

BBGo:

*An application designed for enhancing the integrated experience of visiting
Brooklyn Botanic Garden*

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Depaul University

Part 1: Contextual Inquiry

Oct 16, 2015

Project Description

Project title:

Brooklyn Botanic Garden Planner.

Target users:

Visitors of the Brooklyn Botanic Garden.

Project description:

This project seeks to inform and assist visitors to the Brooklyn Botanic Garden. It seeks to improve the experience of visiting the gardens by allowing users to get detailed information about flowers and exhibits, allowing for ease of navigation, and by making it easier to share their experience with those that they love. The goal is to create an informative and interactive application with which users can better enjoy their trip to the gardens.

Subject Information:

Subjects were selected based on their history of travel experience. Specifically, they were selected to give general as well as specific information about their travels, what technology they used while traveling, as well as information about the attraction they visited and why.

Name: Cynthia L

Age: 27

Occupation: Regulatory

Gender: Female

User type: Casual Visitor

Other information: Cynthia loves nature but does not enjoy sharing her experiences with other via social media.

Name: Dan

Age: 23

Occupation: Engineer

Gender: Male

Brooklyn Botanic Garden trip planner

User type: Casual Visitor

Other information: Dan enjoys new experiences and embraces the unexpected. He does enjoy sharing his adventures with other a lot.

Name: Cynthia B

Age: 62

Occupation: Administrative Assistant

Gender: Female

User type: Casual Visitor

Other information: Cynthia loves to share on social media. She travels often but tends to go with the flow instead of planning beforehand.

Name: Dawn

Age: 42

Occupation: Office Coordinator

Gender: Female

User type: Casual Visitor

Other information: Dawn puts a lot of energy into planning and organizing trips and enjoys learning about history.

Name: Erin

Age: 22

Occupation: Graduate Student

Gender: Female

User Type: Casual Visitor

Other Information: Erin travels a lot for someone of her age.

Name: Kevin

Age: 26

Gender: Male

User Type: Casual Visitor

Other Information: N/A

Name: Kewei

Age: 23

Occupation: Graduate Student

Gender: Male

User Type: Casual Visitor

Other Information:

Kewei Li usually doesn't upload his photos to social media, but he does take many photos when on a visit.

He usually plans his visit very carefully, but he doesn't have the habit to book tickets before his visit, he'd rather buy tickets when he arrives.

Name: Dan W

Age: 23

Occupation: Graduate Student

Gender: Female

User Type: Member

Other Information:

Dan is not a heavy social media user, but she has a very tight connection to her family and friends and will send her photos to them after her trip. Another interesting thing is, although she doesn't often use social media, she really enjoys reviewing other people's photos in social media.

Observations, Insights, and Insight Clusters

Stormboard link

<https://stormboard.com/invite/213514/cover991>

Stormboard ID

213514

Stormboard Key

cover991

Observations

- Erin and Kevin passively navigate cities; they don't search for much information
- Erin calls the actual attraction over Googling information sometimes
- Kevin frequently posts when he's doing a new activity
- Erin stated that her sister helped her navigate the university and city. Her sister used to be a student
- Both Kevin and Erin visit attractions based on word of mouth
- When planning a trip, Kewei Li wouldn't plan only one destination, he will visit the interesting places around his destination.
- The reason why Kewei Li seldom needs an application to navigate is that he often plans his routine before his trip, so when he arrives, he is almost aware of the navigation.
- Dan Wu takes photos very often, but she never upload them to the social media.
- Dan Wu will send her photos to her families and friends to share her experience.
- Cynthia will only participate in events if they fit her budget
- Daniel likes to use his phone to find food and drink around his destination
- Cynthia relies heavily on google maps when she is traveling
- Daniel would like reminders when he is close to attractions
- Daniel enjoy traveling to a destination and not having every detail planned
- Dawn stayed to watch a presentation to honor veterans even though it was not on her itinerary but left after 20 minutes because she wasn't interested in it
- Dawn used Google Maps to navigate the National Mall because it gave estimates of how long it takes to walk between monuments
- Cynthia B and Dawn use an app that shows the location of speed traps, red lights, accidents, and other information drivers may want (in addition to Google Maps)
- Dawn takes a lot of pictures and share them on Facebook
- Cynthia B takes a lot of pictures and shares them on Facebook and in person

Insights

- Transportation method, hotels, routines are the key points when planning a trip.
- People would like to know other attractions and affordances around their destination
- Short trip is flexible, require fewer or even no plan at all. This kind of visit is strongly based on immediate interest. To some person, it is the same even with

- their long trips
- Users may use app as a time/trip management tool
- User may want to view attractions by type
- Phone calls still play an important role.
- The transportation methods differ from user to user, but car is regarded as the most enjoyable.
- Price information should be published
- Language is great concerned by foreign visitors
- Meeting new friends is one of the reason people travel.
- Family may influence the location of the trip
- The way to destination is the most boring part to some users
- Some other things people may be concerned with.

- Users have different attitude about the attractions, some may study carefully, while some may not.
- Some users may find more information about attractions even after trip, while some may not.
- To some users, the decision on whether or not to visit a certain attraction is greatly influenced by their travel plans.
- Interest has great impact on attraction participation.

- A detailed plan may remove the necessity of navigation apps
- Sense of direction is important even for users who've got a detailed plan
- User may expect the application to give hypothetical/actual path to events
- Friend or family member helps navigate city
- Most people do not navigate with apps inside their destination. It's probably because these apps lack the function that users need.
- Drivers may want supplemental information
- Users would like to know the distance between his current location and his destination

- Events are not the primary consideration of users when planning their visit
- Even though some users will not participate in events, they do have some interest in them
- Members are informed with events through many ways: calls, text messages and internet
- Users may participate in an event spontaneously to see if it's interesting but don't feel committed to staying until the end.
- Sometimes business trip is also a chance for traveling

- Users have different frequency in using social media
- Almost everyone takes photos during trip, Including those who don't often use social media.
- Personal feeling plays an important role in whether or not one will share his photos.

