SmartSenior

Smartphone aid for smarter seniors

Introduction and Mission Statement

SmartSenior is a smartphone app that seeks to teach senior citizens how to effectively utilize their smartphones. Although smartphones continue to permeate most sectors of modern society, senior citizens are often left behind, and most seniors barely use or know about the "smarter" features of their phones. Hopefully, SmartSenior will reduce their anxieties and unwillingness of using a smartphone and encourage seniors to become more natural smartphone users.

To help accomplish this goal, we constructed a paper prototype of our SmartSenior app to evaluate the effectiveness of our user interface. We interviewed six senior citizens and analyzed their tendencies and intuition while using the app. From our observations, we are now equipped to modify parts of the design that weren't effective and further flesh out parts that were.

Prototype

Our low fidelity paper prototype of the SmartSenior application consists of two basic components: a hand-drawn paper prototype version and an electronic copy of the paper version that enables linking between “pages” within the prototype. This electronic version was created utilizing the iOS application “POP” which enables paper prototypes to be imported via pictures and then linked together dynamically. The prototype was designed such that users would interact with the POP app via tapping on an iPhone simulation on another mobile device. This touch input would be the main interaction between the user and the app. However, the instructions would be repeated aloud by the mobile device.

The paper prototype outlines the flow of the mobile app within three separate tasks. The concept behind the first task is to introduce a brand-new user to their iPhone. After an introductory screen, the user navigates through a series of screens by tapping green circles. By completing this exercise, the new iPhone user gains knowledge of how to tap on various sized objects located around the screen, and eventually, master the key smartphone gestures (see Fig. 1).
Following the completion of task 1, a small transition into the app’s “Home Page” is demonstrated. These screens provide the basics on the SmartSenior home page, and gives context for specific symbols (see Fig. 2). Users transition through these screens by tapping, which they’ve just learned.
Task 2, a more moderate-level task, guides the user through a tutorial on how to make a phone call. This task begins when “Lesson 5” is clicked from the home screen. At this point, a cyclical pattern begins in which an informative alert gives instructions, the user completes these instructions, another alert pops up, the user responds to this next alert, etc. This model presents the tutorial to the individual in a very linear, step-by-step fashion with the user tapping to continue. In the case of Lesson 5, the user presses the home button, the phone app icon, the keypad icon, and the call icon to complete the lesson (see Fig. 3).

![Figure 3. Task 2 – Moderate Level Phone Call Tutorial.](image)

The final task outlined in the paper prototype is indicative of a more complex task. Although it follows a similar flow to Task 2 in that the lesson alternates between informative alerts and user actions, each alert is more complex and the lesson as a whole has more information than the lesson in Task 2. Task 3 involves completing a tutorial on how to download an application from the App Store. This SmartSenior lesson first guides the user to open the App Store, then teaches the roles of each toolbar icon within the app (see Fig. 4).
Finally it has the user download a specific app (see Fig. 5). Each of these subtasks is illustrated by one or more screens within the paper prototype.
Construction of the working version of the paper prototype consisted of scanning each screen into the POP app and linking them together via hyperlinks within certain designated areas in each screen. The decision to use POP as opposed to a traditional paper prototype was derived from the nature of our project: since our target audience is already confused by smartphones, adding the concept of a “paper app” on top of this would likely result in ineffective tutorials. Thus we imported the paper prototype into POP to better simulate the experience of the app on an iPhone.

Method

Participants
We identified two main groups of seniors who could benefit from our tutorial: absolute beginners and users who already own a smartphone, but use a very limited set of functions. We interviewed a total of six participants that fell in those categories. For the interviewees that either were beginners or did not have smartphones, the interviews gave us an opportunity to study the initial interactions and frustrations that a novice smartphone owner would face. We were also able to see how accessible our interface is to beginners. The rest of the interviewees were chosen for their prior experience with smartphones. Their abilities to perform basic tasks gave us an opportunity to observe if our design is consistent with the general design conventions of iPhone apps.
Environment
The goal of SmartSenior is to allow seniors to learn on their own, without the time and location constraints associated with having another person as an instructor. In this respect, the use of SmartSenior should ideally be location-independent. Subjects 1 and 2 were interviewed in their home and provided chocolate as compensation for their time. Subjects 3 and 4 were approached in the lobby of a hotel while the interviewer was on vacation in Florida. A drink from the lobby café was offered, but only Subject 3 accepted the compensation. Subjects 5 and 6 were both approached in downtown Palo Alto, and the thought of being able to understand a smartphone better was enough compensation for them. All subjects were interviewed while sitting down, using an iPad to emulate the POP app.

