CS 468/568

SOS Application

Final Report

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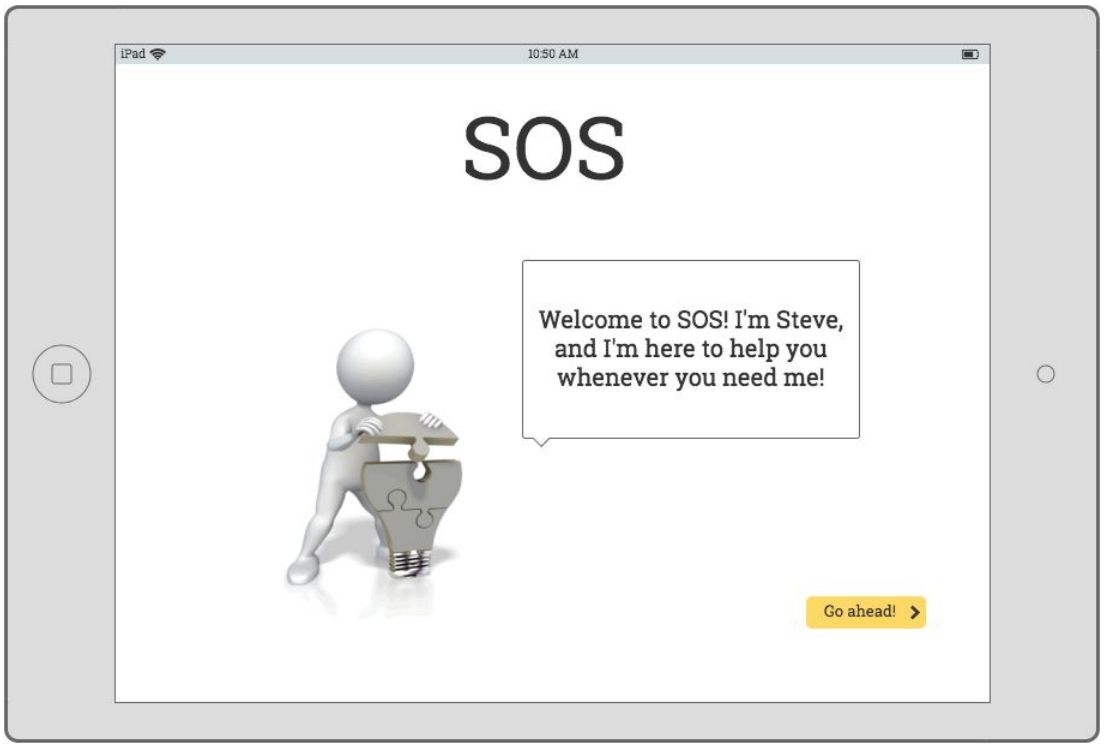
Use Cases

Underserved Use Case 1: John has to undergo surgery

John has just been asked to undergo a surgery for his Softball injury (detailed in persona). He is stressed about it, since he has never undergone a surgical procedure before. He wants to know more about the process, and is quite anxious about what's next for him. [Anxiety/Stress] Stressed by his upcoming surgery, he seeks to learn more. [Self Esteem] Being easily embarrassed when asking questions, he seeks a discrete way to learn more.

Screen 1: Welcome screen

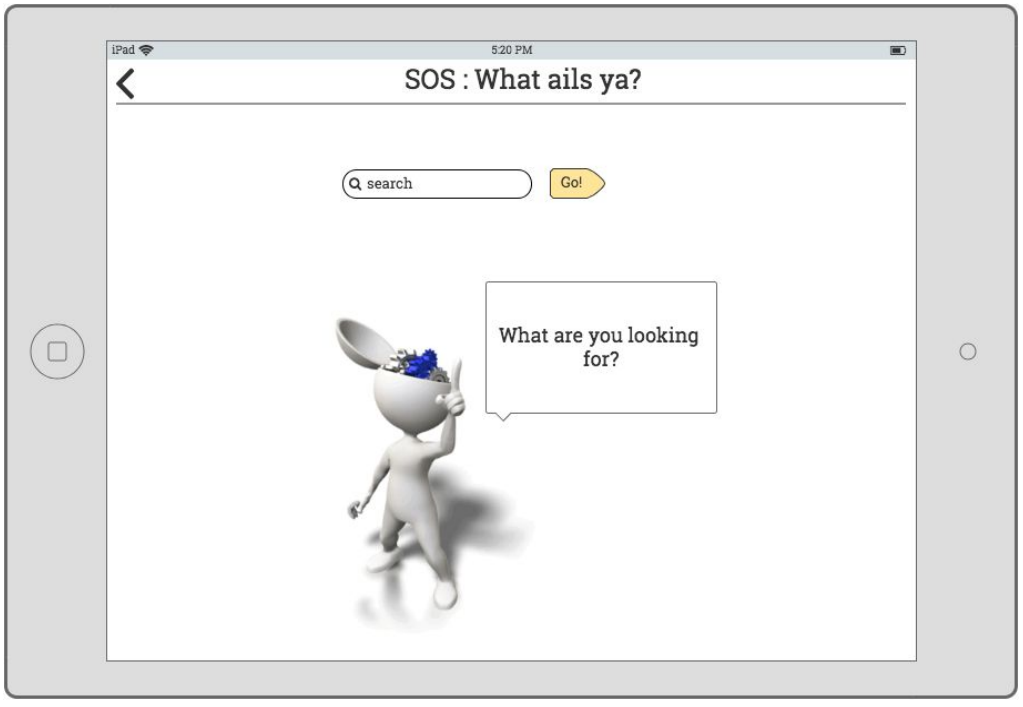


[Willingness to use/learn new technology] Although unfamiliar with this software, John has only one option. The arrow and clear text make this option stand out.

Screen 2: Menu screen

[Willingness to use/learn new technology] Although unfamiliar with this software, John recognizes these as buttons due to their shape and shading. In choosing a button, John, being a native english speaker, starts top left to right. [Stress/Anxiety] In choosing, although [Willingness to use/learn new technology] unfamiliar with SOS, the simple text show chosen path and reflect his mission to find a definition to his treatment.

