Bachelor Thesis

User-centered responsive user interface for fostering stress awareness

Implementation & Evaluation of Stila web portal

Anna Hubert

24.05.2018

Agenda

1. Vision
2. Conception
    - 2.1 User-centered design
    - 2.2 Main goals
    - 2.3 Navigation
3. Implementation
4. Evaluation
5. Future Work
6. System Demo

Vision

Improving academic life by fostering stress awareness

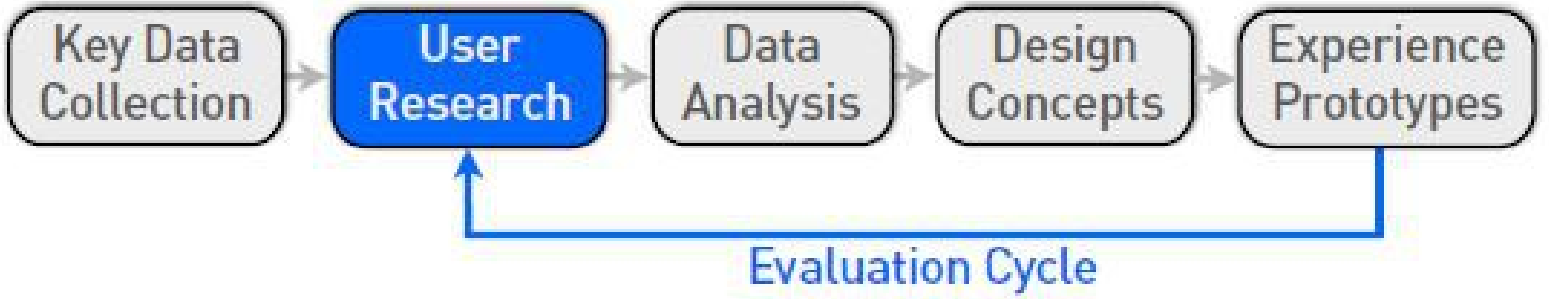
- user-centered design
- data visualization
- user feedback regarding computed stress

Agenda

1. Vision
2. Conception
    - 2.1 User-centered design
    - 2.2 Main goals
    - 2.3 Navigation
3. Implementation
4. Evaluation
5. Future Work
6. System Demo

