Evaluation and Reconstruction Planning

Assignment G4

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Totals

Phyliss – 8

Justin – 6.5

Steve – 11

Nikola – 9

Tong – 8.5

Evaluation Techniques

From the development of our first prototype in G3, our objectives from performing evaluations on our initial prototype were to learn whether or not our prototype satisfied design requirements and how well our prototype met the expectations of the design requirements. As specified in G3, the three evaluation techniques we have chosen to perform are the Think Aloud, Cognitive Walkthrough, and Heuristic Evaluation.

Think Aloud

We will perform this technique on users from our primary stakeholder group (young adult of the ages 18-29). However, these must be novice users who are not HCI experts. Each Think Aloud evaluation is conducted in an isolated environment, free from distractions or outside interference. The participants are provided with two tasks to perform: i) finding a store that sells business suits ii) setting user preferences. While performing a task, the participant will talk about their thoughts about the interface of each screen and their interpretation of the information displayed on the current screen. Each evaluation involves one of our group members (observer) and a participant. While the participant proceeds to accomplish the given tasks, the observer will take notes of whatever the participant says. The observer will not interpret any actions or words said by the participant into the observer's own words. It is important to maintain the 'rawness' of the data from each participant to produce an accurate result. Any interpretation from the observer may lead to a biased result.

Cognitive Walkthrough

Unlike the target participants for the Think Aloud, this evaluation involves participants who are HCI experts. We assume that these participants understand the HCI principles but have no prior knowledge about our prototype or the application of our prototype. Hence, we will provide them with

an overview of our design project. This overview includes a summary of our project description from G3, the tasks at hand, and an overview of the current procedure required to complete the tasks (i.e., without our prototype, how does our primary user group complete the specified shopping tasks?) We also provided them with the list of procedures to complete each of our specified tasks. Based on these for criteria, we ask each participant to answer the following questions to determine if we have developed a believability usability story for our prototype:

- *Will the user be trying to produce whatever effect the action has?*

- *Will the user be able to notice that the correct action is available?*

- *Once the user finds the correct action at the interface, will he or she know that it is the right one for the effect he or she is trying to produce?*

- *After the action is taken, will the user understand the feedback that is given?*

If any of these questions cannot be satisfied, then the participating HCI experts will provide a justification for each answer based on our prototype's interface, their knowledge of HCI, and their understanding of our target users.

Heuristic Evaluation

Using a combination of the evaluation techniques listed about, the heuristic evaluation is similar to a think aloud in that the participant is given a task to perform and is asked to tell the observers their thought process during the completion the task. The heuristic evaluation is similar to the cognitive walkthrough in that the participants are required to be HCI experts and will have a set of criteria to evaluate the prototype with. The set of heuristics we have chosen from I4 to evaluate our prototype are as follows:

- Visibility of System Status (Does the system provide appropriate feedback about its current state?)

- Aesthetic and Minimalist Design (Does each dialog in the system contain relevant information?)

- Flexibility and Efficiency of Use (Can the system speed up interactions for novice and expert users?)

- User Control and Freedom (Does our system support error prevention for user input?)

- Consistency and Standards (Does the system follow platform conventions and accepted standards in terms of context of language?)

Tasks

Task #1: Looking for a Business Suit

The scenario here is that a user has an upcoming interview and needs to buy a new business suit. To help them find an appropriate store, they will use our prototype with the follow steps:

i) Select the "Let's Go Shopping" menu button

ii) Click on the search box, type in "business suits", hit enter

iii) Now with "business suits" in the list and its checkbox checked off, hit the search button

iv) Select a location as represented by bubbles

iva) Select a store from this building to find out more information

ivb) Hit back to return to previous screen

v) Click on the "get directions" option

vi) Follow the guide and click on "We're There!" upon arrival

vii) The user can click on any of the store bubbles to find out more information about the relevant inventory of the store

viii) Select "back" until we reach the home screen

Task #2: Setting User Preferences for the First Time

The system has to be able to understand the user's needs in order to provide an accurate solution. When the user first uses the application, the system will ask them for some information. The following are the steps of the initial setting of preferences by the user:

i) System displays “Initial Setup…” screen, explaining to the user what the next following actions are

ii) Select gender then click continue

iii) Select birthday from drop down menus then click continue

iv) User can enter in names of stores that they like, then add them into the list by hitting the ‘+’ button

v) Hit skip/continue to continue

vi) Enter in the address of locations to save, add to list by hitting the ‘+’ button

vii) Hit skip/continue to continue

viii) The system displays a “thank you” screen with a continue button that navigates to the main menu

Participants

We selected young adults within the age range of 18-29 to be our participants for the think aloud and university students who have taken or are taking an HCI course to be our evaluators. In order to isolate some human factors, we chose all our evaluators to be right handed males. Although there is a lot more freedom in the range of possible participants for the think aloud, their frequencies of errors performed were recorded and analyzed. We have chosen to broaden our range of participants for the think aloud evaluation because we want to be able to observe some extremes in terms of poor usability. In contrast, having similar evaluators will determine the consistency of the problematic area. If we had a range of different evaluators for our cognitive walkthrough and heuristic evaluations, it is difficult to determine whether the usability bug the evaluator identifies is specifically because of their own preferences or beliefs.

Design Rationale

With the limited time constraints between the completion dates of each assignment, it was important to find discount methods that produced inexpensive but valuable data. This would require

our team to perform these evaluations on fewer participants, and require less time to perform each evaluation. In addition, performing discount usability techniques as opposed to other usability techniques did not require our team to have a fully functional prototype.

Think Aloud Rationale

As designers of our own prototype, we know exactly how our prototype will complete a certain task. However, as mentioned in numerous lectures, we are designing for the end-user and not for ourselves. By performing a think aloud evaluation, we get a novice-user's perspective of how our prototype will help them accomplish a task. It provides us with data on problematic areas within our design interface as well as the reasons why a user may find our interface confusing.