![Figure 6. Subject 5 interacting with the app.](image)

Tasks
Three tasks with different difficulty levels were chosen:

- The first and easiest one is a tapping tutorial for seniors who have never interacted with a touchscreen. The lesson starts with a large circle accompanied by instructions to tap on it. After each tap the circle gets progressively smaller and moves around the screen.
- The second task is a tutorial on making a phone call. The participants are presented with a simulation of an iPhone homescreen. At each step a panel displays information on the current action and asks the user to tap the correct icon on their phones. The task is completed when they manage to dial a number in the simulation. We chose this task because making a phone call is an action that everyone is familiar with. For the absolute beginners we could observe how difficult it is to perform a familiar task in a new way. By observing the rest of the participants who could already make a phone call, we were able to infer how intuitive our tutorial is.
- The last and hardest task is a lesson on downloading an app from the App Store. The structure of the lesson is similar to the moderate task, but the user has to go through a longer sequence of steps and assimilate more information. Here we want to find out how easy it is to go through a tutorial that only advanced users would go through.
**Procedure**

For all experiments, an iPad running the prototype simulation was used. Before the user test, the facilitator explained the purpose of our app and provided a short description about the first task. For some subjects the steps of the tutorial were read out loud; for others, the subjects read them on their own. After the completion of each lesson, the facilitator congratulated the participant and introduced the next task.

Due to time constraints, we could not conduct the interviews with every team member present. Because we used POP instead of a paper prototype, there was no need for a person acting as a computer, and in fact, we could conduct interviews with one person. We did this by recording the subject’s interactions on video, so we would be able to review it later. Angela interviewed Subjects 1 and 2 on her own. Maggie interviewed Subjects 3 and 4 with the help of her mother, who took notes of the interaction. Both Maggie and Angela acted as the facilitator, and when needed, as the "computer" reading the tutorial instructions out loud. Joanie and Rassan interviewed Subjects 5 and 6 together. Joannie took the roles of facilitator and computer while Rassan videotaped the encounter.

**Test Measures**

When doing our tests, we tried to evaluate the ease with which inexperienced users navigate SmartSenior. Our main goal is to have a product that is both easy to navigate and as close to the native way a smartphone looks and behaves as possible. To assess the level of completion of our main goal we used the following criteria:

- **Number of errors** and in particular, errors that led to either long recovery times or inability to recover without help. This measure helped us identify design flaws that frequently led to confusion.

- **Number of actions learned/rate of learning new skills**. Since our users are inexperienced and the nature of our tutorial is repetitive, we expect that our users would start off making more mistakes and become more skillful with each lesson. We observed both the rate of learning the basic features of our tutorial (OK button to continue, BACK button to go back) and the rate of learning the actual actions required to complete a task.

- The final measure we used is **time to understand instructions**. Generally time is not a constraint for our app; one of the advantages of SmartSenior is that the user can set their own learning tempo. However, we strive to make our instructions as accessible as possible. Throughout the tutorials, we presented our subjects with instructions with varying amount of information and experimented with two types of presenting the instructions: only visual and a combination of visual and aural. We observed the time needed to understand the different types of instructions.

These observations helped us find the points of failure of our design and the features our participants found easy to comprehend.
Results

Subject 1
In the beginning, the subject was confused by the tap tutorial; after reading instructions he did not know that he had to hit "OK" to proceed to the next step. He was able to finish the tutorial very quickly and follow the tap circle around without losing accuracy as the circle got smaller. After finishing the task, he complained that it wasn't fun and would have preferred more a tutorial more like a game where he would squish bugs. When doing the second task, the subject kept trying to push the icons that were part of the tutorial instructions, and did not understand why they did not work (not realizing that you were supposed to press "OK" first, then press the icons indicated by the tutorial). When presented with the keypad, his first instinct was to dial a number, forgetting that the tutorial told him to simply press the green "call" button. The third task was pretty straightforward, although the subject pointed out that there was too much text and often could not recall what the tutorial said. He mentioned that some audio would have been better, because he would prefer listening than reading all the text.