- Other people's attitude towards users photos may prevent users from sharing their photos
- Even though some users don't use social media, they have other ways to share their experience
- Social Media users use multiple platforms
- Some users like to take self photos
- Popular ways to share photos: Facebook

Insight Clusters

- Trip Planning
- Navigation
- Attractions
- Events
- Sharing Experience

Process Retrospective

- We learned a lot from our subjects. For example, one of our members is a heavy social media user, he doesn't have any idea how those who don't use social media share their experiences. Through his interview, we found that people do have different ways of sharing.
- Focus groups can be more useful than individual interviews sometimes because of interaction between interviewees that help them expand their feedback.
- Users have a very strong loyalty to specific applications.
- Asking the user to demonstrate "how they use an application" in an interview setting is not very informative.
- Our first version of inquiry questions contained very few open-ended questions. However, during our interview, we found that users gave more information with open-ended questions. Therefore, we revised our inquiry protocol and made our questions more open-ended.
- Improvisation is sometimes required to get useful information

Part 2: Models and Requirements

Oct 24, 2015

Personas

Name: Alex

Tagline: I love travelling, I feel great when I see something new.

Background:

Age: 25

User role(s): Casual visitor

Education: MS in Accounting

Level of computer expertise:

10 years as an application end-user on smart phones

Often uses his apps to manage his daily life

Tries different apps in his smart phone

Goals/motivations:

- Wants to spend as little time as possible in planning trip.
- Wants to take photos and share with family and friends.
- Wants to have access to knowledge of events that cater to his interests

Frustrations and pain points:

- Have to change his usual travel style and habit.
- Need extra time to learn how to use a new app.
- Doesn't like technology that forces him to share too much of his personal info.

Narrative:

Alex has graduated for several years, he likes to travel around since he's an undergraduate student. Now he works in an accounting company, and would always take holidays to travel around with his family. Although he likes travelling, he still finds it a lot of trouble to plan a trip.

“There are so many things to consider, I hope I can spend less time in planning my trip so that I can focus on more important things.”

Alex is an expert in smart phone, just like most of his generation. He has many apps in his smart phone, and would try those that interest him. He has used several traveling applications, but he's not quite satisfied with them.

“I want an application specifically designed for the place that I'm going to visit, so I can start touring around once I get there. Maybe I'll spend some time in learning how to use it, but it won't be so long as I plan trip myself.”

Name: Charlotte

Tagline: I want to document my experience and schedule my activities properly, not be distracted from them.

Background:

Age: 30

User role(s): Member

Education: Master's in Communication

Level of computer expertise:

6 years as an application end-user on smart phones

often uses social media: Twitter, Facebook, Instagram, etc.

Goals/motivations:

- Wants something that aids in the documentation of her memories
- Wants to meet friends.
- Wants to be informed of future events.
- Wants an authentic experience that she can remember
- Wants to set goals for attractions to visit while at location and follow through

Frustrations and pain points:

- Have to make a choice when there is a conflict between the time of future events and her own schedule.
- Has trouble organizing attractions she wants to attend
- Most social media detract from real experiences

Narrative:

Charlotte is a professional woman, working at a corporate company. Charlotte travels a lot and likes to visit the same places when she vacations. She may travel to the same places because she has family or friends to reconnect with. She does enjoy documenting her experiences and sharing photos with close friends and loved ones.

“I can relax more when I’m with family and friends. I don’t have to plan too much, and I can enjoy talking and touring around with them.”

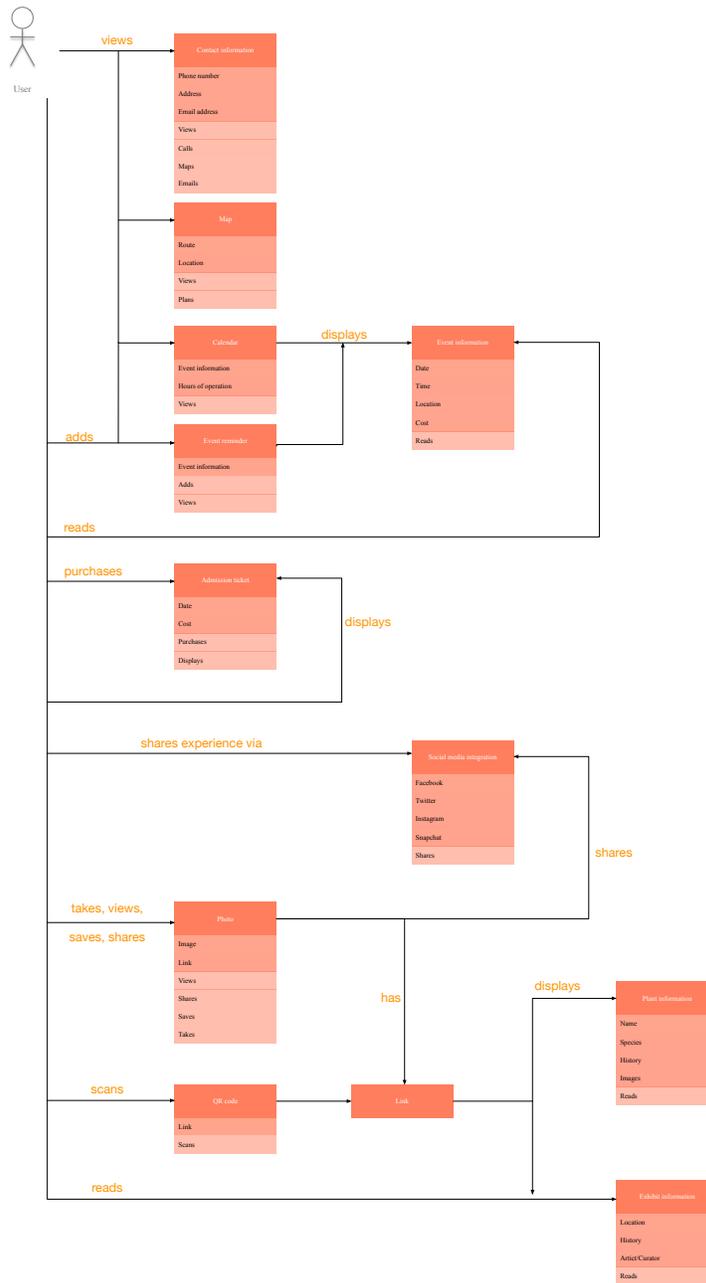
Charlotte is now a member of a local museum, she likes to participate in the events that the museum holds, she has met many new friends there. However, the museum uses traditional ways such as calls, text messages and emails to inform them with event time, and she found troubles remembering her schedules.

“I really enjoy the events, but since I have my work plan, it’s hard to check messages or emails to schedule my time, I hope I can view the event time more conveniently, including the most detailed things.”