Cognitive Walkthrough Rationale

Through the observations of HCI experts, having a second pair of eyes adds valuable contribution in evaluating our prototype. These contributions include analyzing the subtasks at hand to complete a goal using our system and giving informative feedback on the usability of our prototype through four specific criteria. The cognitive walkthrough looks at the overall efficiency of a task. In the think aloud, novice users can only spot errors that they see on their current screen. In the cognitive walkthrough, the HCI experts can problematic areas between several subtasks such as the need to navigate through several screens more than once to accomplish a task. In addition, by providing HCI experts with perspective of the targeted users and interaction tasks, they can determine how a user would use the system. This will allow us to formulate a believable story about how our system would apply to the real world (i.e. if we sell this on the market tomorrow, would our prototype be something that people would want to use?) In terms of usability, there are certain questions that only an HCI expert can answer about our prototype. For example, if we asked a think-aloud participant if they

thought that our prototype gave them appropriate feedback, they might not know what appropriate feedback is. In contrast, since an HCI expert is provided with background information about our design, they will have a better idea of what the appropriate feedback from the system should be.

Heuristic Evaluation Rationale

Although the cognitive walkthrough focuses on the usability of our prototype, it points out the flawed areas of our design in very broad terms. The heuristic evaluation allows us to gather more qualitative and refined details about the problematic areas of our prototype. These details help to identify other usability bugs that may have not been found through the think aloud or cognitive walkthrough. Since the participants for this evaluation are HCI experts who are familiar with heuristics and HCI principles, they have the necessary tools to identify these bugs.

Use of Material Rationale

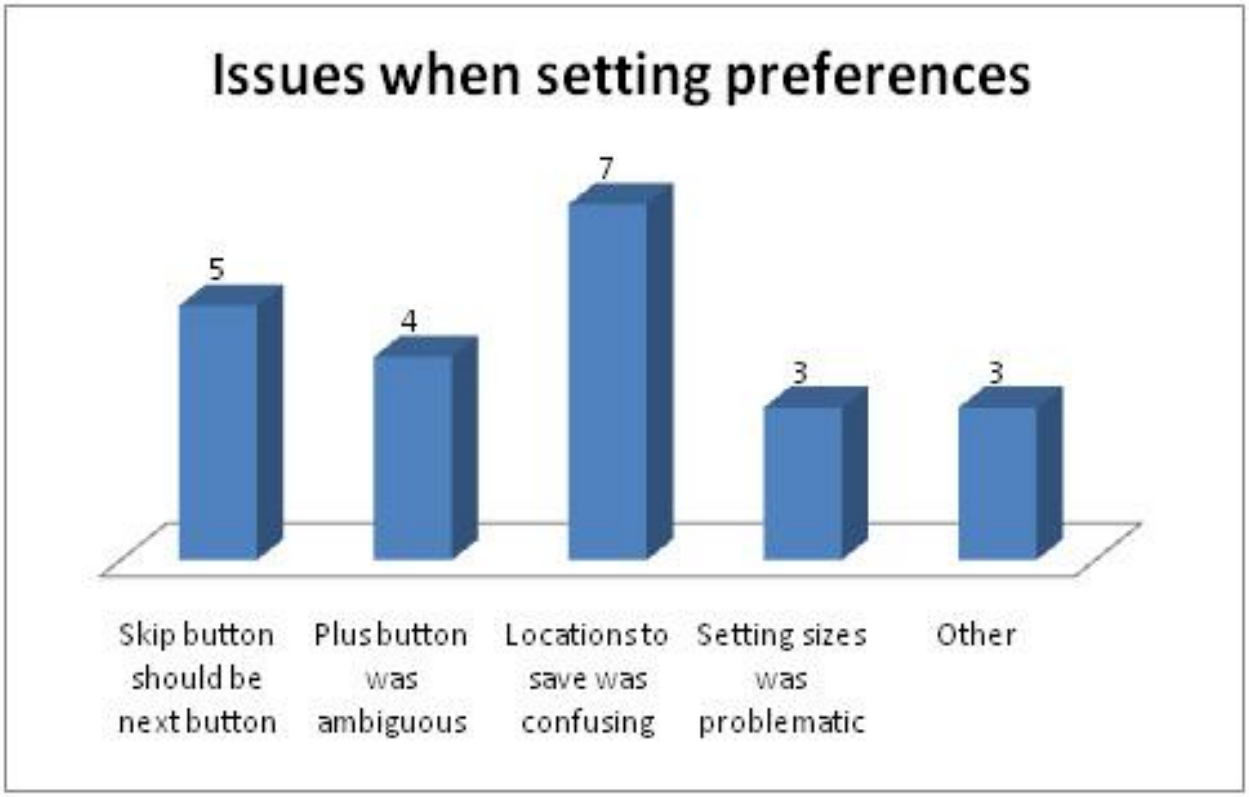
Using a paper prototype was the most cost effective method to show the functionality of our prototype. Although artistic and coloured, the low fidelity of a paper prototype encourages honest opinions. A paper prototype of a program signifies that it is still in early ages of development and is open to criticism. In contrast, developing a working application on an actual iPhone discourages constructive feedback. A working functional prototype on an iPhone appears to the participant as if the designers have spent a lot of time and thought into the development of the prototype.