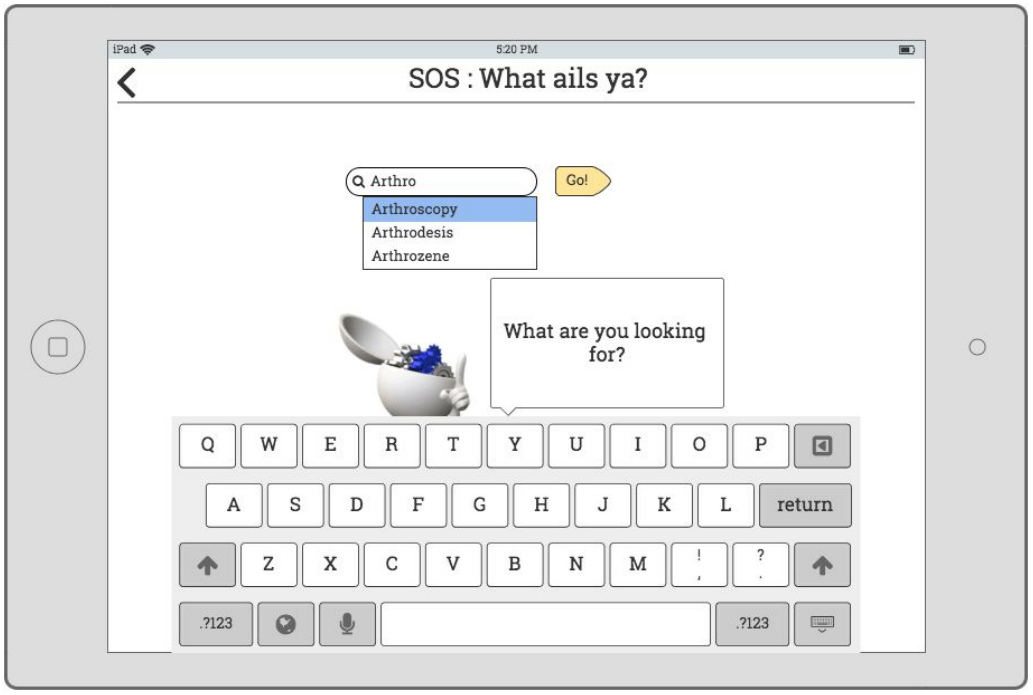
Screen 3: Glossary Search



After clicking the “What ails ya?” button John sees the change in screen and recognizes common UI options (search bar, back and next buttons)[Willingness to use/learn new technology]. As he is still searching for his treatment information, he will look to the search bar and attempt to enter his treatment.

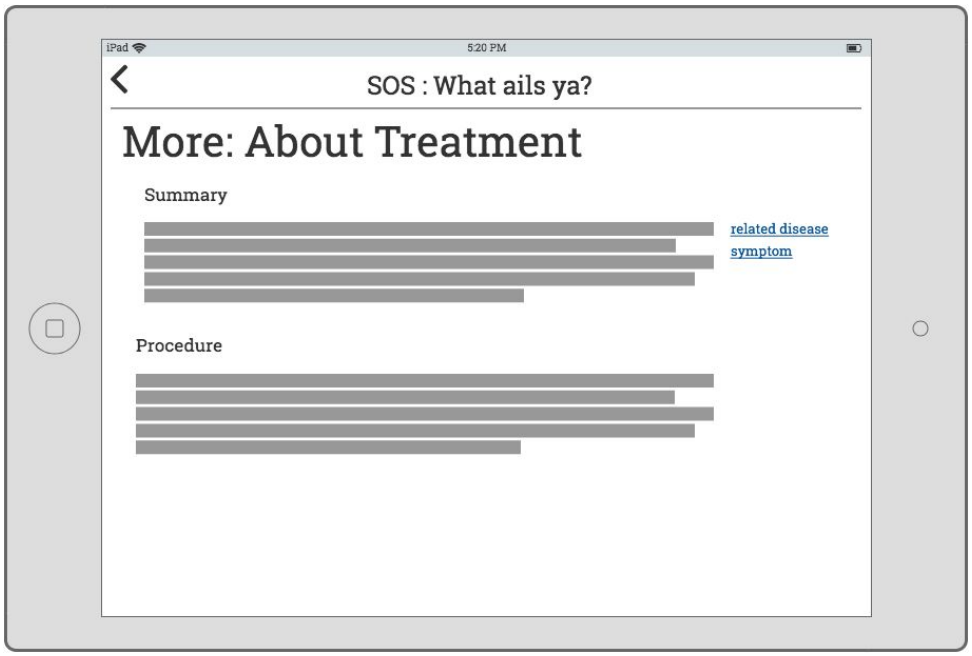
The central placement makes this the only and clearest choice. There is a back button, but as John understands regular iOS icons, he understands that it will take him back. ‘Steve’ further prompts John, to encourage his searching[Anxiety/Stress].

Screen 4: Glossary Search Select



This search will populate with suggestions as John types. This is to correct for misunderstanding or misspellings [Ability to Multitask]. Each option is selectable and will take John to the related pages.

Screen 5: Treatment page

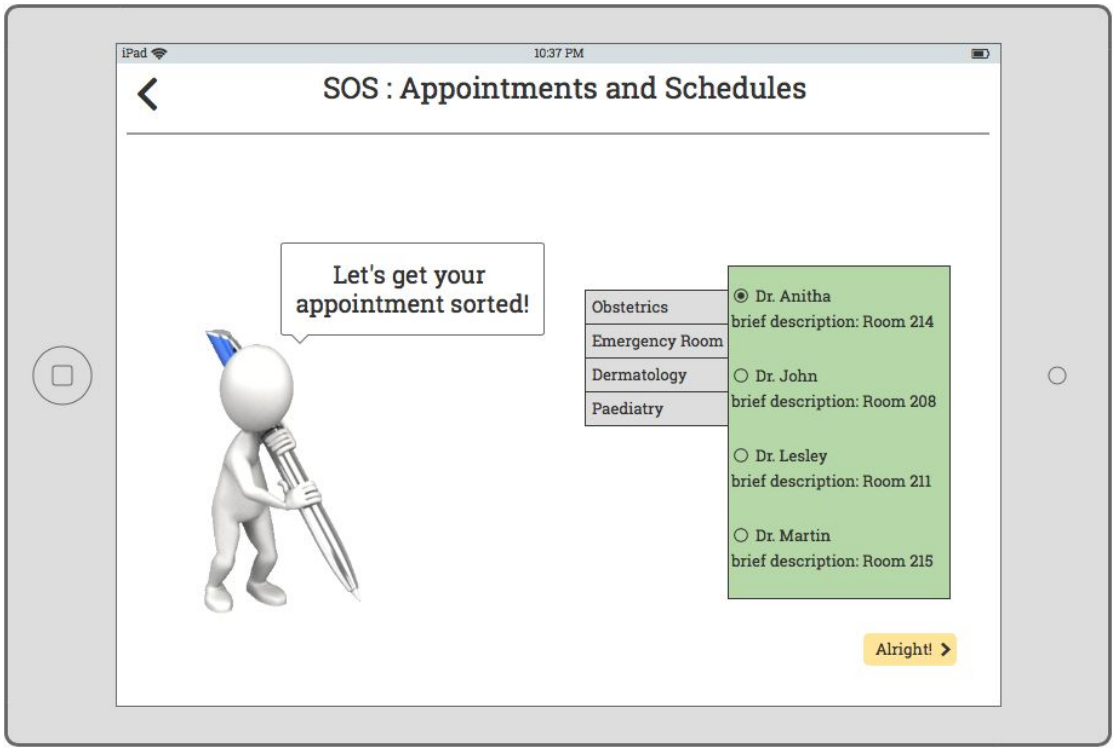


The result screen shows a display of information related to John's search. [Willingness to use/learn new technology] As a regular user of job related software, John is able to consume information reasonably efficiently, despite his stress [Stress/Anxiety]. Given this, [Self Esteem] John would like to know more, and recognizes the clearly underlined links [Willingness to use/learn new technology]. Clicking on these is his next course of action, as he desires more knowledge.