Concept Analysis

| CONCEPT | ATTRIBUTES | OPERATIONS |
|--------------------------|--|-----------------------------------|
| Map | Route Location | Views Plans (route) |
| Admission Ticket | Date Cost | Purchases Displays |
| Photo | Image Link | Views Shares Saves Takes |
| QR Code | Link | Scans |
| Calendar | Event Information Hours of Operation | Views |
| Event Information | Date Time Location Cost | Reads |
| Event Reminder | Event Information | Adds Views |
| Plant Information | Name Species History Images | Reads |
| Exhibit Information | Location History Artist/Curator | Reads |
| Social Media Integration | Facebook Twitter Instagram Snapchat | Shares (via) |
| Contact Information | Phone Number Address Email address | Views Calls Maps Emails |

Conceptual Model Diagram



Requirements

Plan

- As a casual visitor, I want to find other tourist places near my destination so that I can view more things in one trip.
- As a member, I want to be able to sync the app with my calendar, so I can manage my schedule.
- As a casual visitor, I want to know where to get food and drink around my destination so that I can plan my trip better.
- As a casual visitor/member, I want a detailed digital map of my destination prior to my trip so that I can make me a detailed travel plan.
- As a casual visitor, I want multiple routines to tour around my destination so that I can choose one which fits me best.
- As a casual visitor/member, I want to be able to add custom event reminders so I can plan my trip.

Attraction

- As a member, I want a brief history of every attraction, plant so that I have a good coverage of the place.

Navigation

- As a casual visitor/member, I want a digital map of my location so that I won't get lost.
- As a casual visitor/member, I want directions to a specific attraction so I can navigate through the destination.
- As a casual visitor/member, I want to be able to zoom so I can discern detail on the map.

Event

- As a casual visitor/member, I want a QR scanner so that I can find out specific information about an exhibit.
- As a casual visitor, I want a way to view upcoming events prior to my trip so that I can make reservations early.

- As a casual visitor, I want to book events so I can schedule my time.
- As a casual visitor/member, I want alerts and notification for nearby events so I can be informed.
- As a casual visitor, I want to be reminded of events that I have bought tickets for so I can stay on schedule.
- As a casual visitor/member, I want to know if an event is open(seasonal) or not so I can plan my trip.
- As a casual visitor/member. I need a way to search for specific events so I can navigate to my location.
- As a member, I want to know who are going to participate in the event with me so I can get prepared to know new people.

Experience

- As a casual visitor/member, I want to link to other social media platforms so that I can share my experience.
- As a casual visitor/member, I want a way to document my memories so that I won't miss anything when I share with my friends.
- As a casual visitor/member, I want to be able to take photos so that I can help document specific memories.
- As a casual visitor, I want to be able to save my photos to my specified location so that I can ensure control.

Function

- As a casual visitor/member, I want to have multiple languages so I can understand the application.
- As a casual visitor/member, I want a tutorial so that I know how to use the application.
- As a casual visitor/member, I want to be able to silence the app so I won't be disturbed.
- As a casual visitor, I want to be able to buy tickets so I can save time.
- As a casual visitor/member, I want good error reporting so I know the status of

the application.

- As a casual visitor/member, I want the application to read me selected text so I can participate if I am visually impaired.
- As a member, I want to be able to create a profile so I get the correct information.
- As a casual visitor/member, I want the application to format to the size of my phone so that it appears correct.
- As a casual visitor/member, I want venue information easily accessible so I can contact the place if I have further questions.

Process Retrospective

- Abstract personas from different user types is not easy, however, once finishing the journey map, we can make it clear where we should put our efforts.
- One user type may have some specific requirements, while these requirements may not be essential to another user type, they will definitely increase the experience of using this product.

Part 3: Conceptual Design

Nov 6, 2015

System Concept Statement

What is the system name?

Brooklyn Botanic Garden Organizer

Who are the system users?

BBGo Application will be used by those who are going to visit Brooklyn Botanic Garden, and members who will often join in BBG events.

What will the system do?

The system will allow users to plan their activities on their visit to the Botanic Garden. The system will provide navigation through the garden as well as give background information on plants and flowers in the garden. Lastly the system will create an environment that is conducive to sharing experiences as well as provide a platform to document and revisit one's experiences.

What problem(s) will the system solve?

- The system will solve the problem of being lost in the Botanic Garden.
- It will prevent users from missing events due to ignorance or forgetfulness.
- It will solve the problem of users having no knowledge of plants and flowers being viewed while in the garden.

What is the design vision and what are the emotional impact goals?

- It will create a more knowledgeable user with an index of flower background info, which will enhance the experience.
- Encourage nostalgia by allowing the user to create a virtual scrapbook of their experience that can be shared.
- The system will help users navigate the garden, thus cutting down on wasted time.

Conceptual Task Scenarios

Casual Visitor Alex

Before

Alex and his girlfriend decide to visit the Brooklyn Botanic Gardens as part of their vacation trip to New York City

Alex visits several websites, and searches for detailed information about their destination. He views people's opinions about the place, such as routines, famous attractions, events, etc. According to the information he's got, he writes down their own plan.

Then Alex searches to find out how to get to their destination, and downloads a digital map for reference. When he finishes all these things, he purchases admission tickets for the two of them.

Before arriving, Alex looks for some interesting events held in their destination, and bought event tickets for them.

During

Alex and his girlfriend arrive at their destination. They find the routine they've planned, and then begin their tour.

As the couple tours the gardens, they take photos of the scenery and plenty of selfies. During the trip, they encounter a lot of beautiful plants, Alex looks up detailed information about these plants. After spending some time in the garden, Alex and his girlfriend go to join their event, they show their tickets and have good time there.

After

Alex has a great time on his trip and when he gets back home, he uploads his photos to Facebook. His friends 'like' and comment on his photos. He shares his experience with his friends by replying their comments. He also calls his mother and tells her about his trip and sends her a few photos through text message.

Member Charlotte

Before

Charlotte has been a member of the Brooklyn Botanic Gardens for several years. She has a few friends visiting for the holidays and wants to take them to the Gardens while they're here. She checks for upcoming events of BBG, looks for interesting ones that

she'd like to join, and adds a reminder to her calendar. She shares her plan to her friends.

During

Charlotte and her friends arrive at the exhibition and take photos of interesting outdoor artwork. Charlotte pays great attention to exhibits she has noted before their visit, and reads the description about them carefully. She is interested in learning more about the artists, so she searches for the artists' background and history. Charlotte reads this information as her friends continue to check out the exhibit.

