

GARMIN PROPOSAL

October 2011

PROJECT BACKGROUND

Garmin Ltd. develops consumer, aviation, and marine technologies for the Global Positioning System. Most current Garmin devices can display the current location on a map. The maps are vector-based and stored in the built-in memory or loaded from additional flash media. The built-in displays all country borders and major cities. Garmin offers a wide variety of maps for purchase, including detailed road maps, topographic maps and nautical maps. Non-commercial maps are also available and can be displayed on most Garmin GPS devices.

RESEARCH OBJECTIVES

Garmin, maker of handheld and automobile GPS navigators, wants to develop a new approach to direction mapping that integrates elements of the natural world that can help with navigation. In support of this goal, Calicocho is conducting design research that will uncover unique insights into how people with navigational needs currently use signs in the natural world to get around.

KEY QUESTIONS

1. How do people prepare for a trip to an unfamiliar destination?
2. How do people remember their routes?
3. What are the differences between navigating through nature and the labeled world?
4. What elements are important to people when giving or following directions/creating a mental map?
5. How does technology influence the way people navigate?
6. How do navigation strategies and methods differ with extreme users (e.g. visually impaired or occupational navigators) and non-extreme users?

PARTICIPANT SEGMENTATION

Residents This group will represent people who are familiar with San Francisco.

Tourists This group will represent people who are not familiar with San Francisco.

Extreme users (e.g. delivery workers, blind people, outdoor city officials) This group will represent people who have unique navigational strategies.

Outdoor navigators This group will offer perspective on navigating the non-labeled world.

Our study will include participants who rely on navigational technology as well as participants that do not. We will focus primarily on pedestrian/bicycle/mass-transit navigators, but we will include a few drivers in the study as well.

RESEARCH METHODS

Homework Participants will receive a package with a homework exercise. They will use their own camera to take a minimum of 15 photos of a familiar route they frequently navigate without a car. Completing this homework should take no more than about 30 to 45 minutes of participants' time spread over a week. The purpose of this activity is to gain insights about how the participants remember their routes, what differences there are between navigating through nature and the labeled world, and what elements are important to them when giving or following directions/creating a mental map.

Task Analysis Prior to being interviewed, participants will draw a map of their neighborhood from memory, noting all points of interest. We will ask participants to walk us through their maps in detail and tell us about their neighborhood. Participants will be able to add more detail to their maps as they find necessary. The purpose of this activity is to gain insights about our subjects' mental models.