Screen 6: Menu page

John then navigates back to the menu, and wonders where he could speak with the doctor he's consulting. He clicks on the "Appointments and Schedules" option, to check the schedule of his doctor.

Screen 7: Appointments and Schedules page



The screen navigates to the display schedules of doctors in different departments. He quickly finds his doctor to find her schedule, and is relieved [Anxiety/Stress] to find that her office is on the same floor as his.

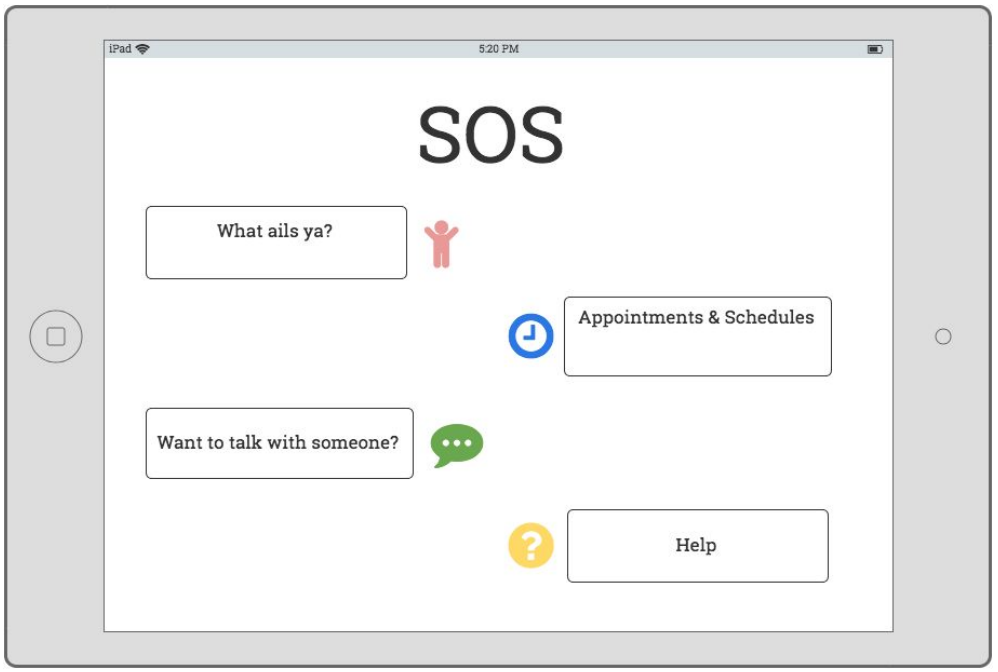
Underserved Use Case 2: John wants to talk with someone

John has been admitted in the hospital for a day since his surgery, owing to a few complications during the procedure. He is feeling quite down and misses his friends. The stress of the added complications of his surgery is not helping his mood. He wants to talk to his friends and hang out with them during this low phase in his life.

Screen 1: Welcome screen

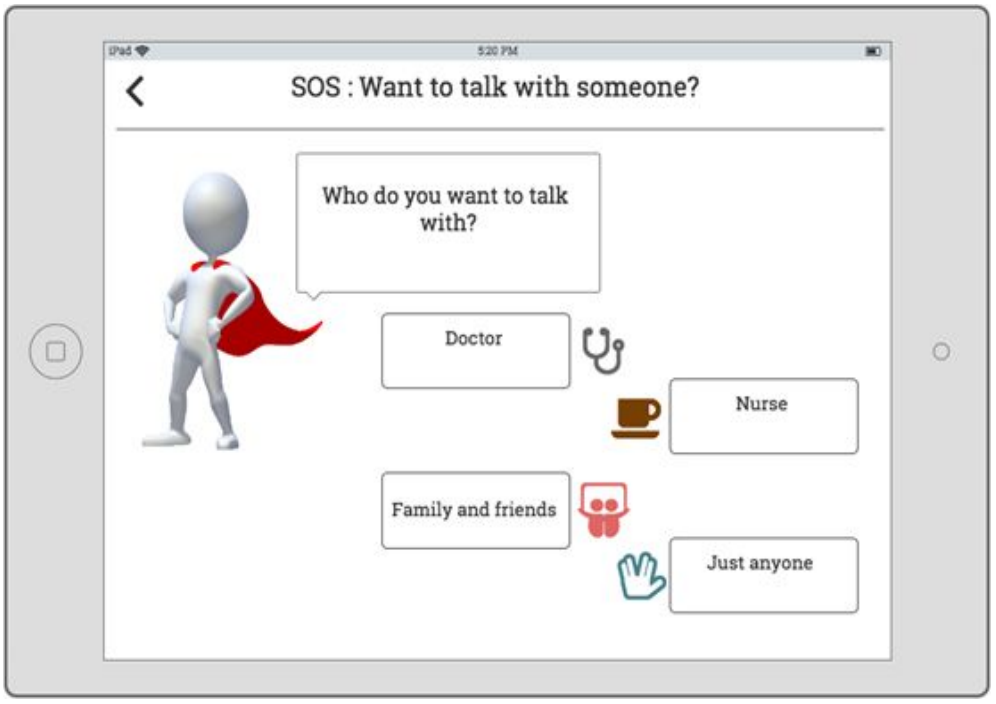
Desperate for talking to someone, as driven by stress, and desiring a discrete solution [Self Esteem] he turns to SOS. [Willingness to use/learn new technology] Although unfamiliar with this software, John has only one option. The arrow and clear text make this option stand out.

Screen 2: Menu screen



[Willingness to use/learn new technology] Although unfamiliar with this software, John recognizes these as buttons due to their shape and shading. In choosing a button, John, being a native English speaker, starts top left to right. [Stress/Anxiety] In choosing, although [Willingness to use/learn new technology] unfamiliar with SOS, the simple text show chosen path and reflect his mission to find someone to talk to.

