

# Applications in Healthcare WS17:

## [Group] Create a prototype - Topic 2

**Due 23:59 22 Jan 2018. Contribution to overall grade: 50%**

**NOTE:** you will only receive your full mark if you also participate in the presentations/discussions in class on Mon 29 Jan 2018

**Task: Group report:** 20-25 page report (depending on number of images, excluding references – should be 15 pages of actual text). There should be at least 10 mock-ups/pictures of the prototype.

### Important Dates:

**11 Dec 2017** – Poster presentation of system concepts

**22 Jan 2018 23:59**– Submit final document as PDF <GroupX\_Prototype.pdf> to Nadja Lederer [nadja.lederer@inso.tuwien.ac.at](mailto:nadja.lederer@inso.tuwien.ac.at)

**29 Jan 2018** – Final presentation of concept/discussion

### 1. Overview – Design of a prototype from one domain

*The learning goal is to understand how to create a prototype for an application in mental health care that is grounded in and motivated by good theoretical principles and by good clinical or best practice guidelines.*

### Topic 2: Self-injury / self-harm intervention

- Design a system that helps a user detect urges to injure and which intervenes upon detecting an urge
- System should consist of a smartphone app and a smartwatch (app)
- Use cases:
  - the user self-reports an urge to injure via their smartwatch
  - smartwatch should be able to sense that a stress level is above a certain threshold (this threshold could then represent an urge to self-harm; enhanced smartwatch design)
  - the system should help the user reroute their urge to self-injure (e.g. via reminding them of skills that are working during crisis)
  - system should encourage users to rate their skills (like, how well were the skills able to help reframe a thought of self-injury)
  - the system should employ motivational/engagement strategies (think of ways that could make the system more fun and more entertaining to use? how could you design the system so that people actually want to use it?)
  - the smartphone app should encourage users to enter and adapt skills
  - using the smartphone app to self-report an urge to injure is not allowed

## Steps:

### 1. Define the requirements:

- **Understand the user:**
  - Research about people with lived experience of self-injury, self-injurious behavior in general, and recovery
  - Choose and describe the target user group for your domain (e.g. age group, gender, mental health background).
  - Create one persona for your solution.
  - Try to include possible stakeholders from your domain in the design process. See, if you (as a group) can find 2 people from your target group.
    - Part 1: understand the issue from their perspective and what they think they would like
    - Part 2: show them your persona and initial ideas and ask for their feedback, suggestions, ideas etc
    - In case, this is not working out, try to understand their perspective by looking up public forums or support groups, YouTube videos where people talk about their struggles. You also might be able to find articles from people with lived experience at TheMighty <https://themighty.com/>
    - Collate the findings from all your interviews, revise the persona and update the requirements, being clear how their requirements and how they influenced the final design (Also deliver demographic data about the stakeholders in the report; evidence of the interviews eg notes should be in an appendix)
- **Research about mechanisms to intervene acts of self-injury:**
  - Use the lecture materials provided (and possibly some research of your own) to get an understanding of how intervention strategies could look like. These could be based on skills of the Dialectical Behavior Theory (DBT), or they could be a mix of skills for mindfulness, yoga, cat/puppie videos. Be creative! You can even draw from the applications you analyzed during assignment 2. Which aspects might be suitable to induce (short-term) behavior change? Remember: you already have expert knowledge within your group. Of course, there's no harm in looking up a few projects that focus on self-injury recovery/intervention, per se. Write down interesting insights.
- **Do an initial brainstorming, what your solution should be able to cover**

Draw an initial mind map with the basic ideas. Also create a feature list of your solution.

### 2. Engagement/motivation approach

- Decide how you will address motivation and engagement for behaviour change. Choose a suitable motivational theory and/or related set of techniques for your assigned domain. This theory might be changed during the process, if necessary. Think about what you heard and learned about motivational theories in Lecture 2: Theories, concepts. See also the Behaviour Change Techniques from the West & Michie book (pdf on TISS).