RESEARCH METHODS, CONTINUED

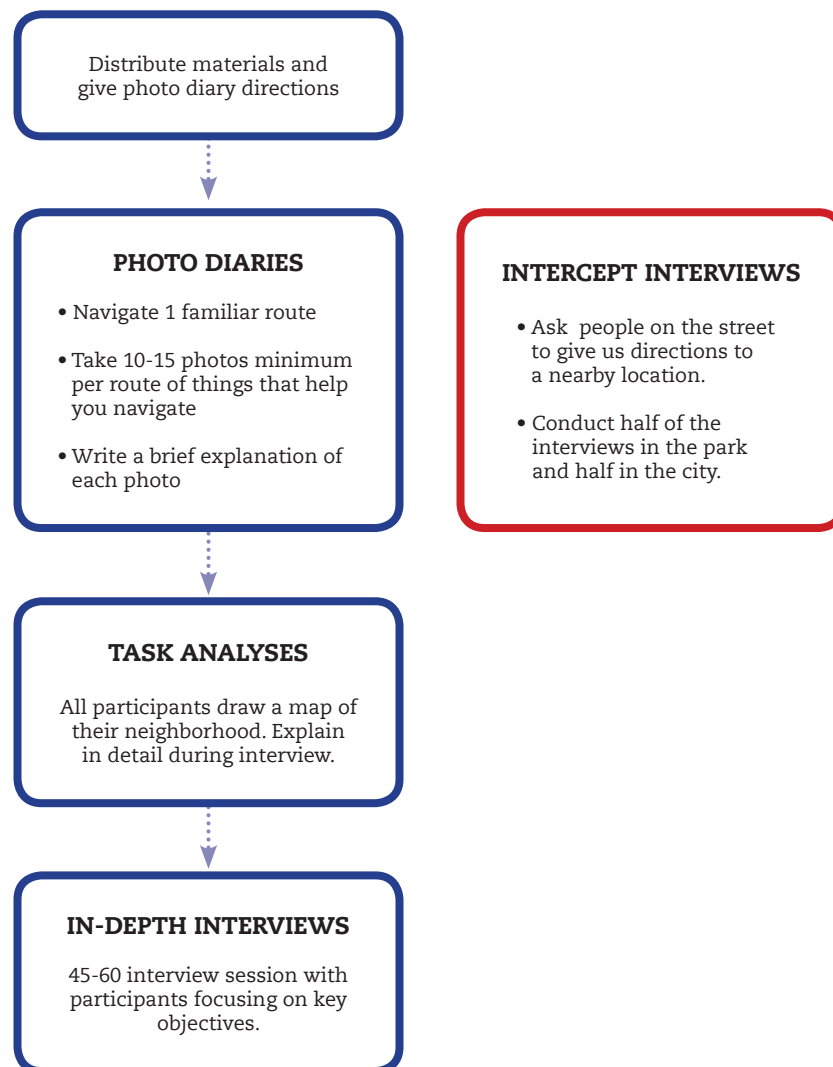
In-depth Interviews We will interview all of our participants either in-person or via Skype to learn about their experience of navigating based on our key objectives. We will have a minimum of two researchers per interview session, so one can guide the discussion while the other can take notes and record video. The purpose of this activity is to gain insights about how people remember routes, what physical elements are important when creating mental maps, how technology influences navigation, and how navigation methods differ from extreme (visually impaired) users and non-extreme users.

Intercept Interviews In addition to our in-depth interviews, we will also conduct a series of brief intercept interviews. These interviews will consist of asking for directions in a park setting as well as in the city. These intercepts will not be video or audio recorded. The purpose of this activity is to gain insights about how people organize and communicate routes to others, and what physical elements are used when giving directions.

DELIVERABLES

- A PowerPoint presentation that answers the key research questions and provides an overview of patterns in attitudes and behaviors around navigation discovered from the participants
- An infographic of the various personas we discover from the research. These fictional archetypal users will become a useful tool to deliver a useful and usable solution
- A video summary of our findings
- A physical 3D model of our discoveries around people's path finding

PROPOSED WORKFLOW



Screenener

Team Calicocho for Garmin

RECRUITING OBJECTIVES

- Recruit 16 participants to keep 15
- All of the participants must speak English
- The participants must frequently engage in non-car navigation.
- Participants must be a mix of
 - Residents (of various years) *Recruit one lifetime resident*
 - Visitors/Tourists *Recruit 3-4*
 - Professional non-car delivery workers *Recruit 3-4*
 - Outdoor city officials (park guides, police officers) *Recruit 2-3*
- Participants must possess a mix of navigation skills (ranging from accurate, average, to poor)
- The sample must represent a mix of technology-use levels (ranging from frequent, average, to none)
- Mix of extreme, (visually impaired) and non-extreme users.

SCHEDULE

- Ten (10) 1-hour contextual visits with the participant in their home.
- Five (5) of the ten (10) participants will be asked to lead us on a 30-minute walk from their home to one of their frequent destinations.

Disclaimer for Termination:

Thanks for your time. Unfortunately we only needed a limited number of individuals in each profile and we have already recruited as many individuals as we need with the profile that you represent.

INTRODUCTION

(For use in interception-type recruiting)

Good morning/afternoon/evening, my name is _____ and I am a graduate Design student of California College of the Arts. My classmates and I are currently conducting a study to understand how people with navigational needs currently use signs in the natural world to get around. I am not trying to sell you anything, and everything you say will be treated in the strictest confidence. Could I have a moment of your time to ask you a few questions?