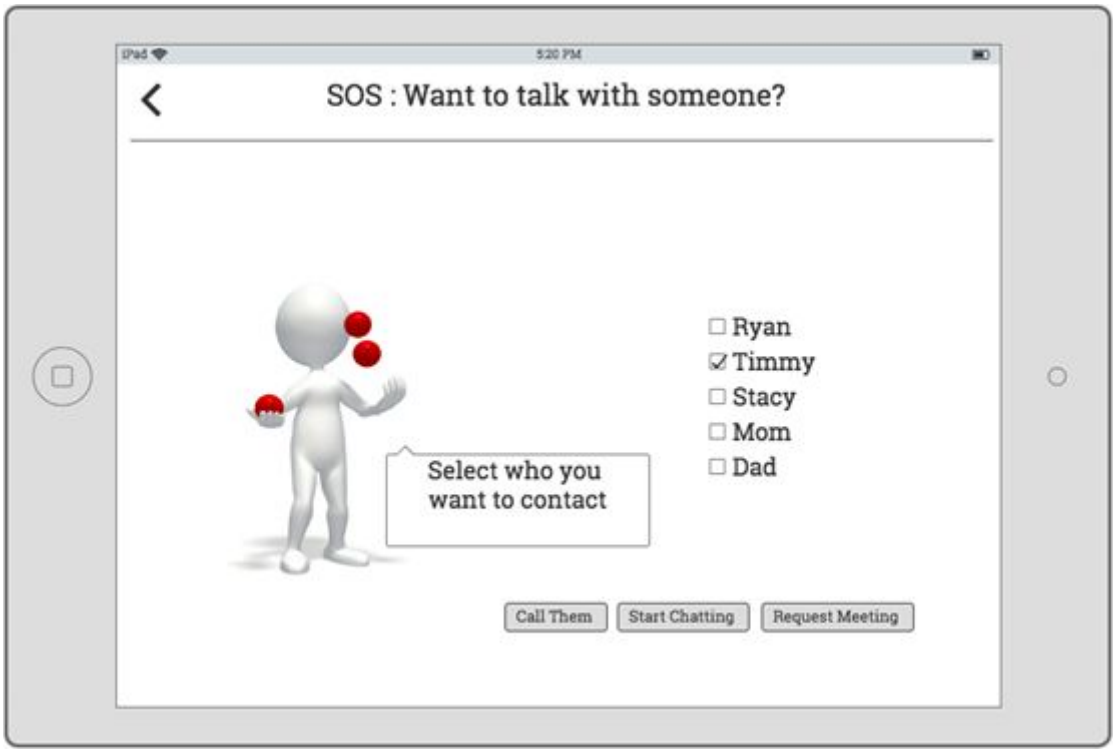
Screen 3: People support or "Just want to talk with someone" screen



After clicking the "Just want to talk to someone?" button John sees the change in screen and recognizes common UI options (back and next buttons)[Willingness to

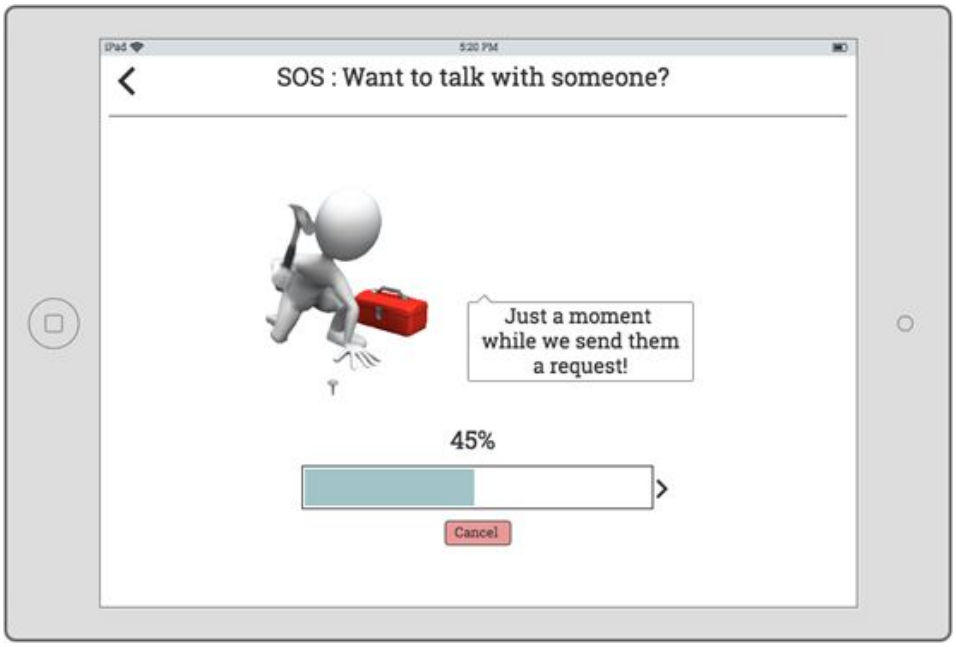
use/learn new technology]. As he is still looking for someone to talk to, he goes ahead and clicked “Family and friends” section.

Screen 4: Pick the person screen



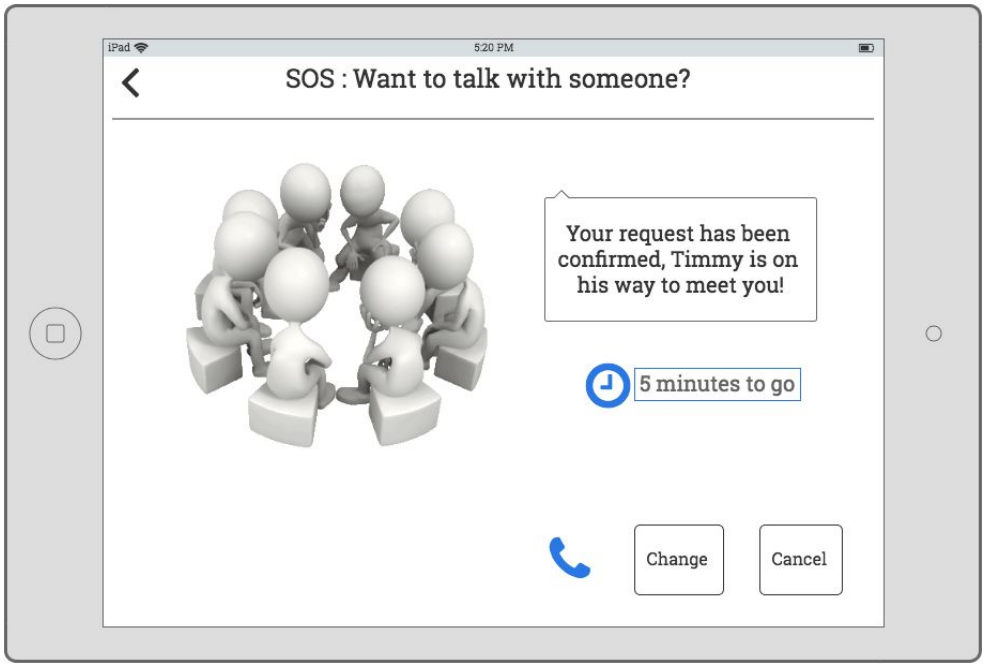
After clicking the “My family and friends?” button John sees the change in screen and recognizes the “Family and Friends” options who is specific, despite his stress, [Stress/Anxiety] [Willingness to use/learn new technology] he is still trying to find someone to talk with, then he selected Timmy. [Decision making and Multitasking ability] After John made his choice about who in specific to talk with, john needs to choose a way to talk to Timmy, [Stress/Anxiety]John clicked “Request Meeting” buttons due to his Anxiety, he really wants to talk to someone face to face.

Screen 5: Scanning for people interim screen



While John is waiting for the result, waiting for his friends' response, the page says, "Just one more step, hang on!", after his friend confirms about john's request, [Decision making and Multitasking ability] john considered to cancel the meeting but [Stress/Anxiety] the stress drives him to click ">" button to get more detailed information since he really wants to talk to Timmy.

Screen 6: Confirmation screen



The result screen shows a display of information related to John's selection. [Willingness to use/learn new technology] As a regular user of job related software, John is able to get the information about when his friend will come to see him, his

stress is much lower than before [Stress/Anxiety]. [Decision making and Multitasking ability]John may change his mind, such as change the way to talk, or just cancel the meeting.