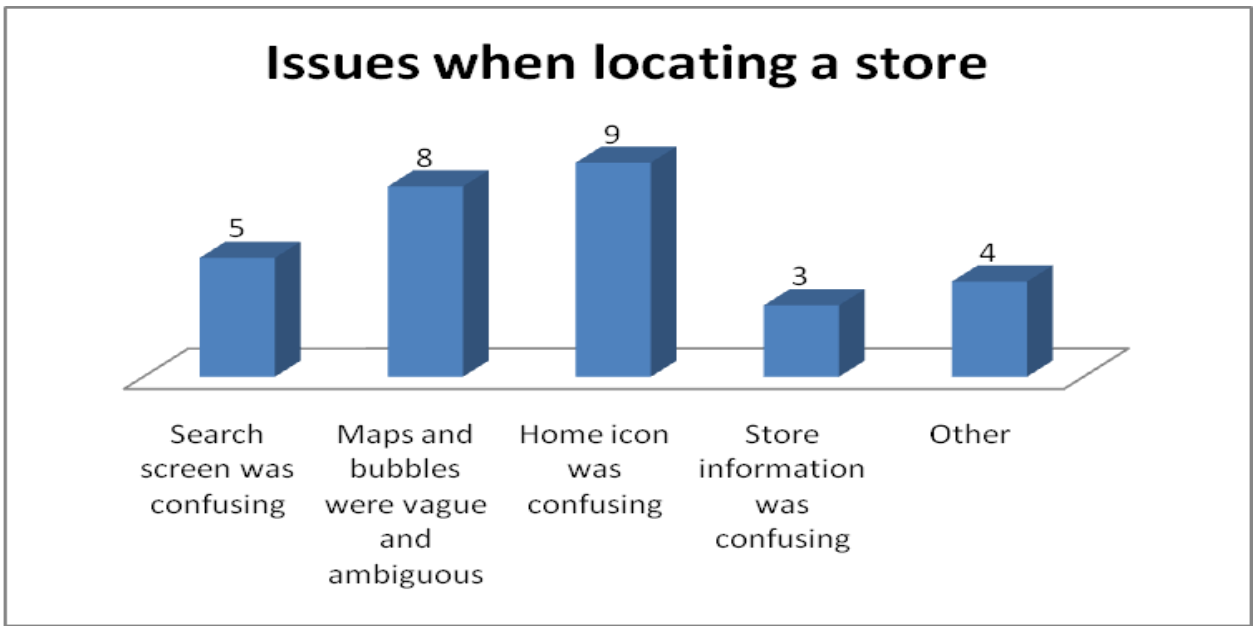
Results of Study

In total, we have gathered data from three participants(users) that performed think alouds, three HCI experts that performed cognitive walkthroughs, and four HCI experts that performed heuristic

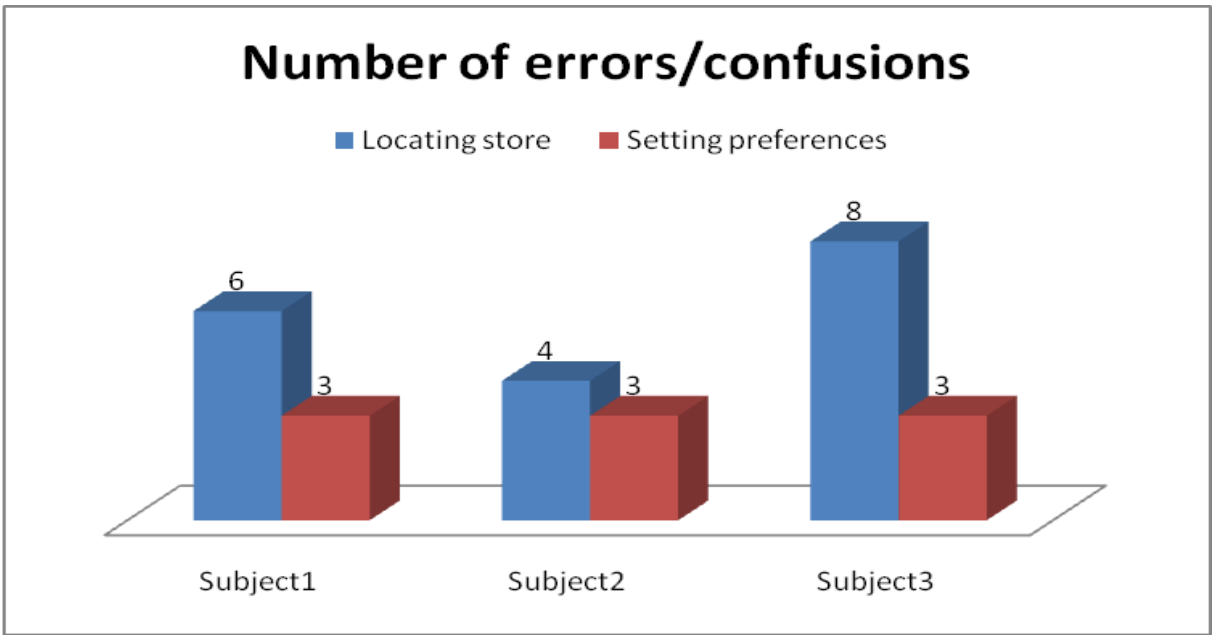
evaluations

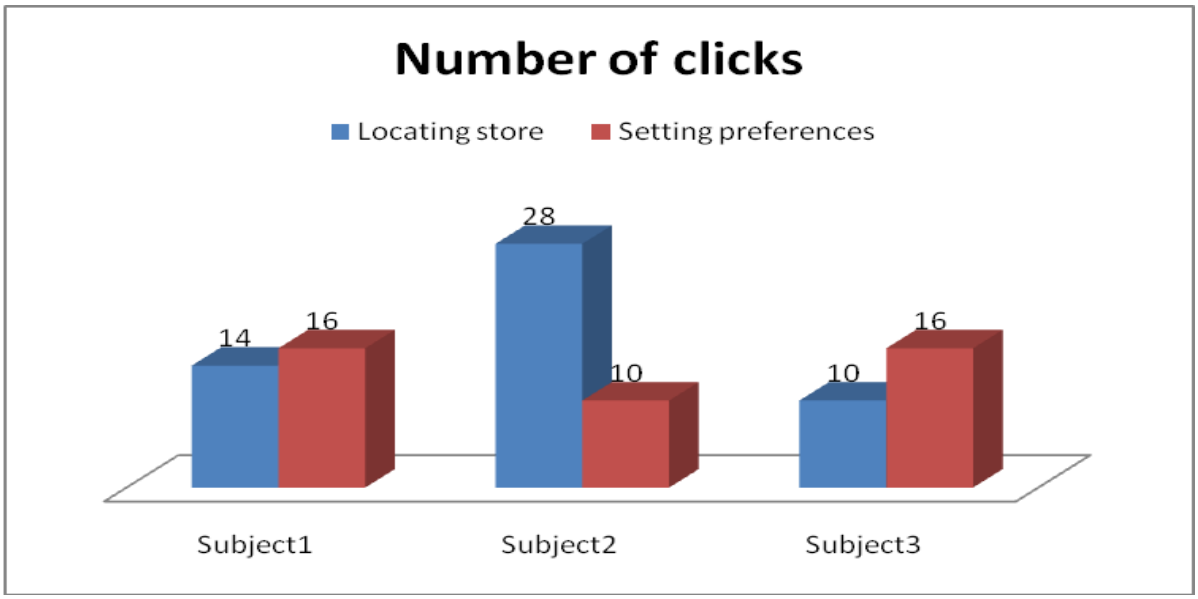
The first two charts contain the five most common issues identified during the think aloud with each respective





The second pair of charts shows the performance of each respective task. The number of clicks does not include the number of keystrokes from user input.





