

Case Study: Designing for the Elderly



In 2018, the WHO reported that Canadians can expect to live 82.8 years, an increase of over 10 years from the 1960s. However, healthspan, the period of one's life prior to chronic sickness or a degenerating condition, ends over a decade earlier than lifespan. Pervasive technologies have the potential to make elderly people more self-reliant, more socially engaged, and more confident to lead more active and healthy independent lives thus increasing healthspan. However, acceptance and adoption of these technologies has been limited, partially owing to the lack of adaptable and elder-friendly design. For the aging population to adopt and benefit from the advances in pervasive computing, there must be a focus on the usability and design of these technologies that effectively responds to the diversity of aging populations.

Designing for the elderly is particularly challenging as although some of this group have less experience in the use of technologies in general in fact, they are extremely diverse with more variability in their abilities than younger groups. In general, the elderly are no longer amateurs in using mobile devices, in fact the use of smartphones among the elderly has increased 4x from 2011 to 2016. Many enjoy trying new apps with new features and benefits. They are increasingly becoming aware of mobile and pervasive technology and exploring new ways to use their devices.

The Covid-19 pandemic has significantly impacted all of us in how and how much we use our screens. With social distancing limiting our ability to connect and physically interact with the people around us, daily screen time usage has seen a huge increase. In particular, the elderly population have been advised to isolate because they are at higher risk for developing serious complications from coronavirus. Additionally, nursing homes and assisted-living facilities across the country have closed their doors to

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visitors to protect their residents. However, the maintenance of well-being, healthcare, and social connection is crucial for the elderly. Mobile apps may provide a valuable tool to help families stay connected, and to help the elderly maintain mobility and link them to resources that encourage physical and mental well-being. These apps have the possibility to address cognitive, physical, visual, and hearing impairments. Your objective for this project is to design an application to improve the quality of life of elderly users, especially during social distancing or self-quarantine.

YOUR TASK

The Quebec Government *has hired your design company to design an app to support elderly users' physical and mental wellbeing whether living at home or in a nursing home with a focus on our current times.* It is up to you and your team to determine the focus of your application and specifically what types of functionalities your application will have. To design the prototype, you should use an appropriate UX/UI design process (as discussed in class). Please note, as design is a creative process each group's work will differ and the processes will also differ slightly. Below are guidelines to help you get started.

Understand the problem: Remember the first step is to truly understand the problem. UX/UI design is the process of solving a problem for a user, helping the user achieve their goals with ease, and more than that making them feel great while doing so. Make sure you clearly understand the problem that you are trying to solve for your intended population, including the diversity of technological skills and the possible physical and cognitive limitations.

Research and analysis: Look at what already exists, other apps in this area, why do they work or not work? Look at what types of applications exist for improving physical and mental health and well-being of the elderly. Think about what it takes to encourage seniors to stay active, connected, and healthy. Use interviews and questionnaires to understand your users, build user personas, user journeys, perform a tasks analysis, flow charts, IA structure, empathy maps, and/or storyboards, etc. You do not need to have all of these, use a design process with the steps that you feel are most appropriate and determine the UX/UI deliverables you should present to the Quebec Government.

You should determine the most important user goals for your application based on your research but some examples are: having an appropriate set of functionalities in the app, features that benefit older adults in isolation/during the pandemic, are there specific notifications and reminders they need, how can you support daily needs of this population and maintain their mental and physical health as they practice social isolation during the pandemic, do you need to consider trust of the application, etc.

User Research: Ethical principles and guidelines form an indivisible part of conducting research. Research ethics are moral principles that guide researchers to conduct and report research without deception or intention to harm the participants of the study or members of the society as a whole, whether knowingly or unknowingly. Practicing ethical guidelines while conducting and reporting research is essential to establish the validity of your research. The research you are doing here has been approved by the department ethics committee. It is important that when you are working with potential users, asking them questions, or testing your designs that you get informed consent using the attached ethics consent form. Note that informed consent is a process of communication whereby the

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study participant is enabled to make an informed and voluntary decision about accepting or not accepting to partake in your study. They are informed about the purpose of the study, details about the research, how the research results will be used and stored, about any possible negative side effects, etc. Please use the attached consent form when asking participants to partake in your research.

Create prototypes: Use sketches, wireframes, mock-ups, style guides. Consider, colour, animation, fonts, logo, etc. Be creative and have fun! ***NB:** the goal is **not** to create a functioning prototype, rather your goal is to go through the design process and to create a visual prototype considering UX/UI principles.*

DELIVERABLES

Each team of 2 will host their case study on a webpage (i.e. Medium, Github pages, Blogger, Wix, Dribble, etc.)