Mainstream Use Case: Han wants to learn about his friends ailment

Han is visiting his friend who is admitted into the hospital. He doesn't know much about the ailment his friend has, so he turns to SOS to learn more. Han would be using the same application, as the hospital would provide visitors with it also.

Screen 1: Entry screen

Comfortable with iOS applications [Willingness to use new technologies] Han sees the only option to be to continue. Han clicks it, and is taken to the next screen.

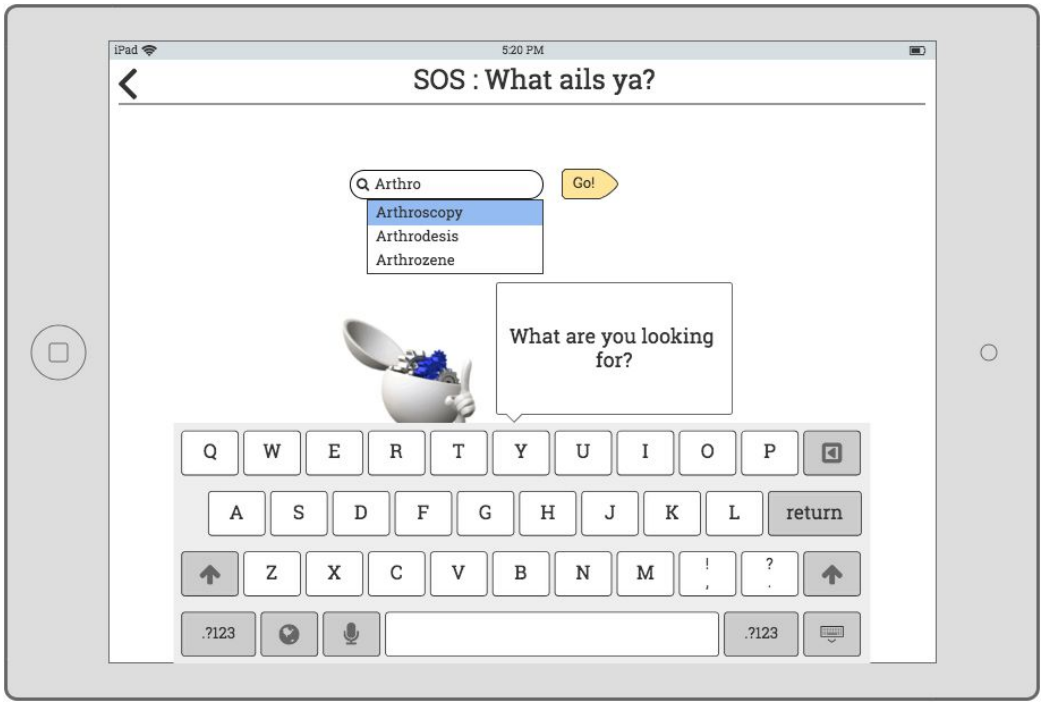
Screen 2: Menu screen

Quickly scanning the options, Han selects ‘What ails ya?’. [Willingness to learn technology] Han understands these buttons, and is able to approximate which button will get him closer to his goal.

Screen 3: Glossary Search

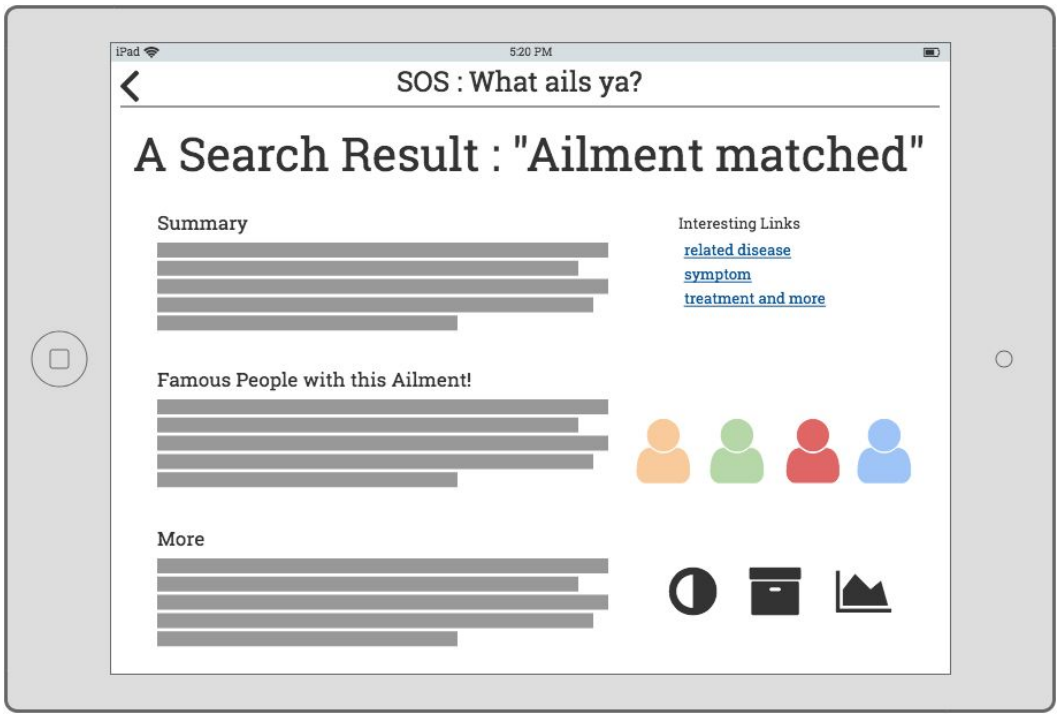
Han recognizes familiar iOS formatting [Willingness to use new technology] and starts to type into the search bar, looking for his friends illness.

Screen 4: Glossary Search Selection



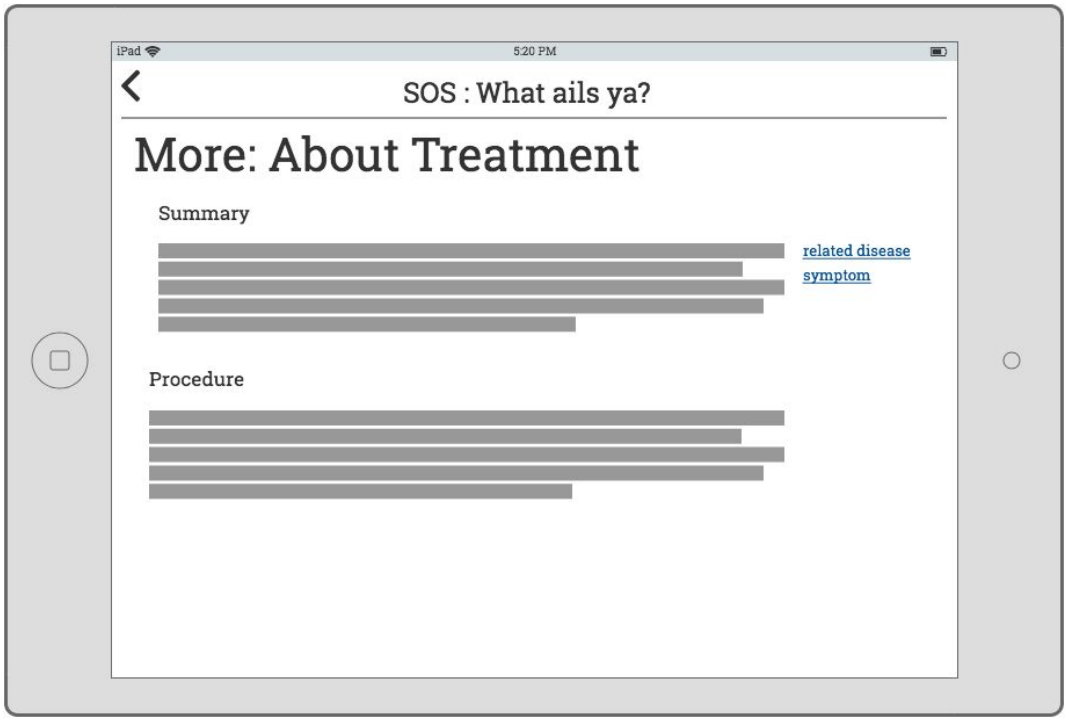
Seeing the ailment that his friend is suffering from, Han selects that one. Han still is searching for his information.