After

On Monday, Charlotte tells her colleagues about the exhibit. Because she is not a heavy social media user, she shares photos taken from the exhibit in person. Later, she writes down her experience about the exhibition. Then she checks to see if BBG has more upcoming events.

Focus Scenarios and Personas

Casual visitor Alex before the trip

Persona Name: Alex

Brief Description: Alex can manage technology, he travels a lot. Alex doesn't like planning a trip, wants to find an easy way to plan when he travels.

Explanation: For casual visitors, we believe that planning the trip is the most crucial part. When planning a trip, Alex will encounter a lot of problems, such as his tour routes, how to get to his destination, how to get event information, etc. The planning part includes almost everything that a casual visitor may encounter during his trip, which means considering this part will give us a more comprehensive view of our product. So we choose this part for our casual visitors.

Member Charlotte before the trip

Persona Name: Charlotte

Brief Description: Charlotte likes to travel to the same place with her friends. She like to document her experience. She is having trouble organizing attractions she wants to attend.

Explanation: Unlike casual visitors, members have been to the garden many times, so they are quite familiar with the routes or attractions. The main requirement for them is how to organize future events (according to our contextual inquiry carried out earlier), which means the main concern for member group is also before the trip. So we decided to use this task scenario as our focus scenario.

Interface Metaphors

General Explanation

We mainly focused on the users before their trip to the Botanic Garden, but including a metaphor that emphasizes the end of their trip was important as well. Because the nostalgia created from the scrapbook metaphor will encourage the user to return, it was important to implement it. We started from the planning of the trip which is a lot of info gathering, reservations, and combining resources for one's trip. The advantages of our metaphors was that they are familiar to most users, therefore users will understand how the system works easier. Also, the metaphors match the travel planning process almost exactly. The disadvantages of these metaphors is that they are so familiar that a user may transfer their thoughts and behavior toward each metaphor into the product, that may not necessarily match what the system actually does.

| Metaphors | Reasons | Contextual concepts |
|-------------------|--|--|
| Travel guide book | Some people will always refer to a guide book to choose their destinations, they can get some general information about their destination from these guides. This metaphor will help users understand the garden better. | Destination description Destination history Destination features |
| Calendar | This will allow users to view events and event info, RSVP, and receive event reminders. People will often use calendar to note what they will do in the future, so we think this is suitable for our app. | Event times Event info Admission tickets Reminders |
| Visit planner | A visit planner will give advice on which route to take, which events can visitors join in. Visitors can give some basic information about themselves to visit planner and the planner will make a good plan for them. So we choose this metaphor for planning a trip. | Maps Routes Events Exhibits |
| Encyclopedia | People can get detailed information on items they are interested in through encyclopedia. In our garden, there will be a lot of plants that people may have never seen before, some of the | QR Code Attractions Plants Statues |

| | | |
|-----------|--|---|
| | visitors may be interested in these plants, we can't just let them google the plants cause it will be a waste of time, so we make an 'Encyclopedia' metaphor for visitors to have a better way to look up plants themselves. | |
| Scrapbook | Create nostalgia and allow users to revisit their experiences. A scrapbook helps people to memorize the beautiful things they've experienced. We regard photos, videos – which almost every visitor would like to take according to our contextual inquiry -- as part of a scrapbook, cause these things will remind user's travel experience. | Photos Videos Diary Social media integration |

Interaction Types

Exploring

When encountering attractions, visitors will scan the QR code to get detailed information. They can also scan plants directly to get information about them. Visitor can take photos, videos, etc. and share them. Visitors will also be able to explore or navigate the garden through a GPS system. This is why exploring is included.

Manipulating

Visitors will manipulate their calendar: they will schedule or view their events through the calendar. Visitors can buy tickets from our app. Besides, they will be able to select different events, open and close maps. These interaction types belong to manipulating.

Instructing

People will need to search for some information they are interesting in, such as their past events, interesting plants, attractions, so we must provide a search function, which belongs to instructing interaction type. Besides, the user will be allowed to tell the system what type of information he or she wants about the destination, an event, etc.

Card Sort Summary and Report

We used Storm board as a tool to help users organize their thoughts and ideas for the card sorting.

We selected our contextual inquiry subjects as well as 4 other individuals that we knew and performed closed card sorts. We consider that our subjects will be more aware of

their aims, while other individuals will give a more general outcome.

We used closed card sort because we believe it will be performed more quickly, and users will be more guided, we provided an option of “others” so that users can still make a quick decision when they are confused. Then after the card sort, we refined the “others” category, changed the items in it, and continued to the next card sort.

Some of the categories we chose were taken directly from our system metaphors and conceptual concepts, the results are reflected in the navigation map, but we discovered that a lot of options could be sorted into more than one category; therefore, there was a need to give multiple routes, under multiple categories to get to the same options.

Navigation Map

Conceptual Design_Map

Wireframe Model

Conceptual Design_Wire

Process Retrospective

- We had several versions and a heated discussion on our six and two focus scenarios, we even thought about changing our user type. After discussing with each other, we kept our user types and had two members working on scenarios. We modified several times until it looks good to us now.
- The metaphors and interaction types were a bit tricky. We asked professor for help (actually the ‘visit planner’ was an idea from professor) and it was really a great inspiration.

Part 4: Prototyping and Evaluation

Nov 21, 2015

Evaluation Planning

Subject Information

Name: Cynthia

Age: 26

Occupation: Engineer

Gender: Female

User type: Subjects were asked to perform both Scenarios

User-related logistics: [Points to note:

- The information was gathered at her home
- One person performed this evaluation
- Evaluator's Computer was used

Name: Jon

Age: 27

Occupation: Engineer

Gender: Male

User type: Subjects were asked to perform both Scenarios

User-related logistics:

- The information was gathered at his home
- One person performed this evaluation
- Evaluator's Computer was used

Name: Doris

Age: 21

Occupation: Artist

Gender: Female

User type: Subjects were asked to perform both Scenarios

User-related logistics:

- The information was gathered at her home
- One person performed this evaluation
- Evaluator's Computer was used

Name: Niko

Age: 21

Occupation: Student

Gender: Male

User type: Subjects were asked to perform both Scenarios

User-related logistics:

- The information was gathered at his home
- One person performed this evaluation
- Evaluator's Computer was used