Subject 2
Subject 2 already had an iPhone and was almost able to breeze through the tap tutorial, but was stopped each time by the large "Lesson 1: Tapping" title which she kept reading out loud. She had some trouble finding the phone icon in the second task (probably because it is in a different location compared to where she has it). She was able to find the keypad icon quickly, but when presented the keypad, she wanted to dial her daughter's phone number (forgetting what the instructions said). When going through the third task, the subject was very impatient and went through the steps quickly. When the text contained icons, she tried to tap them and was confused why nothing happened. However, she recovered quickly and realized that she was supposed to hit "OK" to continue. When she reached the task to locate the RemindMe app, she could not find it, because she forgot what she was supposed to look for. After completion of the task, she remarked that she was willing to try out the App Store now, although she might need to do the tutorial again.

Subject 3
Subject 3 has an iPhone and some experience using it. For the experiment he was left to read the instructions on his own. Since he already knew how to tap, he treated the first tutorial as a speed challenge. The small sizes of the last two circles were problematic and required more than one tap. After completing the first tutorial, Subject 3 encountered difficulties with navigating the lessons menu. While trying to figure out what he should do, he noticed the green outline that appears around button that should be pressed and relied on it. During the second task Subject 3 consistently tapped on either the instructions or the in-text icons instead of the “OK” button, but by the end of the tutorial learned to press "OK". During the last task, he quickly got bored and started clicking without reading the instructions. At this point the interviewer offered to read the instructions out loud. The tutorial was re-started with vocal instructions, which allowed for a quicker comprehension of instructions. His reluctance to read instructions showed us the importance of having vocal instructions.
Subject 4
Subject 4 has never had or used a smartphone. He successfully completed the first tutorial with a small number of mistakes. Upon encountering the following screens with more instructions, Subject 4 got progressively more discouraged. Because of his lack of any experience with a smartphone, Subject 4 did not know any of the basic iPhone features/elements (home button, unfamiliarity with the home screen). After being asked to locate the phone icon on the home screen, he decided to give up, saying that he is too old. Even though Subject 4 did not complete all tasks, he provided us with valuable information. His decision to quit the interview can be explained with the gap between the first lesson on tapping (which he completed) and the next one.

Subject 5
Subject 5 had not previously used an iPhone, which was quite apparent throughout the first task, the tap tutorial. He was quite hesitant and waited for the voice guidance reading the instructions before proceeding. Over time, he became more confident and tapped more quickly. For the second task, Subject 5 started out great, intuitively understanding that he needed to hit “OK” to continue to the next screen. At the step where he needed to click the iPhone home button, he did not understand until instructed where to tap. He had trouble tapping the right amount and remembering instructions from the previous screen. Subject 5 also tended to press on the icon within the text instead of clicking “OK” to dismiss the alert and then following the instructions. Additionally, Subject 5 was quite concerned that he was doing poorly and thus needed repeated assurance that he was doing exactly what we wanted. In the final task, it was obvious that he had learned from the previous tutorial. His tapping had improved by this point (he was tapping with his index finger instead of with his thumb), although he still struggled to click the small “Free” and “Install” buttons to install an app. Overall, Subject 5 seemed to want constant feedback about how he was doing, needed and liked that the instructions were repeated via voice, and had some trouble when there was a lot of text.

Subject 6
Subject 6 had not previously used an iPhone, but the tap tutorial was intuitive for him. Over time, he became more confident and tapped through the tutorials more quickly. In general, he could follow the tutorial; however, he had trouble with the smallest taps. At some point he even began using his nails instead of fingertips to tap and his taps weren’t getting registered by the phone. After the tap tutorial, he found Lesson 5 for phone calls very quickly. However, he was confused by the iPhone-within-an-iPhone interface; when instructed to find the home screen button, he tried tapping on the one in the instructions instead of the one on the “actual” iPhone. This continued for each subsequent tutorial. He repeatedly tried to tap the icon in the instructions instead of hitting “OK”, then doing what the instructions said to do. Furthermore, he often was distracted by the UI on the screen and would lose focus on the task at hand. Also, throughout the interview, even though there was a voice reading the instructions out loud, he still repeated the instructions on his own. In summary, Subject 6 did a decent job learning from the material, but he was easily distracted and seemed to require a couple moments to comprehend exactly what was being asked of him.
Discussion