Screen 5: Ailment Result



Han finds the information he is looking for and wants to know more about potential treatments [Self esteem]. He reads through the page before searching for more information. [Willingness to learn new technology] Han sees the links, titled interesting links, with clear labels and selects the treatment link.

Screen 6: Treatment result

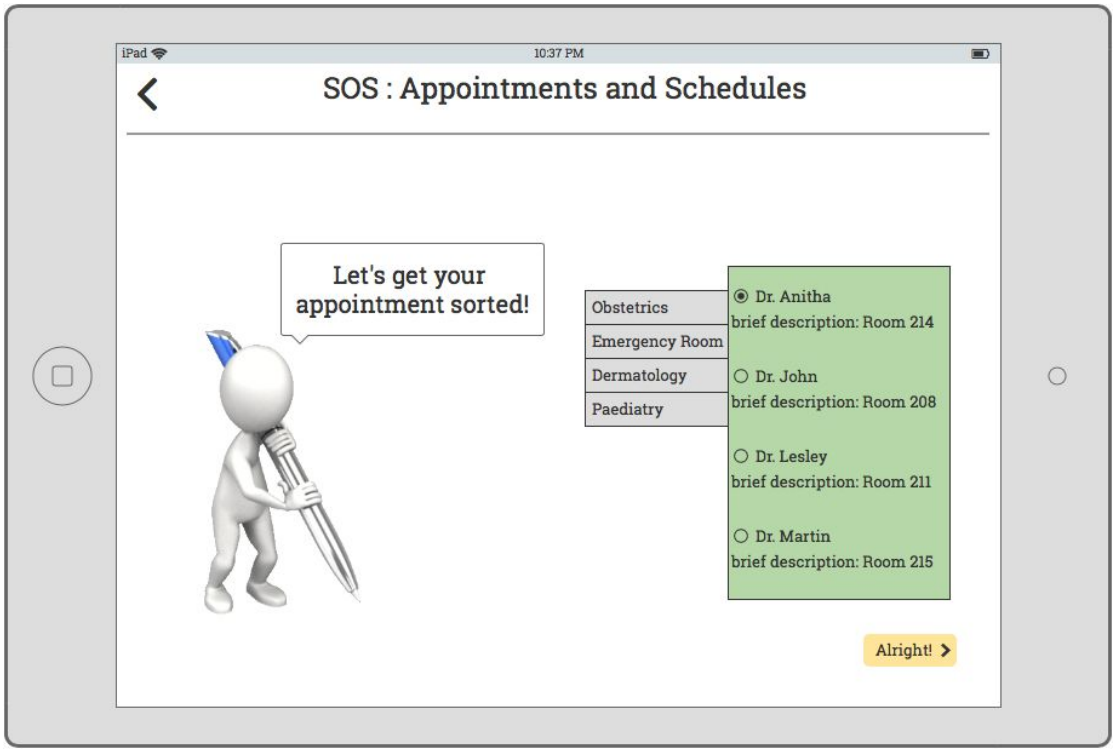


After fully reading the article on the treatment, Han feels reassured [Sensitivity to environment], now knowing more about his friends ailment. He no longer needs to pry into a stressful subject with his friend [Self esteem] and is able to talk more knowledgeably on the subject.

Screen 7: Main menu

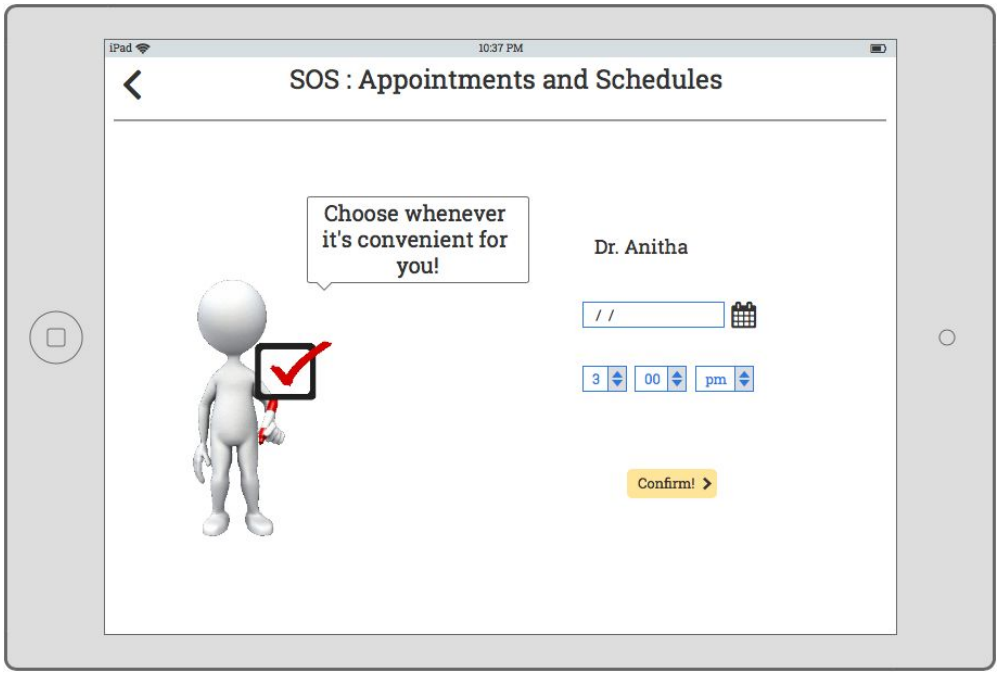
Han further thinks about John's pending appointment with his doctor, and navigates back to the menu. Being a person well-versed with technology and tech-savvy, chooses the "Appointments and Schedule" button instantly. [Stress/Anxiety] In choosing, now [Willingness to use/learn new technology] familiar with SOS, the simple text show chosen path and reflect his trying to schedule an appointment.