General feelings

- Users/Evaluators found confusion with how the preferences data worked in conjunction with finding clothes and locating a store.
- Memory problems: Evaluators were concerned about whether users would be able to remember all the stores/sales they've already looked at when there are potentially a lot of sales/store bubbles.
- There were no problems with the initial screens, main menu and help screens. All other screens contained some sort of criticism.
- Evaluators praised the fact that our design is minimalist and intuitive, uses very few buttons and almost all screens contained a way to backtrack, but also said that sometimes there was too much backtracking to be done.
- Evaluators enjoyed the creative name 'S.A.U.S.A.G.E'.

Discussion and Analysis of Results

The following analysis is a collection of comments from the think aloud data listed in the appendix.

Analysis of Think Aloud:

By analyzing the performance, we can identify the severity of the usability issues from each task. In terms of the number of clicks, we hypothesized that the number of clicks for each participant should be closely the same. The large difference in locating a store suggests that for some users, our prototype does not accurately indicate the appropriate subtask to complete to reach the goal of the main task.

In terms of the number of errors and/or confusions that occurred in each task, it is clear to see that locating a store is prone to a lot of disorientation in comparison to setting preferences. Notice that the number of errors is independent of the number of clicks. In fact, for locating a store, the less a user clicked, the more errors were made. What this implies is that some users spent a lot of time on one screen trying to figure out the information displayed by the system. For other users, this implies that they learn how to complete each sub-task by experimenting with the buttons on the interface.

Setting preferences:

- Users were confused about the stores to shop at:
    - "type in stores that you like to shop at…does this mean I can put in any store? Like a hardware store?" - quote from Subject 1
- Users were also confused about the purpose of the locations to save screen:
    - "I have to enter in the more information about the stores I like? I thought that this list would be automatically populated from the stores I specified in the previous screen" - quote from Subject 1
    - "I don't understand the difference between this screen. 'location to save'? I don't get it. Skip" - quote from Subject 2
    - "Locations to save. Umm…why? If I'm on an iPhone, it knows where I am. I suppose I can input my home, but I don't usually shop in that area. Let's just skip this for now since I

don’t remember any other addresses." - quote from Subject 3

- Finally, Users were confused about the plus button and/or another feature which gives us the three usability bugs for this task that we got from the chart above:
    - "I’m not sure what this bar is on the side. I’m not sure what this plus means. I’m going to assume that there is a list" - quote from Subject 2

Locating a store:

- Users were confused about the vagueness and ambiguity of the map/icons:
    - "This initial map has no information. I don’t understand what’s going on. I thought that when I hit search, I would see a list of results of relevant clothing prices, instead of a map." - quote from Subject 1
    - "Are these bubbles clickable?" - quote from Subject 2
    - "This is the vaguest map ever. Are these bubbles clickable? If so, what does it take me to? It looks like this is a house. I guess it’s my house or current location?" - quote from Subject 3
- Users also wanted to get an description or picture of an item once they clicked on it:
    - "I clicked on the suit but nothing happened?" - quote from Subject 1
    - "[I] can’t click on these items now." - quote from Subject 2
    - "Are these stores that contain my items? Can I click on them?" - quote from Subject 3
- Users found the search box to be confusing:
    - "Find stores with… this is confusing what am I supposed to type in?" - quote from Subject 1
    - "Is that a text box? If I click on it, I guess a keyboard should appear." - quote from Subject 3

These issues are the ones that come up the most and can be seen on the chart data from above.

Analysis of Cognitive Walkthrough:

Question?	Task 1	Task 2
- Will the user be trying to produce whatever effect the action has?	- layout was fairly simple; some concern over format of save locations	- layout was simple enough for users to do intended actions
- Will the user be able to notice that the correct action is available?	- drop down boxes and radio boxes etc. easy to see if user put in the wrong input	- each action leads to new screen so it is obvious to user if action is correct or incorrect - map bubbles were confusing – "Not sure if you can click on those or not"
- Once the user finds the correct action at the interface, will he or she know that it is the right one for the effect he or she is trying to produce?	- buttons and layout are pretty clear	- again simple layout made it easy; little concern with some buttons - "We're here" button is not intuitive
- After the action is taken, will the user understand the feedback that is given?	- Feedback is confusing for some sizing inputs - sizing units confusing to users; user assumes that shoe units takes if the user inputted male/female	- some user expected different feedback 'when I clicked on a store I thought I would get directions to the store'

The cognitive table is concise; there were 3 evaluators in total, but each point summarizes like opinions, hence why there are less points then there should be (11 vs 4*3*2 = 24).

The thoughts of each evaluator will be further expanded upon:

- *Setting preferences* - Evaluators in general praised the layout, placement of buttons and minimalist design but mentioned that feedback is confusing for sizing inputs, and the locations to save screen was badly designed.
- *Locating a store* - Evaluators in general praised the simple layout and buttons, but criticized the

wording of some buttons ('We're There!') and the vagueness and ambiguity of the map bubbles and store selection.

Analysis of Heuristic Evaluation:

There appears to be a strong correlation between the number of errors and clicks happening between each subject and task (ignoring the outliers). Therefore it is easy to tell what implications these errors have upon our prototype which will be elaborated upon later.

Based on these results, it's easy to see where the most critical problems were made, so from our heuristic evaluation in G3, we will evaluate all our criteria on the grading scale that we have proposed before: 0 (not a usability problem), 1 (cosmetic problem), 2 (minor usability problem), 3 (major usability problem), 4 (usability catastrophe).

- Visibility of system status – 2

The issue with system feedback is when one user mentioned he expected the stores to display images of the clothing. Another important issue is that the skip button should change to a next button when the user inputs a store. Other than that, there are no major problems with appropriate feedback.

- Recognition over recall – 3

There were lots of issues regarding the ambiguity of the plus button, locations to save screen, searching for clothes input, home icon and bubbles on the map. This is probably our biggest problem, our buttons and icons are too confusing and vague.