The main result we gathered from our experiment is that seniors are easily distracted and impatient when learning. We found that many subjects did not like reading the instructions of the tutorial (either because there was too much text or it was hard to read) and preferred it being read out loud. When the instructions had icons or images, subjects wanted to tap those icons instead of actually reading the instructions and tapping “OK” to continue. After reading the instructions, most of the subjects forgot exactly what they were instructed to do, and needed reminders from the interviewer. To fix this, we should change the amount of text presented and perhaps make the text itself more interactive, since seniors expected to be able to do the steps of the tutorial during the instructions. However, it is unsure whether the unwillingness to carefully read instructions was because of the amount of text itself or due to the roughness of the paper prototype.

For the tapping tutorial in particular, the subjects treated it as a game. One subject in particular got very competitive and tried to complete it as quickly as possible. Another subject mentioned that it wasn’t very fun and would have preferred squishing bugs or some other kind of fun activity. Many seniors wanted instant feedback/gratification; for example, a sound effect when successfully tapping or constant, encouraging messages that they are on the right track. Due to the restrictions of a paper prototype, this could not be implemented at this time, but something like sound effects, haptic feedback and success messages would definitely be added in future iterations.

Finally, we noticed that subjects had trouble with the small interface. Some subjects had trouble tapping on the smallest circles in the tap tutorial, as well as small buttons in the App Store. The lack of screen space prevented the prototype from having more useful navigation controls, such as being able to navigate backwards in a tutorial. Many subjects had difficulties finding specific icons and text on the screen (although this could possibly be because of the roughness of the prototype – this would be improved when the interface looks more like a real mobile interface).

From the interviews, we gathered some good feedback from using our app, and found that we needed to make the interface simpler, more responsive, and fun. It would also be interesting to see how subjects would respond to an actual iPhone interface rather than a paper prototype, and if this would change their behavior.
## Appendix

### User Testing Heuristics

<table>
<thead>
<tr>
<th>Problem</th>
<th>Severity</th>
<th>Possible Fix</th>
<th>Task #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could not tap on object due to small size</td>
<td>3</td>
<td>Make objects bigger.</td>
<td>1, 3</td>
</tr>
<tr>
<td>Forgot instructions</td>
<td>3</td>
<td>Add easily accessible option to repeat instructions.</td>
<td>3</td>
</tr>
<tr>
<td>Could not read instructions (got bored)</td>
<td>4</td>
<td>Test with typed, not handwritten text</td>
<td>mostly 3</td>
</tr>
<tr>
<td>Test with typed, not handwritten text</td>
<td>4</td>
<td>Increase font size. Add voice instructions.</td>
<td></td>
</tr>
<tr>
<td>No feedback after task completion</td>
<td>2</td>
<td>Add feedback.</td>
<td>All</td>
</tr>
<tr>
<td>Confusing icons from the instructions with interactive objects</td>
<td>3</td>
<td>Make graphical objects in instructions interactive. Position them in a way</td>
<td>2, 3</td>
</tr>
<tr>
<td>that they do not appear to be interactive</td>
<td></td>
<td>that they do not appear to be interactive.</td>
<td></td>
</tr>
<tr>
<td>Confusion with iPhone simulation</td>
<td>2</td>
<td>Graphically differentiate simulation from actual iOS. Include iPhone frame</td>
<td>When needing to press the home button</td>
</tr>
<tr>
<td></td>
<td></td>
<td>only when the homescreen button needs to be pressed</td>
<td></td>
</tr>
</tbody>
</table>

### Table 1. Problems that arose, where they occurred, and their severity.

#### Severity Rating

- 0 = I don't agree that this is a usability problem at all
- 1 = Cosmetic problem only: need not be fixed unless extra time is available on project
- 2 = Minor usability problem: fixing this should be given low priority
- 3 = Major usability problem: important to fix, so should be given high priority
- 4 = Usability catastrophe: imperative to fix this before product can be released
The SmartSenior application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of SmartSenior. Data will be collected by interview, observation and questionnaire. Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Angela Gong, Joanie Hollberg, Maggie Skortcheva, Rassan Walker) or with Professor James Landay, the instructor of CS 147:

James A. Landay  
CS Department  
Stanford University  
650-498-8215  
landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the student/researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the SmartSenior experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time.