Here are some examples from previous years mini-project:

- <https://medium.com/@datab8/ux-ui-case-study-datab8-an-accessible-data-marketplace-bbddfca0ed34> (neat idea about how to use gamification in the app)
- <https://bootcamp.uxdesign.cc/ux-ui-case-study-wellness-quest-3ef352189d6c?gi=a132818c236d> (invited to be on bootcamp ux design!)
- <https://lara-tran.github.io/soen357-miniproject/> (good market research with the pros and cons of existing applications, very clean web-based design, one of the few that went for web, not an app)
- <https://claudialapalme.github.io/SOEN357/> (very good and very extensive research)
- <https://fgrcl.github.io/ShareSeed/> (excellent sketches, flows, journey, and design)
- <https://alainjobu.wixsite.com/datahub> (very nice clean design, icon use, palettes, etc.)
- <https://screenerapp.weebly.com>
- <https://www.notion.so/Case-Study-UX-UI-Design-of-a-Healthy-Screen-Habits-Super-App-fbdcad92df9c4fd1aed1627ab3074da7>

The website you use to host your results should also have a visually appealing design and should include your:

- Sketches, storyboards, user personas, task analysis, user flow/journeys, etc.
- As you may go through several iterations, provide each iteration, even the failed designs!
- The final mock-ups of the screens you've created

What to upload to Moodle:

- A link to the website
- A PDF of the website (can be a screen capture, or printed PDF)

OTHER REFERENCES WHICH MIGHT BE OF USE:

<http://www.unumux.com/assets/Unum-User-Research-Guidelines.pdf>

<https://www.figma.com>

<https://blog.prototypr.io/a-common-product-ux-design-process-55af4ab5665e>

<https://medium.com/nyc-design/ux-ui-design-process-for-beginner-753952bb2241>

<https://blog.prototypr.io/wireframes-in-ux-design-what-why-when-and-how-ff07bb513c89>

<https://uxdesign.cc/10-steps-to-interaction-design-ixd-6abe778cb8b8>

<https://uxdesign.cc/user-experience-mapping-alice-emma-walker-868259547ba8>

<https://careerfoundry.com/en/blog/ux-design/wireframing-tools-ux-designers/>

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GRADING SCHEME

CLEAR UNDERSTANDING THE PROBLEM (/5)

- Clearly described the problem or concept and specified the major components to be examined
- Selected and prioritized information appropriate for solving the problem or concept defined.

EVIDENCE OF BACKGROUND RESEARCH (/5)

- Evidence of market research, research of related apps, etc.
- Research informs design choices

USER PERSONAS & REQUIREMENTS (/10)

- Archetype personas that make sense for the user population
- Personas with clear user goals
- Presentation of personas is clear, understandable, etc.
- User goals align with user requirements

USER FLOW / JOURNEYS / STORY MAPS / USER SCENARIOS ... (/10)

- Clear description of user actions over time
- Clear understanding of users goals and opportunities
- Narrative is polished and there is an effective visualization
- Actors align with personas and their actions in the map are rooted in data you gathered

SKETCHES AND WIREFRAMES (/10)

- Construct proposed solutions consistent with the proposed criteria
- Clear what interactions take place on each page
- Components are laid out sensibly on the screen
- Alignment to grid is evident; strong consideration for eye flow and eye appeal.
- Someone who does not know your concept should be able to understand your website/app

DESIGN (/20)

- Mockup is visually appealing (choice of colour, symbols, fonts, animations, etc.)
- Appearance is appropriate to target users
- All components have correct spelling and grammar
- Font choices are appropriate for the concept
- Positive and negative space considered as well as paragraph formatting
- Look and feel appropriate to the target user
- Usability appropriate to the target user
- Organized, easy to access and user-friendly design is unified with all elements working together to create a harmonious overall appearance and enhanced user experience

WEBSITE (/5)

- The website you've created is visually pleasing, easy to navigate, information is clearly presented, etc.

EVIDENCE OF USER RESEARCH (/10)

- Clear link between personas / journeys and user research
- Add any necessary notes or content that support important design decisions you made based on user research, e.g.
 - Interview scripts / questions or results if used
 - Questionnaires
 - Signed ethics forms (appendix included in Moodle not on webpage)
 - Quotes from potential end users, etc.