Name: Thu

Age: 35

Occupation: Gardener

Gender: Male

User type: Subjects were asked to perform both scenarios

User-related logistics:

- The information was gathered at his home
- One person performed this evaluation
- Evaluator's Computer was used

Name: Tayler Whittler

Age: 21

Occupation: Student

Gender: Female

User Type: Subjects were asked to perform both scenarios

User-related logistics:

- The information was gathered at his home
- One person performed this evaluation
- Evaluator's Computer was used

Name: Ryan St. Hill

Age: 24

Occupation: Insurance Salesmen

Gender: Male

User Type: Subjects were asked to perform both scenarios

User-related logistics:

- The information was gathered at his home
- One person performed this evaluation
- Evaluator's computer was used

Task Scenarios

- Imagine that you are a new visitor to Brooklyn Botanic Garden who has limited experience with BBG application. This is your first visit to the Brooklyn Botanic Garden. You want detailed information about a flower you see. Please show me how you would get information about that flower and then share your discovery with friends on Facebook. (We changed our focus scenario for casual visitors to Alex/During according to the comments from our last project.)
- Imagine that you are a member of the Brooklyn Botanic Garden. You would like to take two friends to events in the Garden. Can you show me how you would use this application to find at least 2 events to attend, and then check your events in your calendar?

Measurements

- Total time to complete the task
 - This metric was chosen because the tasks were considered relatively easy.
 - This metric would show if users found the tasks too complicated

- The number and type of errors committed per task
 - This metric would show if users found the UI confusing (mislabeled/ poor layouts)
 - This metric would show if users expected particular functional paths to exist that did not.

Logistics

Our team used Axure as our prototyping platform, as such we were able to upload the design to an AxShare and then use any device to view it. This allowed the team members to use their personal smartphones as testing platforms and reduce/remove any logistical issues.

Link to Prototype: <http://dmfwe2.axshare.com>

Evaluation Results

Data Evaluation

- All of the interviews were conducted in low stress environments, where time was not a factor. This being the case, we do not believe that there were any ecological/bias issues
- All of the interviews were conducted in low stress environments, where time was not a factor. With this precondition we do not believe that there were any external conditions which biased out testing.

Data Analysis and Presentation

- All the 8 users successfully completed the ‘get detailed information of flowers’ and ‘find events’ tasks
- 5 out of 8 users stopped to find the scan feature, only 3 went on smoothly.
- 1 out of 8 users looked for events date when she enter the events list page.
- One user commented that she would like to see the electronic ticket after purchasing event ticket. One user commented that he preferred a calendar view of the events. 2 users commented the date of events should have been shown earlier rather than only after clicking on the event. 4 out of 8 users commented that they want a home button to return directly to homepage.

Raw user responses

| Question | Very Intuitive | Intuitive | Neither | Confusing | Very Confusing |
|--|----------------|-----------|-------------|-----------|----------------|
| Think back to the scenario where you found information about that flower, did you find that task: | | 5 | 1 | 1 | |
| Now think back to the scenario where you focused on events, did you find that task: | 1 | 6 | 1 | | |
| | Yes | No | No response | | |
| Was the information about the flower where you initially expected it to be? | 8 | | | | |
| Did you find it easy to share this information on Facebook? | 3 | 5 | | | |
| Imagine yourself as the first-time visitor to the Brooklyn Botanic Garden. Was this feature useful | 5 | 2 | 1 | | |
| | | | | | |
| | Very Intuitive | Intuitive | Neither | Confusing | Very Confusing |
| Now think back to the scenario where you focused on events, did you find that task: | | 6 | 2 | | |
| | Yes | No | No response | | |
| Was the information about upcoming events where you initially expected it to be? | 8 | | | | |
| As someone looking for events to attend, did you find this feature useful? | 8 | | | | |

Interpretation

- The low fidelity of the prototype may have been off putting to some users.
- We need to make the ability to share facebook a simpler action. A mouse-over option on a picture may be a good solution.
- Overall, most users considered the tasks simple and easy to complete.

- The color palette may need to be rethought. Many users commented on not liking it.
- The scan button is too small or unobvious that most users can't find it. Users are not quite familiar with the scan flower function.

Design Changes

- Allow a user to “share” when they click on a photo inside of the app instead of searching for the correct icon.
- We need either a navigation bar or constant home button as this is expected by modern app users.
- A rethink of our overall styling and color scheme may help users trust the application more.
- We should use a more obvious scan button so that it won't take long for users to find it.
- We'll add events time in the list page, and will use a calendar to show the events.

Process Retrospective

- We discussed a lot about the task scenarios for our prototype. After trying several versions (almost remade it), we finally make it this one. To identify what to do is much more important than the prototype itself.
- The subjects are really instructive. When doing usability evaluation, they would give out ideas that we've never thought about before. Through watching them using the prototype, you can also be aware where needs to be redesigned. Again it proves that it's really important to involve users designing software.

Project Retrospective

Based on our interviews, we found users' ideas are really instructive, even if we've come up with some ideas about our application after discussion, we had a more general view of what should do and how to do it after interviewing our subjects. Another thing we found contextual inquiry really crucial is that the insights and insight clusters we drew from interviews also serve the requirements, wireframes and even prototypes, we would often refer to the insights and insight clusters in our later work to ensure we are in the right direction in designing.

We found it challenging doing the conceptual tasks. Making the personas for our two user types is not an easy thing since we looked through all our contextual inquiry results in previous work in order to get a general view of our two personas. We found the personas really important since a lot of work is based on them, like requirements, task

scenarios and even prototypes and user evaluations. We also discussed the concept of journey map, however, we think this part contributes the least during the whole process, the journey map seems to be least related to the later work of the project, only to provide a more solid understanding of the personas.

At the beginning, we were trying to do too much in our focus scenarios and in the end we couldn't focus on one simple task. Here is a lesson for us: while scenarios for personas should be general enough to describe the user types, task scenarios for personas should be specific enough to complete one single task. We found focus scenarios important in that it is based on the personas and serves a lot in the prototype. The simple task contains the user's personality and behaviors thus guides the functions which the prototype provides. The site map and wireframes are some natural outcomes following the previous work, they serve a lot for the prototype.

Like site map and wireframes, we think prototype is also a natural outcome of the previous work. However, since we didn't make it well in our task scenarios, we discussed a lot about the prototype on which scenario to carry out. The evaluation part is really interesting, users not only give feedback on what we have done, and they are always giving ideas on how to improve the application. This made us figure out that when users are involved in the whole designing process, it is the users who are designing a product, and the designers' job is to make the product in users' minds into reality.