Name ______________________________________________
Participant Number __________________________________
Date ______________________________________________
Signature____________________________________________
Witness name ________________________________________
Witness signature_____________________________________
Introduction
We are conducting a short experiment to evaluate the interface of an app* designed to teach beginner smartphone users how to use their devices. It is called SmartSenior and consist of a sequence of tutorials, which start from the very basics and slowly progress to more advanced tasks. Get background information:
● Do you own a smartphone?
● What apps do you use?
● Do you downloads apps on your own?

Confidentiality
The experiment is completely confidential; no identifying information would be available to anyone beyond our team and instructor. We have a simple consent form for you to sign.

Introduction of SmartSenior
What you will see in a moment is a very early stage prototype. It is not a finished version of the app; think of it as a sketch and let us know if you have trouble reading or understanding anything. This experiment is not designed to judge your abilities; we are trying to evaluate how easy SmartSenior is to work with, so we would really appreciate, if you shared any thoughts about the interaction. We currently have three lessons with different levels of difficulty.

Tap
Our first tutorial is designed to teach you how to interact with a touchscreens. Please, follow the instructions of the tutorial, and let us know if you have any questions or comments.

Make phone calls
The second tutorial will guide you to the process of making a phone call. Again, follow the instructions of the tutorial, and let us know if you have any questions or comments.

Downloading apps
Our last tutorial will show you how to download apps from the app store. Again, follow the instructions of the tutorial, and let us know if you have any questions or comments.
Notes from Subject 1

Interview took place in a familiar, home setting at a table

Male, 50-60

- Has never owned a smartphone before (finds that they have too many features that he doesn't need)
- Had an iPad but did not understand how to use it and gave it to another family member
- Uses a Kindle solely for reading
- Has a touchscreen keypad to enter his workplace, but uses a stylus to type because his fingers are too big and he can't see what he is tapping if he is using his fingers

Task 1 (5 minutes)

- Spent some time reading the instructions, after reading the instructions, paused and didn't do anything until prompted to continue the tapping tutorial
- Afterwards, understood what to do and could tap easily and follow the tap circles
- Complained that it wasn't fun
  - Suggested that there were some sounds, like a game that kids could play
  - Maybe like tapping a bug or a funny face
- Was annoyed that the tapping circles kept jumping around
- Understood that he had to click "OK" to finish the tutorial

Task 2 (6 minutes)

- Read the home screen for a bit, and then complained it was "not OK"
  - Did not like the "OK" button, preferred if it said "Continue" or something else
  - Did not know what "OK" meant, maybe like go to next step, learn more, what is "OK" suppose to do
- Wanted some kind of "back" button
● Scrolling through the home screen did not work (the POP app did not respond well to scrolling) so experimenter had to manually open up the phone tutorial for the subject

● When the instructions said to tap the ___ button, subject tried to tap button in the instructions instead of hitting "OK" then doing the task
  ○ Thought the button in the instructions was the button to press
  ○ Ignored the "OK" button until prompted
  ○ Says "it doesn't work" when pressing the keypad icon

● Still could not find keypad icon even though the instructions said to

● For Step 2, tried to push the green phone button in the tutorial instructions again, even though experimenter told him in previous step that he was supposed to press "OK" first, then perform the action

● When getting to the keypad screen, his first reaction was to dial a number
  ○ Did not actually fully read the instructions (which said that the number was already entered)
  ○ Forgot what the previous step said

● After being reminded, hit the green button

● Presented with end tutorial screen, which he recognized and understood that he was done with a task

Task 3 (10 minutes)

● Presented with the home screen and instructed to figure out how to download app

● After reading the screen, found the "Downloading Apps" tutorial

● Complained again about too much text

● Didn't know what an iPhone home button was (although this might be okay because at this point the user should be more advanced and would know)

● Found the App Store icon immediately

● During the tutorial that explained each feature of the App Store, kept trying to click the icons that were being explained (did not realize that it was just an explanation and no practice was involved)

● "Too many words -- nobody can read this stuff"