Screen 8: Appointments and Schedules



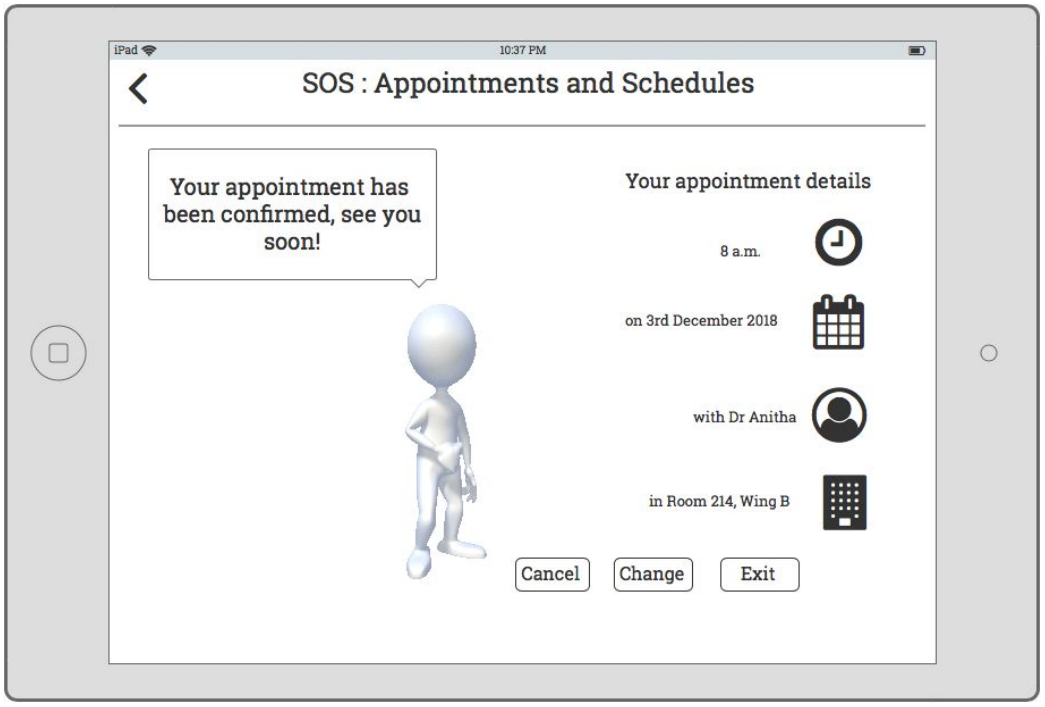
The landing page for scheduling appointments is straightforward. It displays different departments, with doctors corresponding to each department listed on the right panel. A brief description provides the user with a little context and information about the doctor [Kind of sickness]. Han reads the description about Dr. Anitha and thinks that she might be able to help John best [Self Esteem], and checks her name on the list. He then clicks "Alright!" to move ahead [Decision making ability] with the booking of the appointment.

Screen 9: Appointment Selection



The application presents Han with an interface with a time-selection bar. He recognises it since he uses technology a lot, and easily finds his way to entering the time slot he's looking for [Willingness to use technology]. He then cross checks and clicks on "Confirm!" to complete his appointment booking.

Screen 10: Appointment Confirmation



The screen pops up with the message that the appointment has been scheduled successfully. Han is relieved, and informs John that they can go see Dr. Anitha [Decision making ability], who's a specialist in the field, in some time [Stress and Anxiety].

Personas

Underserved Population:

John, Male, Age 30-40

John is a software developer at XYZ firm, and has been in the trade for more than 10 years. He graduated top of his class, and has been working with XYZ ever since. He doesn't keep frequent track of the latest trends in technology, which sometimes become the basis of trouble at work. He likes to read books and is a devout coffee drinker.

Self Esteem

- Has been one of the more senior employees at his firm for many years now, a position that sees him frequently relied on by new hires for mentorship in addition to incidental advice. As a result of growing used to this seniority, he is easily embarrassed by needing to ask for help.[1]

Willingness to use/learn new technology

- Very slow to adapt to new technology, especially when it comes to new hardware or paradigm changes in how tasks are completed. John is not incapable of learning but rather beholden to older solutions.[2]
- John is very adept at technologies he is already familiar with from his work[3], and is frequently vocal about the benefits of using that particular technology for all similar problems.

Decision making and Multitasking ability

- Hates missing work and falling out of the loop with his team, and tends to push through minor discomforts and even sublimate where the discomfort comes from. Frequently conflates mental symptoms of illness/injury with work related stress, or "brain fog". [4]
- Suffers from chronic headaches that run in the family which impact executive function from time to time. [5]

Kind of sickness

- After a recent company softball game accident that resulted in a moderately

[1] Twice as many men, especially older men, refuse to go to their family doctor out of embarrassment compared to women. [Source 24]

[2] Frequently, when higher risk is perceived (usually by someone in need of a solution most), willingness to try new tech is lessened. [Source 25]

[3] Men's technology usage decisions were more strongly influenced by their perceptions of usefulness. [Source 29]

[4] Minor cold or flu related symptoms are sometimes ignored and treated as normal "brain fog", can impact some executive function. [Source 12]

[5] Stress headaches have been known to feel similar to headaches experienced during cold or flu, and can similarly impact executive function. [Source 12&18]

severe knee injury, John is currently undergoing a 3-4 day stay at the local hospital while receiving inpatient surgery for his knee. [6]

Anxiety and Stress

- John is generally a calm and well spoken person. He is, however, capable of expressing frustration based in excess mental tension[7] [8]whenever he visits the hospital: especially this time around since he's scheduled to be admitted for an inpatient surgery. [9]
- John is particularly stressed[10] for his visit since he has never undergone surgery, inpatient or not.[11] When he was young, he lost a relatively close family member to surgical complications, which has magnified his own personal negative views of surgery.

Homesickness

- Strongly prefers a routine he has built over ten years working at his current job, which is closely tied to the spaces he works and lives in. As a result, he has difficulty adjusting to being outside the home or office for longer than a day or two. [12]

Mainstream Population:

Han, Male, Age 25-35

Background

Han is a college student pursuing computer science. He lives comfortably, money isn't often a concern. He shares an apartment with three roommates, and has a healthy social network. He spends most of his time studying and investigating topics that interest him.

Decision making ability/multiply-tasking ability

- Han is good at dealing with multiple functions with a high complexity
- Struggles with making decisions due to the lack of knowledge in the medical area.

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[6] Average stay after inpatient knee surgery is about 3.5 days, but can vary based on the day a patient checks in. [Source 26]

[7] Patients generally are anxious during their visit to a hospital, fearing the unknown and out-of-their-comfort zone [Source 17]

[8] A significant contributor to the Depression-Anxiety-Stress-Scale (DASS) is the occupation and day-to-day activities of the person [Source 23]

[9] Being admitted for surgeries carries its own unique set of risks, including a greatly raised risk of hospital infections and pneumonia. [Source 9]

[10] Music significantly reduces stress in the surgical area hold [Source 21]

[11] Over half of surgery patients experience major anxiety related to their first surgery. [Source 27]

[12] People differ in their reaction to leaving home for longer or shorter time periods. Some people are thus more prone or vulnerable to developing homesickness than others. [Source 28]

Kind of sickness

- Han doesn't have any ailment, he is perfectly healthy.