INITIAL SCREENING

1. Are you 18 years or older?

- Yes
- No **Thank and terminate**

2. Do you own a digital camera?

- Yes
- No **Thank and terminate**

3. Are you a resident of San Francisco or a visitor/tourist?

- Resident **Go to #3.**
- Visitor or tourist

4. As a resident, how long have you lived here?

5. What is your main mode of transportation?

- Walking
- Biking
- Public transportation:
 - Bus
 - Subway (**1 or 2 people to compare**)
 - Trolley
 - Car (**1 or 2 people to compare**)

6. What is your occupation?

Write response verbatim. (Note if professional navigator or outdoor city official).

7. Which navigation products do you use/own? **Check all that apply.**
- GPS device (car use only)
 - GPS device (non-car use)
 - Smartphone
 - Online maps
 - Other _____
8. How frequently do you go to large outdoor areas (i.e. parks, camping trips, etc.)?
- Frequently
 - Infrequently

DEMOGRAPHICS

In which of the following age ranges do you belong?

- 18 - 25
- 26 - 35
- 36 - 50
- 51+

With what gender do you identify?

- Female
- Male
- Other _____

What ethnicity are you?

CONFIRMATION OF PARTICIPATION

You will receive a package with a homework exercise within the next few days. You will get a sketchbook and a disposable camera. You will use the camera to take pictures of various life events wherein you navigate without a car from one destination to another. You will draw three of these routes in the sketchbook, along with written descriptions of your experiences. Completing the homework should take no more than about 30 to 45 minutes of your time spread over a week. Would you be able to complete the homework exercises?

- Yes. Continue
- No. **Thank and terminate**
- I don't know. **Thank and terminate**
- Refused. **Thank and terminate**

If you agree to participate in this research, our student research group, comprised of four people, will visit you at your home for a 1-hour interview. We will also possibly invite you to lead us on a walk from your home to one of your regular, nearby destinations. This walk would last approximately 30 minutes.

For your participation in this project, you will receive \$_____ (not including the reimbursement for the photos). If you are selected for the 'nearby destination walk,' you will receive an additional incentive of \$_____.

Would you be willing to participate in our research study?

- Yes.
- No. **Thank and terminate**

PRIVACY CONFIRMATION

Our interview with you will be videotaped and audio taped. Only the team working on this project will use the tapes and your name will not be associated with the tape or other data in any way. You will be asked to sign an informed consent form. Are you willing to be videotaped and audio taped?

- Yes.
- No. **Thank and terminate**

We are currently scheduling appointments for in-home interviews and walks on _____. Would you be available for the 1-hour interview and 30 minute walk sometime during these days?

- Yes.
- No. **Thank and terminate**

SCHEDULING

[Recruiter: Please schedule the appointment.]

Time: _____

Date: _____

Would you please spell your name and give me your address so that we can send you the invitation and homework for this study?

Name: _____

Address: _____

GOODBYE

We want to thank you for agreeing to help us with our research project. Because we are inviting only a limited number of people to be part of our study, your commitment to participate is very important to us. If you are unable to complete the interview, please contact us as soon as possible. Do you have a pen and paper available to write down our phone number?

Our phone number is _____

Please ask for _____

Thank you!

Discussion Guide

Team Calicocho for Garmin

Format

A. Brief Intercept Interviews

Locations: mall, park, and city.

Prompt: Our team will pretend to be lost, and ask nearby people how to get to a particular destination. These intercepts will last approximately one to five minutes in duration, depending on their nature.

B. Voluntary Blog Solicitations

A blog for gathering stories about navigation will be created. To advertise the blog, a post will be made on Craigslist. In addition, posters will be posted throughout CCA's San Francisco main building. Students can contribute written stories, photos, and videos. Our team will curate the submitted post.