● "You have to spread it! Nobody can read all of this at once"

● Wanted animations to SHOW how to do some stuff

● When got to the screen "Click on the Featured toolbar", tried clicking there first instead of "OK"
  ○ Didn't know what to do afterwards
  ○ Tried pressing "Update" to all the apps

● Had to be prompted to press "Featured"

● Spent a long time looking for the Rx icon for the app

● Was very surprised by the small size of the text

● Tried to tap everywhere (other than the "OK" and "Cancel" options)
  ○ Thought he was in the actual App Store now
● Tutorial about pressing "FREE" to install the app – read the instructions and immediately hit the button when was supposed to hit "OK" first
● "So many OKs are not good"
● Made a reference to the "Press any key to continue" thing, said "Which key? What is any key?"

**General Feedback and Results**

● Doesn't like reading and would prefer more animations and sounds over text
  ○ Maybe an animation where you have a finger that moves on a screen and presses things and says do this do that
● Screen too small and he can't read anything
● Did not remember what the steps said
  ○ Would have preferred to do the task in the same screen the steps were presented
  ○ Have some kind of reminder to tell him what he was supposed to do
● Would have liked feedback (either audio, sound effects)
● Text too small to read, suggests having at most 3 lines otherwise he doesn't want to read
● Found the boxes connecting the steps (the subway route system thing) was not helpful and was wasting space
  ○ Would have preferred a "Step 1 of 6" instead

**Possible Changes for Next Test**

● Incorporate audio (have experimenter read out loud what the tutorials are saying)

Total time: 25 minutes

**Notes from Subject 2**

Female, 50-60

*Interview took place in a familiar, home setting at a table*

● Currently has an iPhone 5
● Daughter downloads all the apps for her, does not know how to use the App Store
Knows basic touchscreen controls but does not know how to use advanced features of the phone (checking voicemail, adding contacts)

● Has a tablet but only watches Netflix on it (does not know how to do anything else)
● Can make phone calls, check email, use Safari
● Doesn’t know how to update apps or what the red notification bubbles mean

Task 1 (2 minutes)
● Kept saying out loud "Lesson 1 Tapping", thought it was important at every screen
● "You need to have sound"
● Went through very quickly, understood the tapping

Task 2 (3 minutes)
● Read the instructions out loud to herself
● Was presented with the home screen. Could not find the "Phone Call" tutorial
  ○ Went through the possible lessons from the top and then found the "Phone Call" tutorial
● Knew where the home button was
● Tried to press the phone icon in the instructions instead of pressing "OK"
  ○ Was confused why nothing happened
  ○ Had to be told to press "OK" first
● Knew the position of the phone icon and keypad because it's the same on her iPhone
● At keypad tutorial, once presented with the keypad, the first thing she wanted to do was type in her daughter's phone
● Didn't notice that no numbers were appearing, then pressed the green call button
  ○ So it was okay since the app still continued

Task 3 (8 minutes)
● Couldn’t find "Download Apps" until she went through the menu slowly
● Tried to touch the App Store icon instead of "OK"
● Spent a long time looking for the App Store icon
● When the instructions said "Click the [icon]", she stopped reading the tried to click the icon first
  ○ When nothing happened, realized that you were first supposed to hit "OK"
● Went through screens quickly and hit "OK"
● Summarized what she learned quickly after each screen
● When the tutorial said to press the "Featured" icon and was brought to the main App Store page, the first thing she tried to do was update all the apps
  ○ Forgot what the instructions said
● Couldn’t find the Rx app
  ○ Forgot what the instructions said to click on
  ○ Said she can’t read anything or recognize anything
● Understood quickly that she was supposed to hit "Free" and "Install"
Was unsure if she would understand how to use the App Store now but is willing to try

General Feedback
- Started to point out design issues, wanted neater text
  - Was told that this was a paper prototype
- Wanted more sound, otherwise not as interested in the app
- Didn’t want to read anything
  - Too lazy to read
  - Don’t recognize many words
  - Want to just look at pictures
  - Want big words
  - Voice reminding what to do
- Screen should look better
- When you finish each step, maybe some "ding!" sound
- Want a more real-sounding voice like a real person teaching how to use the app

Possible Changes for Next Test
- Incorporate audio (have experimenter read out loud what the tutorials are saying) -- did not have time to do this before this test

Total time: 20 minutes

Notes from Subject 3
Male, 70-80
- Has an iPhone 5, will buy iPhone 6 soon because of the bigger screen. Has an iPad.
- Can do basic to moderate tasks (phone calls, messages, mail, alarm clock, reminders (favorite feature of smartphone), photos). Uses his iPad at home to read and look at photos.
- Finds the font to be too small, tried carrying a magnifying glass, but kept forgetting it at home so gave up. Went to the Apple store to change the size, but can’t do it on his own.