Throughout the project, we found it difficult in understanding some new concepts. For example, we really struggled in metaphors and concept analysis because we found it difficult to translate one thing to another. Communicating with the professor is the best way to solve such a problem.

Team Member Contributions

| Team Member Name | Specific Contributions |
|--|--|
| <p>Collin Aycock collin.j.aycock@gmail.com</p> | <ul style="list-style-type: none"> • Created first draft of project report • Performed two contextual inquiries • Requirements • Created wireframe Axure prototype • Entire paper minus the retro • 2 interviews • Screencast |
| <p>Fei Gao email.gaofei@gmail.com</p> | <ul style="list-style-type: none"> • Coordinated team communication • Created group Stormboard • Created First draft of HCI Contextual Inquiry Protocol • Performed two contextual inquiries • Finished personas • Created journey map • Transfer conceptual model map into Omnigraffle output. • Contributed to system information • Contributed to scenarios, metaphors and interaction types • Created navigation map • Created wireframe PDF output • Wireframe and hi-fi Prototypes • Retro (based on team discussion) • 2 interviews |
| <p>Soudea Forbes soudeaforges@gmail.com</p> | <ul style="list-style-type: none"> • Revised HCI Contextual Inquiry Protocol • Performed two contextual inquiries • Finished concept analysis • Created word-edition conceptual model diagram • Contributed to scenarios • Interview Script • 2 interviews |
| <p>Ayesha Ewing chrisanthamum24@yahoo.com</p> | <ul style="list-style-type: none"> • Performed two contextual inquiries • Finished Personas • Contributed to Requirements • Created system information • Contributed to metaphors and interaction types • Presentation • 2 interviews |

Appendix A Contextual Inquiry Protocol

Screener

Have you recently planned a trip or outing?
Do you use a smartphone and its mobile apps?

Inquiry Protocol/Guide

Intro/Informed Consent

My name is Collin/Ayesha/Soudea/Fei. Thank you for meeting with me today. I'm working on a project which is aimed at optimize visitors' trip experience. I would like to know more about how you plan your trip, view attractions, share experience with friends and participate in activities.

There are no right or wrong ways to carry out an activity, or right or wrong answers to my questions; I just want to watch what you do and hear what you have to say. As you perform the activity, your actions and comments will be noted and you will be asked to describe what you are doing. You may be asked questions before, during, or after performing the activity. This meeting should last about 30 to 45 minutes.

This activity is voluntary. You have the right not to demonstrate any activity or answer any question, and to stop the inquiry at any time or for any reason. Your actions and responses will be confidential and used only in connection with this project. Only your first name will be used to identify you. If you wish, you can use a pseudonym rather than your real name.

Is it OK for me to begin with my requests and questions?

Warm-up and build rapport

We are interested in understanding how people plan their trip to a certain spot and what they do during the trip, especially with smart phone applications.

When was the last time you went on a trip or outing?

Where did you go?

General Inquiry

1. Tell me about your most recent trip experience.
2. How did you navigate to your destination?

3. How did you find your way around your trip/outing site?
4. When you encounter an attraction at your visit location, how do you interact with it? For example, do you look around and go past it, observe at a distance, or have a closer look?
5. Do you often share your experience with your friends or on social media after you finish your trip? Can you please describe how you often do that?
6. If there are some events held in the location, will you participate?
7. Are you currently or have you ever been a member of some kind of cultural organizations which provide classes and workshops (e.g. a museum or historical society)?

Deep focus

1. What were the most pleasant and unpleasant aspects of your trip/outing?
2. Do you often navigate with any mobile applications?
 - a. Why do you use a navigation app?
 - b. Which navigation app do you use most?
 - c. What do you like and dislike about it?
 - d. Can you demonstrate how you might use this app to navigate to a different location?
3. When you stop to take a closer look at a specific attraction, what are you looking for?
 - a. How do you get detailed information that you'd like to know about the attraction?
 - b. Have you ever been interrupted when taking a closer look? What was the cause of the interruption?
 - c. Have you ever looked for information about an attraction after your trip was over?
4. Do you use social media regularly?
 - a. (If no) Do you use social media to share special experiences?
 - b. Which social media platforms do you use most?
 - c. What types of media do you share (images, text, videos, etc)?
 - d. How do you decide what to share on social media? Do media quality, privacy concerns, or social prestige factor into your decision?
 - e. Do you mind showing me the last social media post you made related to a trip/outing you took?
5. How do you learn about events that you may attend?
 - a. Have you ever visited a place and found out about an event that interests you but already happened? How did this make you feel? Please walk me through it.

- b. Did you take any action to be informed of future events at this place (e.g. joining a mailing list, downloading an app, following the place on social media)?
6. If you have been a member of an organization that provides workshops, how do/did you know which classes/workshops are being offered and when they were scheduled?
 - a. Did you ever attend any of these classes/workshops?
 - b. (If yes) How did you remember when/where your class or workshop was?

Retrospective

Can you suggest anything that could have made your trip better?

Is there anything else about your trip experience you'd like to share with me?

Wrap-Up

That concludes my interview. Thank you for taking the time to meet with me and share your experience.

Appendix B Evaluation Script

Hi, I'm [NAME] and thank you for joining me today and participating in a usability evaluation for our app. Before we begin, I want to share some information so you can be a comfortable and informed participant.

This evaluation is expected to take 20 to 30 minutes to complete and will involve completing two tasks and answering questions about your experience using the app prototype.

The prototype and this evaluation is part of a project and the information collected will be used for academic purposes. This information will be shared with three other students working on this project, the professor, and his assistant. With your consent, this evaluation may be recorded through video, audio, or screen capture.

The information we are collecting includes:

- The time spent completing any part of any task;
- Your navigation process for completing the task; and
- Comments that you make or questions that you ask.

You can end this evaluation at any time and for any reason and you will still receive the compensation promised, if any.

Do you have any questions for me?

If you are still interested in participating, please sign this informed consent form and we can begin the evaluation.

For the first part of the evaluation, I am going to ask you to imagine yourself in different roles and to perform an action using the app. I'd like you to explain your thought process as you go through the scenarios, including you expect to happen and any confusion you experience. If you have any questions during this activity, feel free to ask me.

