comments and emotive responses.

Debriefing Survey & Cluster Coding

In the debriefing survey, students reported that the online floor maps and human help were the most helpful wayfinding tools (See Appendix). Responses indicated that the most challenging part in finding items was looking for the reference collection in compact shelving, understanding call numbers, deciphering row arrangement, and being aware of splits in the collection by floor (See Figure 6).

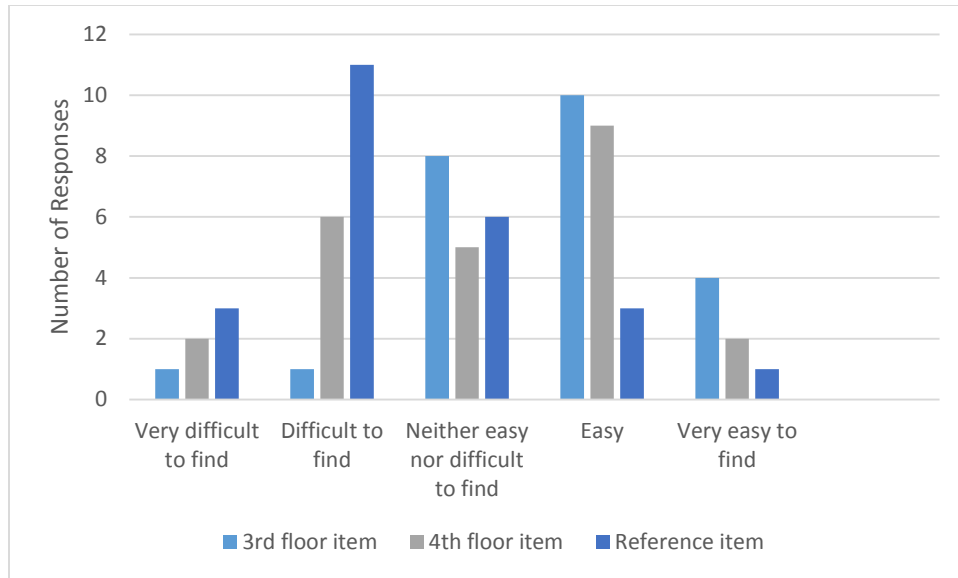


Figure 6. Results of findability per item and participant.

In the survey, student suggestions for improving efficiency in finding items generally revolved around having better signage (this included signs for rows/call numbers, floors, online and paper maps, and directories). Bigger, better, updated, and more prominently placed signage and numbers were suggested many times. Even types of signage were suggested, such as: “a sign that would tell you which rows are on which side of the library for each floor,” clearer signage designating subcollections like reference, and bigger signs indicating what floor one is on. One successful searcher offered that we find a way to “advertise what call numbers are” and “build an app that would allow people to access that system from their phones.”

Survey responses coincide with observation notes of behaviors recorded on printed StackMaps for each floor. Combining observer notes by mapping behaviors provided a visualization of both wayfinding patterns and trouble spots. Observer notes were coded and mapped by indicating behaviors with colored dots at the location they occurred (See Figure 7). Clusters of dots in one particular location could then be clearly visualized.