- Aesthetic and minimalist design – 2

Most of our evaluators mentioned that our design was minimalist, with appropriate and relevant buttons for each screen. However, many users were perplexed by the locations to save screen, as well as the relevance of the preferences in general. So this balances out to a minor usability issue.

- User control and freedom – 1

Not a major issue. Most of our evaluators praised how there were back buttons on almost every screen, allowing users to undo their previous actions. However, once the user has a large amount of data, the lack of a deletion button might be problematic in the future. So I will rate this as a cosmetic problem for now, it might be a minor usability problem In the future.

- Consistency and standards – 2

A lot of issues overlapped with the recognition over recall heuristic since our issues with the home icon, plus buttons, etc did not always conform to other application standards. However, the consistencies of our icons were deemed acceptable within the scope of our application. Therefore a lot of major issues are with the recognition heuristic rather than with consistency.

- Flexibility and efficiency of use – 1

Some of the screens were confusing, but overall both users and evaluators found their way through each task without much explanation. Additionally, evaluators noticed that it is hard to restart a search without clicking on the back button few times.

- Help and documentation – 0

Our help screen never had any issues. Almost all screens of our prototype contained a button to the help screen.

- Error prevention – 2

There is an issue with the back buttons when users clicked back too many times by mistake. In some cases this may lead to clicking the back button on the 'Find Stores' screen and losing current search results.

- Match between system and real world – 1

The software is simple, and everyone can communicate with it easily. There were some issues with the wording on the preferences screen, locations to save and 'we're there' buttons, but overall this is a cosmetic problem.

Based upon data obtained from our cognitive, think aloud, and heuristic evaluations (Assignment I4), we can conclude that the problematic areas from our two features are the following:

Setting preferences:

- An evaluator mentioned that the wording 'what kinds of clothing do you shop for?' might be inaccurate with a gender option, and also said the other screens might be tough if the user were shopping for others.
- When inputting birth date, an evaluator asked why it was necessary and suggested user groups instead.
- When setting sizes, it becomes too general. Different sizes vary depending on brand and standards vary depending on country area (Asian sizes vs. European sizes). Users got confused on whether the sizes took into account whether they chose male or female at the beginning.
- When typing in stores to shop at, the plus button has two connotations: it either expands or it adds the item to the list. Users were confused about which function it had. Also, one user tried to input a hardware store instead of a clothing store which was a potential problem.
- Skip button should be a next button when the user chooses to add a store. Almost every user/evaluator mentioned this as a problem.
- Locations to save screen: Users/Evaluators got confused about the purpose of this screen. Furthermore, evaluators noticed that users may not remember the addresses of different stores and suggested that the software should suggest the locations instead.

Finding clothes:

- Some users found the find stores screen confusing and did not know what to type in.
- The map the users are presented with after hitting search doesn't contain enough information and users did not know if the bubbles represented only stores or only malls or both stores and

malls or only stores that had the clothing they wanted, whether or not they were clickable, etc and what the numbers represented.

- Users/Evaluators got confused with the home icon. They thought that it represented their home, rather than their current location.
- Evaluators thought the 'we're there' button to be troublesome. They suggested that if the software had GPS then it should automatically detect whether the user was there or not.
- Users were confused about what the map mall showed and what the numbers meant. They didn't know whether the bubbles represented sales events or a store.
- Evaluators mentioned that the bubbles should contain the names of the stores rather than just a number.
- After the user clicks on a store and sees the inventory, they expect to see pictures and information about the item once they click on it.
- Some users were confused about what the 'select items on sale' checkbox did.

Implications

Based on analysis of evaluation results we found the following implications:

- The concept of preferences should either be removed or redesigned. Setting size preferences or location preferences were especially confusing and misleading.
    - We should reconsider button names for preferences. For example, the "Skip" button on certain preferences pages was confusing even if it changed to "Continue" after user enters information on the page.
    - Sizing units must be clear to avoid confusion (i.e. shoe size; Men's/Women's, US/UK) etc.)
    - There should be a way to remove stored information. For example, if a user enters a wrong store in the store preferences screen there is no way to recover from the error.

- We should provide more information about stores and clothing. Both users and HCI experts pointed out that there is not enough information to relate search results (shopping centers and stores) to search keywords (clothing items).
- Furthermore, choice of icons on maps and well as add buttons (plus icons) on preferences pages should be changed to address recognition over recall concerns.
- The application should prevent users from losing their current search when accidentally clicking on the "Back" button on the "Find Stores" screens.
- Transition from the navigation screen to the shopping center map should be redesigned or improved. This includes reconsidering the "We're there" button.
- Current design is too streamlined and does not allow users to explore different options easily
- The use of icons in our design, made the application too minimalistic and did not provide enough context to users

How the Prototype Design Could Be Improved

Given the implications outlined above we decided on redesigning the properties functionality and improving the clothing search functionality of our prototype design.

Preferences

The Preferences section of the application will be redesigned so that there is no need for the user to configure any preferences the first time she uses the application. Additionally there will be no need for the user to enter information about gender, age, sizes, or preferred stores. The application will infer this information from user's shopping habits.

The improved design will only allow users to review and possibly delete preferences that application collects from user's shopping habits. The information stored in the preferences will include: shopping frequency for top twenty clothing stores that have the highest purchase frequency, and information about different garments purchased at those stores (including tracking of sizes, colors,

brands, etc.). This information will be used by the application to make smart suggestions and better prioritize search results for the user.

There should be no incentive for novice users to review their preferences and the expert users should only review them in case of application errors.

Store Locator

The store locator feature will be improved by making changes to the way user interacts with the search results. Namely, once user enters keywords into the search field and clicks on the "Search" button the application will still display a map centered at user's current location and mark (using a bubble similar to the one used in most map applications today) different shopping centers located in the vicinity. The first difference is that the shopping center/store markers will now have names listed alongside search priority number to make it easier for the user to understand the meaning of the markers. Additionally the names will be underlined to afford clicking on them.

The second difference is that once user clicks on a store marker (including the shopping center name) the application will display a "popup" over the map which will still point to the location of the shopping center and display a list of stores in this shopping center together with a short-list of items relevant to the initial search keywords below each store name. This will address the lack of connection between search keywords and search results, as well as problems of memorizing which marker user clicked on to get the shopping center details.