Task 1 (~4 minutes)
- Tapped on the home button first, was confused why nothing happened, after couple home screen taps, tapped on the screen.
- Once the tap tutorial was open, was confused where to tap first, tried tapping on the text. Once he figured out that he needs to tap on circle, got competitive and tried to tap as quickly as possible. The last two circles needed a few tries to tap successfully. Seemed content with his performance and said that he likes it.

Task 2 (6-7 minutes)
- Tapped on “Tap to continue text” first before selecting “continue” button
Tried tapping a few times on the green check mark in the text. Noticed the green outline around the OK button, asked if it appears when you do something wrong. After a short explanation on when the outline appears, said that it would be easier if outline was there from the beginning.

Spend some time reading through lessons menu. When done asked “Now what?”, was told to select the phone calls tutorial. Tapped at the green check mark on lesson 1 at first, quickly tapped on the right lesson

Repeatedly clicked on in-text icons first; when the green outline appeared pointed at it and looked at the interviewer and then clicked the right button.

Tried dialing a number on the keypad, looked confused why nothing is happening; started pressing the 0 button; had to be informed that the number is already dialed; said he thought the "phone was stuck"; told a story of his phone being unresponsive (he took it to the Apple store)

Initial reaction was to move finger on top of the green check mark, stopped for a second and tapped on OK button

**Task 3 (20 minutes)**

- (Intro screen) Said that there is too much text, the interviewer offered to read it out loud, interviewee refused. Asked what utilities are.
- Asked how to get back from step 3, said he wanted to read it again, said he does not know what a bottom toolbar is, expected step 3 to explain
- After a 1-2 more screens of instructions started clicking on OK button without reading the instructions; had to be stopped and asked if he wanted the interviewer to read the instructions out loud. The interviewee agreed and the tutorial was restarted
- (The rest of the task is completed with the interviewer reading the instructions out loud)
- Asked again what/where is the bottom toolbar; was told that the toolbar in the text is the same as the one in the bottom. Took his iPhone out, asked how to get to the toolbar (interviewer showed him the App Store icon and then the toolbar)
- When the instructions asked for “Featured” relied on the green outline to find it
- Clicked on “Free” instead of “OK” when the instructions asked him to do so.

**General Feedback**

- Performs better when given vocal instructions
- Had trouble telling interactive objects from non-interactive
- Noticed the green outlining of the correct buttons and used it as a guide, wished it was more visible
- Had trouble with smaller objects and fonts
- Displayed curiosity about learning

**Possible Changes for Next Test**

- Don’t even ask if they want a voice, just read it out loud for them
Notes from Subject 4
Male, 80-85
- Has a feature phone and never owned or used smartphone
- Currently does not consider getting one

Task 1 (~ 10 minutes)
- Facilitator showed the first screen and tapped to transition to beginning of tutorial
- Participant presses on first circle for too long, interviewer explains the taps need to be shorter
- Slowly progresses through the tutorial; reads instructions presses with index finger
- Seems a little amused when the circle starts to move

Task 2 (~5 minutes)
- Does not know what to do when presented with first bubble screen, told to press OK
- same thing for next one
- Instructed to press “lesson 5”, has trouble locating it, finds it
- does not know what the home screen button is
- reads through first screen, says he doesn’t understand, instructed to press OK
- upon seeing the home screen says it’s too hard
- decides to give up, does not want to continue
- says he is too old

Task 3
- N/A

General Feedback
- Too intimidated by the complexity of interface of task 2
  - too many unfamiliar elements
- Was able to complete first assignment and tap on the correct buttons when verbally instructed to do so
- Seems like he would have been able to complete 3 consecutive tutorials