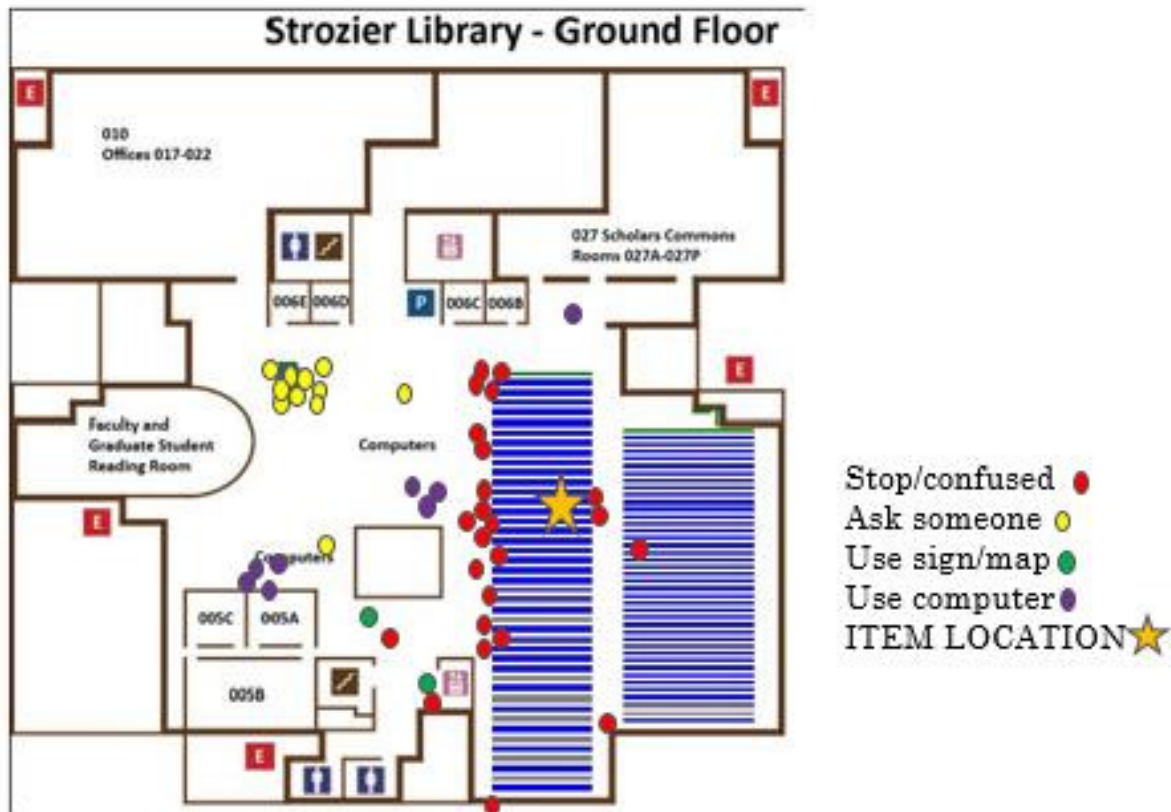


Figure 7. Cluster map of behaviors on the ground floor.

For example, Figure 7 illustrates a swath of red dots along the ground floor compact shelving (represented by blue lines for every row of stacks). This indicates all the instances participants were stopped and confused. On the ground floor it was largely due to compact shelving areas containing multiple collections in close proximity. The reference collection is surrounded by, at minimum, four other collections. The clusters of red dots along the rows of compact shelving was also indicative of confusion about using the compact shelving.

DISCUSSION

Using the GoPro as an ethnographic tool, we found that (1) it provides a first-person perspective of the student wayfinding experience and (2) confirms known trouble spots in the building. In the following section, we discuss some of the results of the study, as well as benefits and drawbacks of the GoPro camera, local applications of the study, and future research ideas.

Discussion of results

In contrast to our first study, directories were found to be confusing and generally not helpful. Students felt positive about the help desk staff, even though the researchers observed inconsistencies in the kind of help students received. Occasionally, the GoPro captured a

disconnect between what happens at the help desk and what happens in the stacks. Just because a person received help does not mean that they found items quickly and easily. Interestingly, the top five most successful searchers received quality help. However, the least successful also received desk help. The difference between the successful and unsuccessful searchers was the quality of help received. Students who were most successful interacted with help desk staff who performed the following behaviors:

- Looked up the item to confirm location, collection, and availability
- Made it a teachable moment
- Used StackMap (showed both the map and the row number)
- Directed users to the annex elevators
- Escorted the user to the stacks when necessary, or found someone who could

Visualizing the cluster-dots, in combination with the video footage, gave a clear understanding of where and why students were unsuccessful in their searches. These “cluster maps” were particularly effective when discussing signage needs with library administration, as well as quantifying trouble spots with both the Collections Access and the Public Services staff. Assumed trouble-spots in the building were quantified by frequency of occurrence and duration (length of time it increased search time), and the think-aloud protocol helped researchers more fully understand and confirm the location of those trouble spots.