### 3. Designing a solution:

- Research about design guidelines of smartwatches. Of the set of smartwatches that are currently available at the market, we think that the AndroidWear is particularly suitable. Think about what you heard in lecture 5 (application design, prototyping, etc.). The following links might also be helpful (cp. page 121 in slides of lecture 5):
  - <https://designguidelines.withgoogle.com/android-wear/android-wear/designing-for-watches.html#>
  - <https://developer.apple.com/watchos/human-interface-guidelines/overview/themes/>
  - <https://developer.android.com/design/wear/index.html>
- Design your solution (e.g. mock-ups when designing a mobile application for smartphone/smartwatch) based on your mental health understanding, motivation theories/techniques and stakeholder input/persona.
- Create use-cases (scenarios) based on your solution and describe them.
- Describe how the chosen motivational theory/techniques influenced specific design choices (and, if you had to change your theory and why).
- Describe how the mechanism of the intervention are supported in the solution.
- Describe the differences between your solution and the found state of the art applications from assignment 2 (e.g. the domains 'stress management' and suicide prevention) and argue why your solution is likely to be better.
- Outline an evaluation plan for the final prototype if you were able to develop a fully functioning version. Note: the evaluation plan should cover both usability/user experience issues and more importantly, does the solution actually deliver some behaviour change. Think about how to evaluate both aspects.

### 2. Poster

- Create a poster. Print it out and bring it into the lecture on Dec 11. This poster can consist of different A4 pages, which are glued together. This poster will be put up in class.
- Content of the poster
  1. The poster should present your solution to the others. Put everything there, which you find suitable
  2. Put your Group number on it
  3. Some general aspects, which should be included are: Overview, process/methodology, used theory (including drawbacks and benefits),
  4. The poster should have pictures and text on it.  
Make it as visually expressive as you can.

### 3. Submission Requirements, Marking Criteria

#### Format:

- Reports can be in any layout format (at least 11pt font please)
- Language English or German.
- On the **front title page** include:
  - Title
  - Name
  - Student Numbers (Matrikelnummer)

## Group Number and Word Count

### Structure: [ 15 pages text]

- Front page (as above)
- Introduction (including intro to the focus and content of the report) [~1 page]
- The theoretical basis for the domain solution [~2+ pages]
- Requirements development *including stakeholder engagement* [~5+]
- Description of your solution/prototype [~9+ pages]
- Evaluation plan [~1 page]
- Conclusion and final critical reflections eg on the experiences of trying to design for behaviour change, on trying to apply theories, benefits, drawbacks, etc [~2 page]
- References (properly formatted)
- Appendices – these should be used to provide evidence of the process you went through eg the notes from the interviews and the analysis of the combined interview data that led to the requirements (e.g., a photo of the whiteboard where you brought these together in a working session), early examples of prototype designs etc

### Marking:

#### Content:

- Evidence of thoughtful, detailed and considered engagement with all steps of the process
- All design decisions clearly motivated by theory and/or clinical issue and/or other theory as relevant.
- A comprehensive design solution
- Good critical and reflective discussion of the solution against state of the art etc

#### Presentation:

- Well written text (though you won't be penalised for English grammar) – clear and concise
- Well structured layout with logical flow of arguments, appropriate use of sections / section headings etc.; clear introduction, body, conclusion; right level of detail and supporting material

#### Marking:

- 10: poster
- 35: designed solution
- 5: overall quality/presentation etc.

#### To achieve marks at the top of the range:

(1/sehr gut): Content included **beyond what is provided here or in class** and showing deep critical thinking about the approach to your solution and what the influences of your chosen theory has on the design decisions; overall/comparative discussion is synthesized into clearly structured and well-supported arguments. All sections need to be conducted to a high standard to get a sehr gut. Report is very well written and shows strong coherence and deep engagement with the topic.