Each of the stores in the list will be underlined to afford clicking on them. This action will result in application displaying a detail page for the store together with a longer list of relevant clothing items (which is similar to the current implementation). Additionally, the page will contain the following buttons:

- "Previous Store" which will take user to the previous store in the list (if any, otherwise the button will appear disables)

- “Next Store” which will take user to the next store in the list (if any, otherwise the button will appear disabled)
- “Back” which will take user to the shopping center detail (previous screen)
- “Get Directions” which will map directions to this store from the current location. This button is context dependent and will either display street map if user is outside the shopping center or shopping center map if user is already in there. There will be no need to click on the “We’re there” button (which will be removed) once user is at the location – the application will make this switch dynamically by tracking user location via GPS.

Adding these buttons to the store detail screen will enable users to quickly scan over different stores (before even committing to go to them), and get directions right from this screen instead of having to navigate back to the shopping center detail screen (using the “Back” button). The shopping center detail popup can be closed by clicking on an “X” button in the top right corner of the popup which will display the map again. The third improvement will ensure that users do not lose their searches by excessively clicking on the “Back” button in the bottom left corner. Namely, the last search will always be remembered on the device and pressing on the “Let’s Go Shopping” button during this time will preload the last keyword search. Finally, we’ll change the home icon into an “X” icon that will mark user’s current position on maps.

Critique of Evaluation Plan

Given more resources and knowledge, we could have made more improvements on our application. Our physical prototype could have been more polished. The use of hand-drawn screens greatly decreased the amount of information we could have displayed at one time. If we had chosen to use an image editing tool instead, we could have had more information neatly placed on the screen and still achieve the same minimalistic design we were looking for. With hand-drawn images, the size of the

font is very limited since writing too small would make the letters become sloppy and messier. With computer text fonts, you can have smaller font sizes and still retain the clarity of each letter. Having the hand-drawn screen shots also limited the number of screens that could have been produced due to the time it takes to create each screen. Because we were unable to create every screen that we needed, the interactivity of our prototype a hindered. This is the reason why features, such as changing a button label from 'Skip' to 'Continue', could not be implemented and shown to the user. There were also places where it would have been nice to have dynamic screen changes, such as bubble enlarging in maps, would have been ideal. However, due to the nature of our physical prototype, this was another feature that was left out and would have been difficult to implement with paper.

After doing the evaluations on our application, we also realized that the application learning that we had envisioned was not portrayed in our prototypes and evaluators were often confused. As a group we all understood that the application would learn from the user's previous searches and preferences and provide more relevant results based on those. However, every single evaluator of our application did not get that from our prototypes. They did not get enough time to be able to play with the application enough to realize that was what the system is doing. This is also a flaw in our prototypes and evaluation plans because the tasks we asked [people] to perform were very streamlined and so evaluators did not know the underlying behaviour of the application.

Designing our evaluation tasks more carefully would also have provided more informative feedback. Because we focused on only two tasks that basically outlined the application's main capabilities, underlying application behaviour was lost. If more time was put into creating multiple tasks that could have been performed sequentially, (i.e. first finding a dress shirt, then dress pants, then dress shoes), then evaluators would get more experience using the application over time and then give more feedback on how quickly they were able to learn certain steps. This could have demonstrated the

application's ability to remember previous searches and learning from them, which in turn the evaluators could have realized and be able to search for later items more easily.

The lack of prototype screens also steered the feedback towards the development of our prototype instead of the design of our application as we would have hoped for. If we had created all the screens possible, then there would have been less feedback on the lack of navigation possibilities and more feedback on the actual screens themselves in terms of design and content.

We also would have conducted more heuristic evaluations, think aloud evaluations, and cognitive evaluations if there were more time available. Although we feel that we performed a sufficient number of evaluations, it would have been beneficial to be able to conduct more evaluations to have more data to work with.

Appendix

Think Aloud Evaluation Scripts

Subject #1

Task #1: Finding a suit

- ok I clicked let's go shopping
- find stores with… this is confusing what am I supposed to type in?
- this initial map has no information. I don't understand what's going on. I thought that when I hit search, I would see a list of results of relevant clothing prices, instead of a map. Isn't the system suppose to prompt me of what I can do with this map?
- ok… I'll click on (2) since it's the closest to this icon that I think is my house
- ok…I see a list of stores and I guess I'll click on 'canadian seagull". Select items on sale? What the heck is this? I want to select suit. I thought I would see a picture or the price of a suit. So am I done yet? I clicked on the suit but nothing happened? What am I supposed to do now?
- so all these stores that sell suits, am I supposed to take notes of all these places? Ok, I'm going to try clicking on another store…like the best store. I'm at this screen again? Ok back. Ok now I clicked Stoneledge. Ok I click help. [in the store info screen, he clicked help to find out more information. Now he remembered what he was originally supposed to do]
- I expected to see "get directions" for each store that I clicked on. I didn't know that I had to go back to the store list screen to get directions to the location that contained the stores I was looking at.
- So I guess I'll click on "get directions" then "we're there" when I'm at the mall. What is this new map? What is this new map trying to show?

Task #2: Setting Preferences

- gender, birthday screens seem to be straight forward

- for pants size, I thought I could specify waist and length
- “type in stores that you like to shop at”…does this mean I can put in any store? Like a hardware store?
- I have to enter in the more information about the stores I like? I thought that this list would be automatically populated from the stores I specified in the previous screen

Participant Description:

Vietnamese student with an asian accent. He doesn’t like to wear shoes. Prefers to sleep at school barefoot.

Subject #2

Preferences:

- Reading instructions briefly
- Help is hard to notice, but still able to see
- Pressed continue
- Gender: “what kind of clothes? Oh I guess for male or female..”
- Birthdate: “so I guess these are drop down boxes, so I select them and hit continue”
- “I’m not sure what this bar is on the side. I’m not sure what this plus means. I’m going to assume that there is a list. I’ll just click skip since I don’t have preferences”
- “I don’t understand the difference between this screen. ‘location to save’? I don’t get it. Skip”

Finding suit:

- “Store sale update” has two meanings – confused
- “Start with preferences, to set up my search…ohh it goes back this screen, continue, continue, looking for the store screen to set the stores that I want to go to. It’s annoying to go through the previous screens before.”