Applications

We applied the results of the study in two primary ways. First, we made several suggestions to StackMap, our online floor map vendor, to more clearly identify the row number and call number for each item on the floor map. This was critical, because correctly identifying the row number of the item led to the quickest and most successful searches. StackMap was responsive and quickly made the adjustments. Second, we presented numerous video clips from the study to the Collections Access and Public Services departments, and to Library Facilities and Marketing & Communication. The clips showed examples of good interactions between subjects and library staff members that led to successful searches, as well as students who were frustrated and confused in the stacks. Library staff exhibited strong reactions of empathy for the students, and the components of successful staff interactions were discussed. In addition, trouble spots in the building were identified for future signage development. As a result of the discussions, Collections Access began a new practice of routinely roaming the stacks to look for students in need of assistance.

Performance anxiety and presence pressure

We selected the GoPro in the hopes that the chest harness feature would prove to be less intrusive than a regular camera, and create a more authentic behavioral, first-person perspective.

It worked to reduce a subject's performance anxiety by giving less attention to the presence of a camera directed at them, creating a more "natural capture;" the GoPro and the subject's perspective would ideally become one (Chalfen, 2014; Frers, 2009).

Even though the GoPro camera and the participant were one unit (Waters et al., 2014), participants still may have felt the need to adjust their behavior because they were accompanied by a researcher with a clipboard taking notes. "Depending on the way the camera-researcher is oriented, people are compelled to or are enabled to adjust their behavior" (Frers, 2009, p. 159). The Hawthorne effect (Sedgwick, 2012) played a role with this study as a subject's sense of being observed was heightened, and led them to make less characteristic choices as a result of this "presence pressure" (Kindt, 2011).

Despite being given instructions not to worry about one's performance, students still acted at times as if their own abilities to find things quickly or competitively were being compared with others. For example, one student told a researcher that they normally go straight to the desk for help, but she viewed the study as a challenge and wanted to accomplish the task individually. Behavior might also have been affected because the participants knew we were assessing signage and directories, such as the one participant who admitted that they would normally ask for help if they were on their own instead of using the directories. Therefore, the GoPro can potentially either increase or decrease the level of performance anxiety a subject may feel.

Other Benefits and Drawbacks of the GoPro

There are many advantages to utilizing the GoPro camera in research. An obvious benefit of the technology is in getting beyond the previous limitations of research, to provide audiovisual data in a hands-free, unencumbered way (Chalfen, 2014; Kindt, 2011). It's difficult to track movement and record dialog at the same time with conventional note taking. Students move quickly, change directions, and talk fast. The GoPro helped us to fill in the blanks, go back, review, and compare with our notes. Pink (2015) states that even the most attentive observer will miss much information, and so in this sense the GoPro offers a complementary source of data. In combination with the think-aloud protocol, the GoPro provides further context, including mood, thoughts spoken aloud, behaviors, and point of view (Waters et al. 2014). The physical simplicity of the GoPro is both easy to operate on the part of the researcher and fun for students to use. The GoPro editing software is also user-friendly. For research analysis, the software makes it easy to quantify duration and tally frequency of observed behaviors. Therefore, while there certainly is value to hiring consultants and signage companies, this observational study using the GoPro has shown us that we are more than capable of performing our own wayfinding assessment at minimal cost.

Although there are countless rewards for the GoPro's role in research, there are also accompanying difficulties that should be acknowledged. Wearable cameras (either attached to

the chest or forehead), may not capture what the participant is actually seeing due to incorrect positioning (Mausner, 2005; Waters et al., 2014). For example, in our study, camera footage occasionally focused on what was underneath a computer table rather than what the student was actually viewing on the computer screen.

Future Research & Next Steps

This study generated a number of ideas for future research. We intend to conduct a follow-up study replicating the methodology to determine whether search times decreased overall as a result of any improvements made in the wayfinding system. However, we have discussed replicating the study without the accompanied researcher - relying solely upon the GoPro for data collection. This form of documentation might measure a more authentic experience for users and lessen performance anxiety. However, we might miss critical data if we do not have a researcher prompting the subjects to think-aloud.