Willingness to use/learn new technology

- Han is motivated to use new products and he's very interested to try new things and ideas. He likes to try and learn new and better ways of dealing with one problem space.
- Han uses computer everyday, he is a college student majoring in computer science, which means he has deep background about how to adjust to new technology. He is able to study more at a stretch than the average student.
- Han always owns the newest technology, such as his IPhone X, laptop, and the Ipad. He's very tech-savvy.

Anxiety & Stress

- Han doesn't worry too much about staying in hospital itself, but finds himself a little uncomfortable initially in any new environment.
- Han is stressed for being behind his work while he's staying in hospital.

Sensitivity to Environment/People

- Uncomfortable in new hospital environment.
- Confident in ability to communicate needs and desires, not afraid of expressing views and concerns to the hospital staff.

Homesickness

- Han is able to return home at any time from the hospital
- Han is visiting a friend of his who has been admitted at the hospital, and will leave after he has made sure that his friend is reasonably comfortable and attended to.

Design Decisions

Self Esteem

We considered having a lot more information pre-entered into the devices provided to patients, such as their specific illness and their symptoms, but ultimately decided against almost all of that in favor of a lightly guided experience. Our reasoning for this was simple, most hospital patients are fighting a war against their own lack of self esteem, and letting users take an interest in their own health instead of passively reading over specific readings handed to them. Additionally, this expands the mainstreamer functionality of our app in a standalone situation, since the search type functionality we decided on allows them to use the glossary to satisfy curiosities about multiple ailments they might have questions about.

Additionally, John, our persona, has certain hangups with regards to our earlier designs in relation to his self esteem that we wanted to improve in a second sweep after the low-fi prototypes. A lot of our prototype hadn't been designed with specifically him in mind, and we realized early on that a lot of the language we had been using for directions given by the character or button labels felt confusing or patronizing. We wanted to retain a conversational tone to these, to give a human touch to the experience and calm down users, but we significantly toned down sections that felt vague or childish and made sure John, and users with other reactions to such language, wouldn't feel belittled or upset at not understanding exactly what each screen means.

Willingness to Learn/Use New Technology

Our persona, John, is someone who uses technology regularly as part of his career and personal life, but also someone who began using technology in a time when new solutions were created much more slowly. As a result, he frequently is hesitant to adopt new solutions to his problems, and is easily discouraged from attempts to learn. John is the kind of person who would purchase a smartphone and then refuse to download specific apps for tasks, opting instead to use a web browser for everything. In a hospital stay situation, John probably has his phone with him in addition to the device they provide with our app on it, and might be easily discouraged from using an unfamiliar app instead of simply putting his questions into a search engine such as Google, so we wanted to make the whole experience as frictionless as possible. Not only do we have a persistent "guide" character who adds additional context to each screen, but we avoided using representative visual languages common in some mobile apps to save space, and opted to put simple descriptive text on all buttons.

Decision Making And Multitasking Ability

This attribute is the final piece of the picture we considered when conceiving of our guide character, owing to research we did on the kinds of executive dysfunction people experience while under physical and mental stress associated with longer

hospital stays. While these sorts of dysfunctions are unlikely to severely impair a patient, as we discovered during our nurse interview, they can make them much more prone to frustration and resistant to abstract thinking. As a result, we wanted to make sure every screen has some amount of simple, non threatening text that can't be misunderstood, providing context as to what is currently happening and what they're trying to accomplish. This gives us a sort of indirect hand on the situation, allowing us to steer users down the paths in our population storyboards, but it also helps sand down on potential "mental snags" that might break precious attention or leave people stumbling over where to go.

Kind of Sickness

This was a difficult attribute to think in terms of, since it was mostly a category of data to us and less of a way of connecting with the mindset of a specific persona or user. Ultimately what we settled on was trying to think about this app in terms of making a user not feel alone or disoriented with whatever their condition was. From this perspective, we came up with a handful of features that were received well, including the segment on glossary pages defining illnesses that shows a list of famous people with the same condition, or even the concept of the glossary in the first place.

Anxiety and Stress

The number one cause of anxiety and stress for hospital patients, which is almost always one of the biggest issues they face, is the presence of self diagnosing websites that they reach from search engines when looking up their symptoms. Currently, the resources most widely available encourage the reader to make connections they aren't qualified to, causing them undue panic. The glossary we came up with was specifically designed to counteract this, and it explicitly avoids allowing the user to search symptoms and pick out scary sounding conditions in favor of letting them explore the jargon involved in their own condition and what it all means. Symptoms can still be viewed, and are listed on the page for each illness, but the glossary never suggests a potential range of causes for each symptom to avoid this issue.

Additionally, we wanted the text in our app to strike a tone that was soothing and familiar without being patronizing because of this attribute. For many, if not our specific persona, using new technology can evoke a sort of fear of messing up, something we found in our research again and again, so we wanted to create a tone that would make experienced users feel assured alongside first timers.

Homesickness/Sensitivity to the Environment and People

This was a recurring topic of concern in patients in a hospital, owing to the dull and mechanical atmosphere of a hospital, in addition to an existing health concern. This was validated multiple times in our interaction with nurses, and people who had been admitted in hospitals: there are not a lot of people to speak with, and share the grossly underestimated power of conversation in elevating a person's mood. Hospitals are built and functional in a very methodical manner, without a lot of scope for catering to the emotional needs of the people in it. We kept the Homesickness attribute at the

forefront of our minds, where a person needs the company of another person, assuming that the things most associated as home is the people that live in it. Even the presence of another person can be comforting.

This led to our concept of the "Do you want to talk with someone?" section, which anyone can use for the sole purpose of holding conversations with whoever is on call, or available. We believe that this would significantly help in making the person feel less homesick and more comfortable in the hospital.

Feedback from Professor Burnett

We were nudged to think more from the perspective of our persona John, and try to understand the kind of problems he might have by putting ourselves in his shoes. We also significantly reduced our explanatory screens, ones for motivating the person on, since this might make the application look insensitive in a certain light.

After our most recent presentation, we received some additional feedback that our use cases don't necessarily reflect the inclusiveness of our design, since they don't incorporate the same paths for both populations. The professor felt that we weren't effectively giving both personas the same system to play with, and had kept them in separate rooms the same time. This resulted in a late term reshuffling of our storyboards to better show how our features apply to both populations, which was difficult, but the final result better reflects the core of inclusive design.

Feedback from Classmates

Some of the important points mentioned were that the doctors/nurses/family and friends might not always be in close vicinity of the patient, in which case there's the option of calling up the person as a final resort. Also, the cartoon(Julia) featuring in most of the screens was thought to be childish and insincere for the taste of certain populations: which makes room for improvement of characterisation.

In further feedback, we got concern from some students about how misunderstandings about the contact a friend feature worked, including the possibility that someone might generate more stress from accidentally calling a family member to the hospital. In response to this, we did an overhaul of the feature to be more specific about what each step is going to accomplish, and gave the users the option to text chat with someone, call them over the phone, or send a request for them to come see the patient immediately. Not only do we find the feature to be more usable in this state for patients coping with symptoms of illness and the stress of their stay, we have minimized the potential for uncomfortable confusion or friction.