- Back to menu and lets go shopping.
- Find stores…skipped over text box and looked at options first. Ohh there's no suits on the list, so I have to type it in and click on search.
- I'm assuming this is where I live. I guess these are the stores that sell suits. I'm not sure if I can click on them, but I guess I'll click on one.
- Funplex mall. Ohh it's a mall, not just a store. Contains…Canadian seagull…click on store*.
- Ohh ok so the green means that these are on sale. Can't click on these items now.
- Ohh I got directions to the mall, not the store.

* CONFUSION!!! [miscommunication between application features -> user was told they could click on the store in the list when in fact, it is merely a list and we did not implement a the ability to click on the store to get more details about it]

- Get directions to the mall. Click on we're there.
- Got mall map. Ohh ok so I guess we're in a mall now. Ok so I guess I'm done here. Is there a way to go all the way to the main screen…after 20 clicks.
- (when users click back too far, they lose their last search)
- I want to check out every mall and see what's there. I just clicked on we're there to see what was at the mall instead of actually going there.
- I like looking at the options that I have before committing to go.

[If I have already been to the mall, I don't need directions]

- At the mall, are these bubbles clickable?
- After looking at the store, "how do I get back?"

Subject #3

- Preferences..ok continue

- This question is confusing. “What type of clothes do I shop for?” I thought the options would be on style, but instead it’s male/female. Confusion. continue
- Birthdate. Sure, but why?
- Stores…I could input stores to save, sure…type in “Garage” and click “+”
- Locations to save. Umm…why? If I’m on an iphone, it knows where I am. I suppose I can input my home, but I don’t usually shop in that area. Let’s just skip this for now since i don’t remember any other addresses.

- Ok main menu. “let’s go shopping”
- Is that a text box? If I click on it, I guess a keyboard should appear. Looking at the options, I don’t see suits, so I have to type it into the textbox. Type in “blazer, dress pants, collared shirt”. Hit search.
- This is the vaguest map ever. Are these bubbles clickable? If so, what does it take me to? It looks like this is a house. I guess it’s my house or current location? Umm…lets click on “1”.
- “Funplex Mall”. Are these stores that contain my items? Can I click on them? Lets click on the first one.
- Ok these are items in the store now. Can I click on them to get a better look at them? Or more specific list? No…so I go back I suppose. I can’t go anywhere else.
- Lets just get directions to the mall. Only it’s pretty close to my house apparently, so I don’t really need them.
- Directions are pretty straightforward. I guess we’re there?
- Ok a map of the mall now. There are more bubbles. I guess since they were clickable on the other map, they should be clickable here. So if I click on them, where do I go? Do I get directions to the place or more details? Is that little icon supposed to be me? That’s not very clear.

- I guess I just get more details. This store seems to have everything I need. What if I want to refine my search more? How do I get back?

Cognitive Walkthrough Scripts

Evaluator #1

Task #1:

- the only issue I had was with the "we're there" option in the directions screen. I thought that this screen was irrelevant because the guide is using GPS to know what directions to give, so this application should automatically detect then the user is at the location

1. The layout is simple and easy enough that it almost seems linear. There aren't a lot of buttons so it's pretty straight forward with what the user can do
2. Again, the simple layout makes the task seem linear. The only screen where I can see that a user would have to correct them self is when they are looking at a store in the list of stores from this location screen. But it's easy to navigate back since we only have to press 'back' once.
3. All the buttons are fairly clear. Every time there is something we move to the next step of the task, we go to another screen, so this should be obvious to the user as well that they're proceeding to the next step.
4. There were a couple of things that I thought should've been there. When I clicked on a store I thought that I would get directions to the store. You guys told me that this application guides you to stores that sell the clothing you are looking for, so I expected it to do so. If I'm in the store information screen, I should only have to go back once to resume to the google map. I shouldn't have to click back twice.

Task #2: Setting Initial Preferences

- I don't understand why you would want to know someone's birthday. Would it be better if it was a choice of child/teen/adult instead?
- usually when I specify my pants size, I go by waist number. But, I know a lot of people who would look for both waist and length number, for example, 32 x 32.
- for shirts, what if I want to specify my dress shirt size? It goes by collar size, not by S, M, L, XL, etc…
- what's the standard for these shoe sizes? Is it UK or US or….?
- the skip here should change to continue. If I add something to this list, why would I skip?

  - ahh, the plus button to add a store to the favourite's list is pretty straight forward
- locations to save…what does this do?
- I think adding in locations is tedious. Does this mean I have to specify street name, number, postal code, etc..? what if I leave some information out? Can I just specify the name of the place? I think that these locations should be saved when you were looking at them from the google map screen
- I think it's fairly easy to navigate through this though.

  1. I think that when users are trying to save locations, it's not very clear what format is to be expected. I think a lot of the time, people don't know that address of a place, they might just know the name. I chill at my buddy's house on the weekend but I never knew his address, I just know that it's a couple of blocks over.

  2. Yeah, for the most part, it's really hard to see if a user could not know that they did something wrong. I assume that when I select something from the drop down list, it will show up in the drop list box? The plus sign makes it obvious that we're trying to add something to the list.

  3. The only thing I have to say is the skip button. It shouldn't be there if I have entered something

4. The unit standard for shoes is really deceiving. I assume that the shoe size number depends on if we entered in male or female from a few screens before but there's nothing telling us if it's a UK or US shoe size.

Participant Description:

A former HCI student who is currently applying for jobs to PEY. His beard grows fast, requires a lot of shaving.

Evaluator #2

- The thing with the bubbles, are you planning to display names or not?
- What happens when the user has a store in mind, how do you search for that?
- Does this return only malls or also small stores?

1. I think everything makes sense. Personally, I just like to click everything. "Lets go shopping", users will expect that some sort of screen will appear that will take them to shopping, either a list, or a search.
2. Other than the fact that I can't go all the way back to the main menu after traversing all the screens, I can't think of something else.
3. Memory issue for users depending. If they have a hard time remember what they clicked on the get to where they are.
4. User might not understand all the feedback given if there is no context.
5. I think that the application is fine for our goals, but the user might misunderstand the intention of the application and assume that other features are available.