Additionally, we are also curious about the long-term effects of the video clips on library staff behavior. After watching footage of lost and frustrated students, along with examples of both good and bad staff interactions, many staff members expressed an increase of empathy for the students. Does this have a lasting effect on staff behavior and practice?

It is necessary to consider the ethical research boundaries where the GoPro should not be used. For example, secret shopper studies represent this ethical dilemma. Video footage without a participant's consent would be too invasive and inappropriate. However, the GoPro has many other viable uses for other wayfinding studies. For example, Gulf Coast State College used GoPro cameras for a study they called "Journey Mapping," which assessed how students accomplish various tasks in the library such as reserving a study room ("User Experience," 2015). Another use for the GoPro is to work with library users to create five minute, first-person perspective library video tours or tutorials to teach other users how to navigate the space.

Another question that emerged from this research is whether digital natives are more adept at navigating their physical world with technology or whether this hinders their ability to navigate physical spaces. Researchers observed lost students ignoring physical directories and obvious signs. Is this because they are digitally or device dependent? However, only 4% of the total number of tools used were smart phones. Perhaps we simply need to market mobile access to the library, or maybe there is an opportunity to research why students use their phones for so many things, but do not appear to at the library.

CONCLUSION

We improved upon our previous wayfinding study (Schoonover & Kinsley, 2014) by capturing the GoPro first-person footage, coupled with the think-aloud protocol. The GoPro also helped us

identify significant decision or fail points in the building, how students choose to navigate the library, what wayfinding tools they use and how they use them, and what they were actually thinking and feeling as they attempted to locate materials. Viewing the GoPro footage provided an important first-person vantage point and allowed us to see the building layout and signage with fresh eyes. It also inspired empathy for students and the frustration and confusion they felt from experiencing sometimes lacking or faulty wayfinding tools. We discovered that males and females seemed equally likely to go ask for help, though there were some sex differences in wayfinding tools used. Finally, based upon the desire to validate the self-reported responses from the phase one survey (Schoonover & Kinsley, 2014), we believed that students would prefer to ask for help over using other wayfinding tools. However, our findings revealed that this was not the case. Students did not prefer help over other wayfinding tools. This finding is inconclusive though, because students seemed to want to prove to themselves and/or the researchers that they could do it on their own.

An effect that we did not set out to measure was also discovered: sometimes people who did go for help, did not receive key pieces of information, such as how to find the annex elevators, or how to read a call number and book stack row numbers. Without the help desk staff giving certain key clues, subjects still encountered typical trouble spots without knowing what to do. After watching students use our online maps (StackMap) independently, we discovered the need for their immediate correction as well. There are a number of complex factors that contribute to unsuccessful searches. We did ultimately confirm that the directories are not helpful, and at a minimum need immediate simplifying and updating.

In summary, wayfinding tools can be unhelpful, even detrimental, to finding items. There are a variety of combinations that people used. We began the study with the assumption that if students got help from library staff that their searches would be faster and more successful, but we learned that receiving help does not necessarily mean success. From reviewing video footage, we can clearly identify what good, quality help looks like: help that leads to quick, successful searches. Finally, we established that subcollections and the accompanying signs, as well as the four different names that we use for our Lower Level, are all confusing to users.

As researchers, we determined that one of the key findings from this study is that the GoPro can provide a closer impression of “walking in a user’s shoes.” We learned just how confused and lost many of our students are in the library, and that the building, signs, and directories need to be designed with the students’ consideration or input in mind. Finally, the GoPro is an effective ethnographic tool for applying self-reflexivity by increasing an objective perspective of user navigational patterns, while also generating researcher social empathy for the user experience.

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Appendix Debriefing Survey

Rate your experience in locating these three items on a scale from 1 to 5, 1 being the most difficult to 5, being the most easy to find:

	Very difficult to find	Difficult to find	Neither easy nor difficult to find	Easy	Very easy to find
1. A book or material located in the 3rd floor South section	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. A book or material located in the 4th or 5th floor annex (East or West)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. A book or material located in the ground floor/basement in the Reference section.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How was your experience overall? Please answer the following questions.

4. What would have helped you find items more efficiently?

5. What was the most challenging part in finding items?

6. What helped you locate items?