Label the order the scenarios were presented in for each user.

| USER 1 | USER 2 | TASK SCENARIO |
|--------|--------|--|
| | | Imagine that you are a new visitor to Brooklyn Botanic Garden who has limited experience with BBG application. This is your first visit to the Brooklyn Botanic Garden. You want detailed information about a flower you see. Please show me how you would get information about that flower and then share your discovery with friends on Facebook. |
| | | Imagine that you are a member of the Brooklyn Botanic Garden. You would like to take two friends to events in the Garden. Can you show me how you would use this application to find at least 2 events to attend, and then check your events in your calendar? |

User Evaluation Survey

For this part of the evaluation, I am going to ask questions related to your experience completing the tasks. I will offer you a selection of answers to choose from. If you'd like me to repeat or to show you the possible answers, just ask.

Facilitator Note: Highlight or circle the user's answer.

Think back to the scenario where you found information about that flower, did you find

Appendix C
User evaluation subjects

Niko

Hi, I'm Fei and thank you for joining me today and participating in a usability evaluation for our app. Before we begin, I want to share some information so you can be a comfortable and informed participant.

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The prototype and this evaluation is part of a project and the information collected will be used for academic purposes. This information will be shared with three other students working on this project, the professor, and his assistant. With your consent, this evaluation may be recorded through video, audio, or screen capture.

The information we are collecting includes:

- The time spent completing any part of any task;
- Your navigation process for completing the task; and
- Comments that you make or questions that you ask.

You can end this evaluation at any time and for any reason and you will still receive the compensation promised, if any.

Do you have any questions for me?

If you are still interested in participating, please sign this informed consent form and we can begin the evaluation.

For the first part of the evaluation, I am going to ask you to imagine yourself in different roles and to perform an action using the app. I'd like you to explain your thought process as you go through the scenarios, including you expect to happen and any confusion you experience. If you have any questions during this activity, feel free to ask me.

Label the order the scenarios were presented in for each user.

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| | | Imagine that you are a member of the Brooklyn Botanic Garden. You would like to take two friends to events in the Garden. Can you show me how you would use this application to find at least 2 events to attend, and then check your events in your calendar? |

User Evaluation Survey

For this part of the evaluation, I am going to ask questions related to your experience completing the tasks. I will offer you a selection of answers to choose from. If you'd like

Yes No

As someone looking for events to attend, did you find this feature useful?

Yes No

Why?

The subject thinks the event feature is good, but the event list is too simple with only titles, he was expecting some brief description and preview pictures. The events detail page should contain more detailed information, with only a little description and a few pictures he can not decide whether to go or not.

Is there anything else you experienced in that scenario that you would like to share with me?

The subject thinks the events description in 'My Calendar' can be more simplified since he has already been clear what the event is.

In reflecting on your overall experience, are there any changes that should be made to the app?

The 'events' and 'Get tickets' are confusing. He was thinking about entering the 'Get tickets' feature and purchase for events tickets. These two parts should be clearly separated or be put together(When performing the event scenario, subject entered the 'My Calendar' first instead of going to the the 'event' feature, it seems he's confused about how to purchase a ticket.)

Thank you for participating in this evaluation. Before I let you go, are there any other questions you have for me or thoughts you'd like to express?

Again, thank you for your time and your participation.

Doris

Hi, I'm Fei and thank you for joining me today and participating in a usability evaluation for our app. Before we begin, I want to share some information so you can be a comfortable and informed participant.

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The prototype and this evaluation is part of a project and the information collected will be used for academic purposes. This information will be shared with three other students working on this project, the professor, and his assistant. With your consent, this evaluation may be recorded through video, audio, or screen capture.

The information we are collecting includes:

- The time spent completing any part of any task;

Why?

The subject thinks that it's easy to share the plants information.

When sharing information, she also wants to describe her mood.

Imagine yourself as the first-time visitor to the Brooklyn Botanic Garden. Was this feature useful to you?

Yes No

Why?

Scanning is a good feature. The subject hopes the content shown after the scanning be detailed and specific. Should provide enough information for users to read.

Is there anything else you experienced in that scenario that you would like to share with me?

Nope

Now think back to the scenario where you focused on events, did you find that task:

Very Intuitive Intuitive Neither Confusing Very confusing
Confusing Nor
Intuitive

Was the information about upcoming events where you initially expected it to be?

Yes No

As someone looking for events to attend, did you find this feature useful?

Yes No

Why?

It's very convenient.

Is there anything else you experienced in that scenario that you would like to share with me?

The subject wants a calendar view and a category view to check her events.

In reflecting on your overall experience, are there any changes that should be made to the app?

It's ugly looking.

The subject is confused with the 'Get tickets' feature and get events tickets.

The subject wants to the view other people's opinion about the event.

After purchasing tickets for events, the subject was looking forward to some tickets information in 'My calendar – My events', not only the events information.

Thank you for participating in this evaluation. Before I let you go, are there any other questions you have for me or thoughts you'd like to express?

Again, thank you for your time and your participation.

Cynthia

Hi, I'm Collin and thank you for joining me today and participating in a usability evaluation for our app. Before we begin, I want to share some information so you can be a comfortable and informed participant.

This evaluation is expected to take 20 to 30 minutes to complete and will involve completing two tasks and answering questions about your experience using the app prototype.

The prototype and this evaluation is part of a project and the information collected will be used for academic purposes. This information will be shared with three other students working on this project, the professor, and his assistant. With your consent, this evaluation may be recorded through video, audio, or screen capture.

The information we are collecting includes:

- The time spent completing any part of any task;
- Your navigation process for completing the task; and
- Comments that you make or questions that you ask.

You can end this evaluation at any time and for any reason and you will still receive the compensation promised, if any.

Do you have any questions for me?

If you are still interested in participating, please sign this informed consent form and we can begin the evaluation.

For the first part of the evaluation, I am going to ask you to imagine yourself in different roles and to perform an action using the app. I'd like you to explain your thought process as you go through the scenarios, including you expect to happen and any confusion you experience. If you have any questions during this activity, feel free to ask me.

Label the order the scenarios were presented in for each user.

| USER 1 | USER 2 | TASK SCENARIO |
|--------|--------|--|
| | | Imagine that you are a new visitor to Brooklyn Botanic Garden who has limited experience with BBG application. This is your first visit to the Brooklyn Botanic Garden. You want detailed information about a flower you see. Please show me how you would get information about that flower and then share your discovery with friends on Facebook. |
| | | Imagine that you are a member of the Brooklyn Botanic Garden. You would like to take two friends to events in the Garden. Can you show me how you would use this application to find at least 2 events to attend, and then check your events in your calendar? |

Is there anything else you experienced in that scenario that you would like to share with me?