Evaluator #3

1. I don't understand the question.
2. Most actions are clear except for map bubble icons. Not sure if you can click on those or not.
3. Most of the button and action labels are pretty clear. "we're there" is probably the least clear and something like "next" would probably be more appropriate.
4. Sometimes the feedback is not clear. Especially with the maps. Clearer icons or more text would help with that kind of feedback. All in all…fix the maps. I think that's most important.

Heuristic Evaluation Notes

Evaluator #4:

This evaluator is a University undergraduate student who is currently taking an HCI course. He is currently working on developing a clothing management application for the iPhone.

Flexibility and Efficiency of Use

On step ii) of the task process, this evaluator noticed that our system did not implement any form of predictive text for our search input. He pointed out that predictive text type is common on all mobile phones and thus, should appear on this system as well. This feature would improve the efficiency of the user because it would reduce the amount of typing a user has to perform to complete a search.

Aesthetic and Minimalist Design

On step v), the evaluator clicked on a bubble, representing a building, and noticed that information was displayed on a new screen. He did not like that fact that he had to go back one screen every time he clicked on a bubble and wanted to go back to the map (i.e, the transition from Figure 3 to Figure 4 and back to Figure 3). Also, when he clicked on one of the stores in the list as shown in Figure 4, the system brought him to Figure 6 which displayed the relevant clothing within that store. He felt that

going through a series of screens to enquire about a store would skew the user away from their main objective. This reflects upon the minimalist design of our system in the sense that by introducing new screens at every step of information (i.e, from Figure 3, to Figure 4, to Figure 6), we are reducing the visibility of relevant data (i.e, the new screens take the user away from the map of relevant buildings) . In consequence, the task of simply locating a building that sell relevant clothing is lost to the user because of all the new information that is displayed, overlapping the information to complete the initial task (step v).

Evaluator #5:

This evaluator is another University undergraduate student who is also taking an HCI course. Similarly to person #1, this student is also working on developing a clothing management application for the iPhone.

Consistency and Standards

When the evaluator looked at the list of relevant clothing, as shown in Figure 6, he found that the information was very misleading. He noticed that there were some items highlighted in green. The system labeled green highlights as “select items on sale”. The evaluator interpreted this as having the ability to click on the highlighted items to find out more information. However, what our system was trying to display was the relevant articles of clothing that were on sale at a particular store. If our evaluator had difficulty understanding the meaning of the green highlight, then there is a large chance that our users will also misinterpret this label.

Evaluator #6:

As a PhD student at the University of Toronto, this evaluator is currently a member of the Dynamic Graphics Project research group. Working alongside with a HCI professor, this person has a strong interest in HCI and Ubiquitous Computing.

Visibility of System Status

When this evaluator attempted to complete step iii) of our given task, he had trouble finding the search text box. It was not clearly obvious that the search box in Figure 2 was meant for user input. During step iv), he did not know that the system had a 'get directions' function. When he eventually used the 'get directions' function to guide him to a nearby mall, he did not know when/where to expect the next instruction. He also noticed that the 'get directions' function had a button labeled "we're there!" He did not understand why there was a need for this function if the system is automatically tracking a user's position. From this evaluation, we notice that our system lacks proper feedback during certain screens. In this case, when our system loads the map of nearby stores, users may not understand what the map is showing or what the user is expected to do. As the evaluator pointed out, some of the system's functions such as 'get directions' are not easily found.

Flexibility and Efficiency of Use

From the step iv) to step vii), the evaluator encountered the same screen twice (the screen displayed in Figure 4). He felt that by going through a series of steps only to encounter the same screen again was making the user go backwards. This is an example of irrelevancy as mentioned in the heuristic of "Flexibility and Efficiency of Use". By reintroducing irrelevant and repetitive data, this can lead to confusion by a user. In the evaluator's words, it can make a user feel like they are going backwards in the system.

User Control and Freedom

At step viii) the system should have guided a user to a desired clothing store. The evaluator was wondering what would happen if the system guided him to the wrong store and if there was some sort of 'next store' ability. Through this observation, the evaluator has pointed out that our system does not simple way of reverting unwanted behavior by the data.

Consistency and Standards

On step iv), the evaluator noted that in figure 3, it was not completely evident that the house on the map was the user's current location. This is a clear notion that our system does not have any recognizable or widely accepted symbols that convey the information desired. In order for our system to effectively work with the user, the system must display information that a user can understand.

Evaluator #7:

This evaluator is from Team BlackBox, he is a third-year student who is currently pursuing a degree in software engineering.

Since our design is for locating a store to help facilitate purchasing clothes, my task was for him to try to locate a store with his preferences already set beforehand. If he had any questions or suggestions along the way he would tell me about it.

Software screen initially beings at figure1-4.

- Evaluator clicks 'Let's go shopping'.
- Figure1-1. I told him at this point to ignore the previously inputted items and to input his own. He inputs jeans and clicks search.
- Figure1-2. He wonders about what the home icon is for , which I assured him displayed his current location and clicks a bubble.
- Figure 1-3. He asks again whether the store displayed information relating to his preferences and I confirmed. He clicks 'get directions'.

- Figure 2-1. He understands these directions and clicks ‘we’re there’.
- Figure 2-2. He is a bit confused about the bubbles, but I explained that there are different color bubbles for sales and for stores. He clicks one.
- Figure 2-3. He sees the item he had searched for and it matches his preferences.

  Comments:

  [Visibility of system]: he reported that there were no problems about system feedback at all.

  [Aesthetic/minimalist design]: he reported that all screens were fairly relevant and he achieved his goal following these screens handily.

  [Flexibility/efficiency of use]: I asked him whether a user like his mother would be equally adept as using it as him and he replied that the system was fairly simple to use for users of all levels.

  [User control/freedom]: He approved the use of back buttons on all screens but mentioned that a lot of different bubbles would have to be clicked if the user is not satisfied with the store’s inventory.

  [Consistency/Standards]: He mentioned that he had to ask me about the home icon because of the ambiguity of displaying his current location and actual home location and also about which bubbles were sales events and stores, but said the Google maps-like interface seemed intuitive.