C. Formal Interview

Process

First Meeting

1. Introduction
2. Homework Discussion

Second Meeting

1. Map Drawing and Task Analysis
2. Interview Questions
3. Map Alteration Opportunity

First Meeting

Introduction

Hello, my name is _____, and with me I also have _____ and _____ who are working with me on this project. From this research, we want to know what elements of the natural world can help with navigation. We want to hear stories from your life, no matter where, when, or whom with they occurred, that will give us a picture of what influences navigation in a positive and negative way. We are also going to discuss your ideas for future solutions that will enhance your overall experience with navigation.

Before we begin our conversation, I want to explain a few rules:

- I do not work for the company that is sponsoring this project, so feel free to express your honest opinions. You will not please or displease me if you say something for or against a certain topic.
- There are no right or wrong answers.
- Please be careful to speak one at a time so we can hear you clearly on the audio recording.
- We are recording audio and video for research purposes only. The footage will not be used in public.

Let us begin with introductions. Please tell me:

- Your name
- What you do

Homework Discussion

Homework Participants will receive directions for a homework exercise. They will use their own camera to take a minimum of 15 photos of a familiar route they frequently navigate without a car. Completing this homework should take no more than about 30 to 45 minutes of participants' time spread over a week.

Prompt: Please take 15 photos of one familiar route that you frequently navigate without a car. You will have one week to complete this assignment. When completed, please email your photos to _____@_____.com.

Second Meeting

Map Drawing / Task Analysis

Location: Interviewee's home or CCA room.

Prompt: Draw us a personal map of your neighborhood. Mark your house and landmarks that are relevant to you. In addition, note things you pay attention to. Accuracy is not important.

After Map Drawing and Interview Questions, ask the participant if he or she would like to make any alterations to their map.

Interview Questions (by category):

a. Background

1. Where are you from?
2. Tell me about your hometown.
3. *(If a resident)* When did you move to San Francisco? How did you find the transition?
4. Have you changed the way you find your way around recently? If so, what was the reason for the change?

b. Getting Lost

5. Tell us about an incident in which you got lost. How did it make you feel? What did you wish you had?
6. Has getting lost ever turned into a surprisingly delightful experience? How?
7. What is your definition of getting lost? What defines the moment when you are no longer lost? How many trips does it take for you to become familiar with a location?

c. Navigation Skills and Methods

8. Which of the five senses do you use to find your way around? (sight, touch, smell, taste, hearing) Do different routes require different senses?
9. What types of visual cues are most useful to you in receiving or giving directions? (ex: street signs, landmarks, stores, etc.)
10. Do you consider yourself to have a good sense of direction? Among your friends, who has the best and worst sense of navigation, and how do you know?
11. Describe an experience you have had with a good direction giver. What about an experience with a poor direction giver?
12. Do you prefer navigating alone or navigating with others? Which way do you think is more efficient and why?
13. Describe a recent unfamiliar place you have visited. What do you remember? What preparation did you need before going, if any?
14. How do you plan a road trip?
15. How do you remember where you have parked your car in a large lot?

d. GPS & Navigation Technology

16. Some people believe our reliance on technology is making us smarter, while others believe our reliance on technology hinders our memory skills. When it comes to relying on navigation technology, what are your thoughts?

17. Do you prefer relying on technology or being without it?
18. Tell me about a time in which navigation technology let you down or created a frustrating experience. Tell me about a time it comforted you.
19. Have you ever followed your GPS even when you thought it might be wrong?

e. Nature and Animals

20. Do you use photos to navigate? (ex: Google Maps Streetview)
21. Do you have a favorite spot in nature that you go to? If so, tell us about it.
22. Have you gone to Golden Gate Park or the Presidio? If so, what caught your eye there?
23. Do you walk a dog? If so, what kind of things do you notice on these walks?
24. How important are celestial elements like the sun, moon, and stars to you in understanding your location and direction?

e. Video Games

25. Do you play video games on a regular basis?
26. Improvised questions based on responses.

After Interviewer has completed her questions, other research team members will have an opportunity to ask the participant any questions which may have been left out, or which could benefit from elaboration.