“No”

In reflecting on your overall experience, are there any changes that should be made to the app?

“Nothing comes to mind. With the understanding that this is not a finished product”

Thank you for participating in this evaluation. Before I let you go, are there any other questions you have for me or thoughts you'd like to express?

“No.”

Again, thank you for your time and your participation.

Jon

Hi, I'm Collin and thank you for joining me today and participating in a usability evaluation for our app. Before we begin, I want to share some information so you can be a comfortable and informed participant.

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The prototype and this evaluation is part of a project and the information collected will be used for academic purposes. This information will be shared with three other students working on this project, the professor, and his assistant. With your consent, this evaluation may be recorded through video, audio, or screen capture.

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You can end this evaluation at any time and for any reason and you will still receive the compensation promised, if any.

Do you have any questions for me?

If you are still interested in participating, please sign this informed consent form and we can begin the evaluation.

For the first part of the evaluation, I am going to ask you to imagine yourself in different roles and to perform an action using the app. I'd like you to explain your thought process as you go through the scenarios, including you expect to happen and any confusion you experience. If you have any questions during this activity, feel free to ask me.

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User Evaluation Survey

For this part of the evaluation, I am going to ask questions related to your experience completing the tasks. I will offer you a selection of answers to choose from. If you'd like me to repeat or to show you the possible answers, just ask.

Facilitator Note: Highlight or circle the user's answer.

Think back to the scenario where you found information about that flower, did you find that task:

Very Intuitive Intuitive Neither **Confusing** Very confusing
 Confusing Nor
 Intuitive

Was the information about the flower where you initially expected it to be?

Yes No

Did you find it easy to share this information on Facebook?

Yes **No**

Why?

"I expected the app to take a photo and then prompt me to share"

Imagine yourself as the first-time visitor to the Brooklyn Botanic Garden. Was this feature useful to you?

Yes No

Why?

"It at least gives me basic information on the park"

Is there anything else you experienced in that scenario that you would like to share with me?

"No."

Now think back to the scenario where you focused on events, did you find that task:

Very Intuitive Intuitive **Neither
Confusing Nor
Intuitive** Confusing Very confusing

Was the information about upcoming events where you initially expected it to be?

Yes No

As someone looking for events to attend, did you find this feature useful?

Yes No

Why?

“It would help me schedule”

Is there anything else you experienced in that scenario that you would like to share with me?

“I expected to be able to click the ‘events’ button and then see my events or at least a link to my calendar.”

In reflecting on your overall experience, are there any changes that should be made to the app?

“Add some easier navigation. Like a top bar or a pop-out side menu”

Thank you for participating in this evaluation. Before I let you go, are there any other questions you have for me or thoughts you’d like to express?

Again, thank you for your time and your participation.

Thu

Hi, I’m Soudea and thank you for joining me today and participating in a usability evaluation for our app. Before we begin, I want to share some information so you can be a comfortable and informed participant.

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- Your navigation process for completing the task; and
- Comments that you make or questions that you ask.

You can end this evaluation at any time and for any reason and you will still receive the compensation promised, if any.

Do you have any questions for me?

If you are still interested in participating, please sign this informed consent form and we can begin the evaluation.

For the first part of the evaluation, I am going to ask you to imagine yourself in different roles and to perform an action using the app. I'd like you to explain your thought process as you go through the scenarios, including you expect to happen and any confusion you experience. If you have any questions during this activity, feel free to ask me.

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User Evaluation Survey

For this part of the evaluation, I am going to ask questions related to your experience completing the tasks. I will offer you a selection of answers to choose from. If you'd like me to repeat or to show you the possible answers, just ask.

Facilitator Note: Highlight or circle the user's answer.

Scenario 1

Imagine that you are a new visitor to Brooklyn Botanic Garden who has limited experience with BBG application. This is your first visit to the Brooklyn Botanic Garden. You want detailed information about a flower you see. Please show me how you would get information about that flower and then share your discovery with friends on Facebook.

Click Plants >

Question: Do I pick my own flower?

Plants > Select IRIS

Scroll through information

Question: How am I supposed to share this? Where's the share button?

Comment: When you click on a picture it should zoom in or pop-up.

Question: Where is the information from?

Scenario 2

Imagine that you are a member of the Brooklyn Botanic Garden. You would like to take two friends to events in the Garden. Can you show me how you would use this application to find at least 2 events to attend, and then check your events in your

calendar?

Go back to Main Menu

Iris > Plants > Home Screen

Comment: Have to go back twice Wouldn't it be easier to have a menu on the side?

Click on Events

Select Happy Hour Cocktails > Get Tickets

Comment: I have to go all the way back to the home screen to check the calendar

The event wasn't on the calendar, didn't press submit on the Get Tickets page

Choose ical Music Festival for second event

Comment: This was in the past, shouldn't there be future events instead of the past?

Go to Calendar again

Comment: Shouldn't the calendar be a calendar instead of a list?

Think back to the scenario where you found information about that flower, did you find that task:

Very Intuitive Intuitive **Neither
Confusing Nor
Intuitive** Confusing Very confusing

Was the information about the flower where you initially expected it to be?

Yes No

Did you find it easy to share this information on Facebook?

Yes **No**

Why?

There's no share button. Why only Facebook? Why not Twitter? People have other social media.

Imagine yourself as the first-time visitor to the Brooklyn Botanic Garden. Was this feature useful to you?

Yes **No**

Why?

The information was too general.

Is there anything else you experienced in that scenario that you would like to share with me?

The design wasn't what I expected. I expected pictures instead of a plain background.

Now think back to the scenario where you focused on events, did you find that task:

Very Intuitive Intuitive **Neither
Confusing Nor
Intuitive** Confusing Very confusing

Was the information about upcoming events where you initially expected it to be?

Yes No

As someone looking for events to attend, did you find this feature useful?

Yes No

Why?

It gave a list of events.

Is there anything else you experienced in that scenario that you would like to share with me?

One event was in the past, The date should have been shown earlier rather than only after clicking on the event.

In reflecting on your overall experience, are there any changes that you would make to the app?

Yes, all the comments I made before.