Possible Changes for Next Test
- Include more tutorials between task 1 and task 2; have a separate set of tutorials to test on absolute beginners

Total time: ~15 minutes
Notes from Subject 5

Male, 55-65
- Was reading a book when we arrived
- Does not have a smartphone and not used to an iPhone interface

Task 1 (3 minutes)
- At first, a little unsure what to do with the tap tutorial. Waited for the voice to say "keep tapping" before he began tapping
- Began to get more confident and started tapping without voice guidance
- Had trouble tapping the smallest circles
- Wanted an explanation about the tapping -- was tapping too long or too short so the taps weren't being registered

Task 2 (4 minutes)
- Knew to hit “OK” to continue to the next screen
- Was instructed to hit the iPhone home screen but could not find it until instructed
- Had trouble tapping the phone icon but managed it eventually
- (General had trouble with tapping the right amount)
- Did not remember the last instruction “press the keypad icon”
- Tried pressing the phone icon in the instructions (did not know to press “OK” first)
- Had to repeat instructions via voice to remember that he just had to press the phone icon
- Repeatedly asked if he was doing well

Task 3 (4 minutes)
- Could not find “Lesson 15”, had to look around and have it pointed out
- Knew where the iPhone home screen button was immediately after being told what it was before
- Had some difficulty find the App Store icon
Although the tutorial was just telling him what each icon does, kept trying to press the icons instead of “OK”
  ○ But then realized he just had to hit “OK”
● Slightly frustrated by the lack of response when tapping
● Couldn’t find the “Featured” app location until trying several times
● Seemed to improve his tapping (taps now with his index finger instead of thumb)
● When instructed to click the “Free” part and brought to the app’s screen, proceeded to click on the app and other larger icons
  ○ Was unsure and said he thought he was doing it wrong
● Had trouble pressing the small “Install” button

**General Feedback**
● Seem to want constant feedback and how he is doing
● Needed and liked that instructions were repeated via voice
● Had some trouble when there was a lot of text

Total time: 15 minutes

**Notes from Subject 6**

Male, 65-75
● Was reading a newspaper when we arrived
● Does not have a smartphone

**Task 1 (2 minutes)**
● Understood the tapping tutorial immediately and proceeded to tap with great accuracy
  ○ However, had trouble with the smallest taps
  ○ Thought he had to have a smaller surface with tapping so started using nails instead of fingertips to tap
● (At this point, caught the interest of another senior. She was interested in also testing our prototype. The current subject also expressed interest in us coming next week to show a more finished prototype)
Task 2 (4 minutes)

- Found Lesson 5 for phone calls very quickly
- When instructed to find the home screen button, tried tapping on the one in the instructions instead of the one on the “actual” iPhone
- Again, tried to tap the icon in the instructions instead of hitting “OK” then doing what the instructions said to do
- Knew that phone icon was somewhere near the bottom of the screen, although had to spend some time finding its exact location
- Kept tapping the icon in the instructions (for example, the keypad) even though already told to press “OK” first
  - When presented with the call history screen, was distracted by the list of calls and wondered what they were (instead of hitting the keypad icon)
  - Noticed the voicemail icon and was interested in that
- Repeated out loud some of the steps
- Unlike other seniors, when at the keypad, did not try to press numbers on the keypad
  - Helped by the fact that the voice instructions reminded him that the number was already entered

Task 3 (10 minutes)

- Remembered where the iPhone home button was
- Couldn’t remember what the App Store icon is
- Slowly read and repeated the instructions
- After each tutorial step, re-read the instructions on his own after the voice finished speaking, then tried to click on the icon (even though he was just supposed to click “OK”)
- (Attracted the attention of another senior who was curious what this app is for)
- Subject proceeded to continue the tutorial on his own without the voice guidance and read instructions out loud
- Was reminded to click “OK” first
- Asked about what “Featured” apps mean
- When supposed to find the “Remind Me” app, got distracted by the “Near Me” option in the toolbar and had to be reminded what to do
- Had trouble finding the small “install” button (had to be it pointed out)
  - Said that the instruction screen distracted him (didn't realize Free and Install were at the same place)

General Feedback

- Got distracted easily by other more exciting-looking icons
- Even though there was a voice reading the instructions out loud, still repeated the instructions on his own

Total time: 20 minutes