Conception

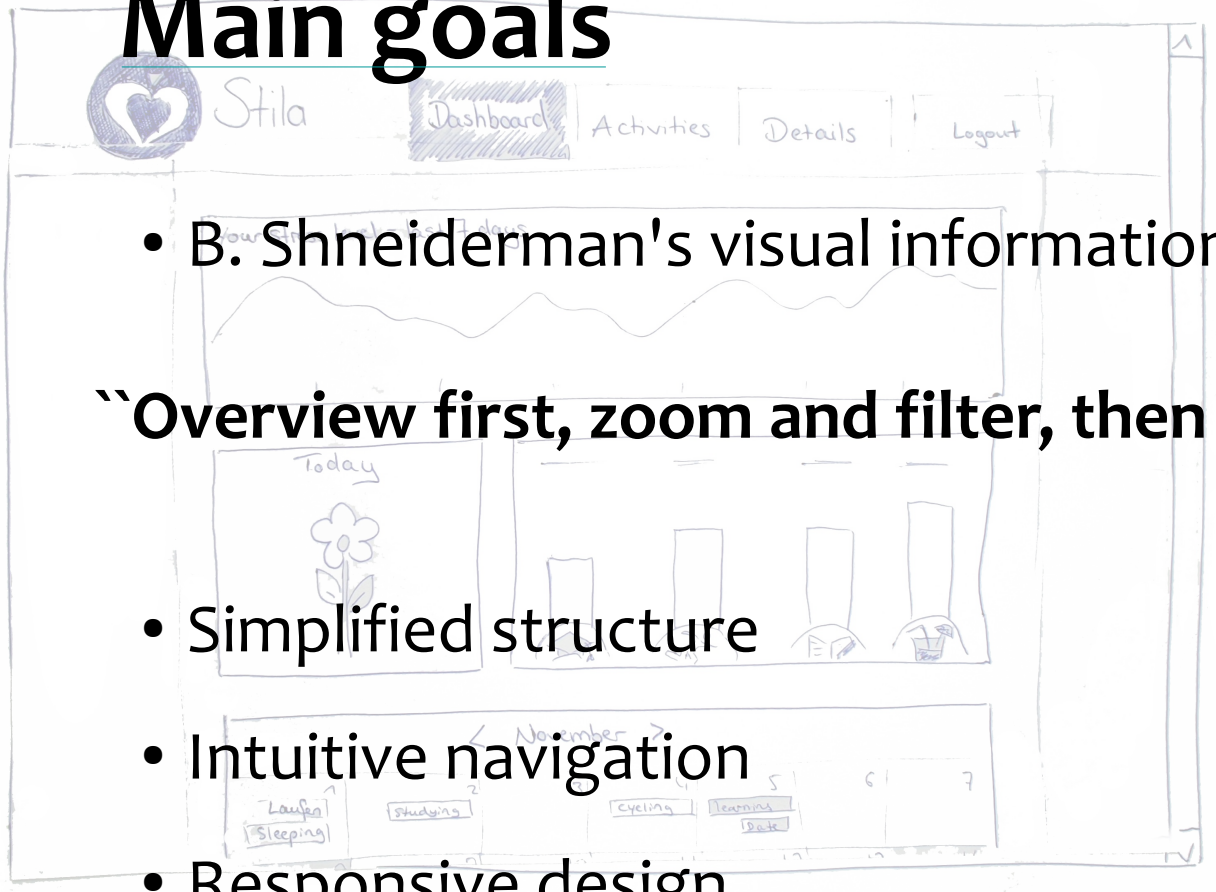
User-centered design process model



[1]

- First evaluation cycle → paper prototype
- Second evaluation cycle → field study

Main goals



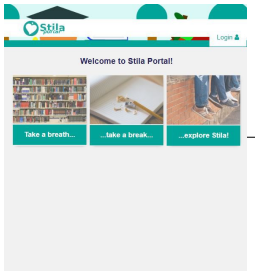
- B. Shneiderman's visual information seeking mantra [2]:

``Overview first, zoom and filter, then details-on-demand´´

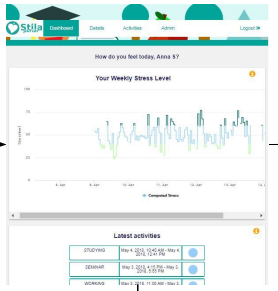
- Simplified structure
- Intuitive navigation
- Responsive design

Navigation of views

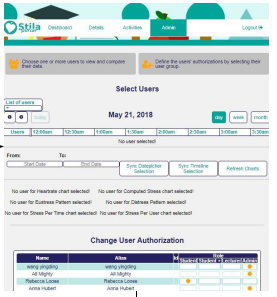
Login



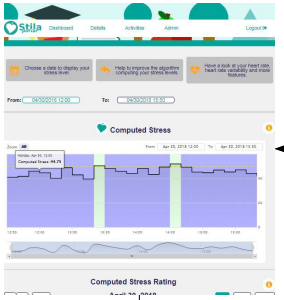
Dashboard



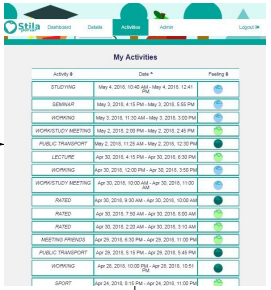
Admin



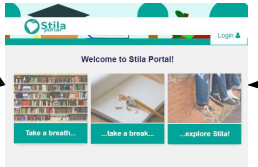
Details



Activities



Logout

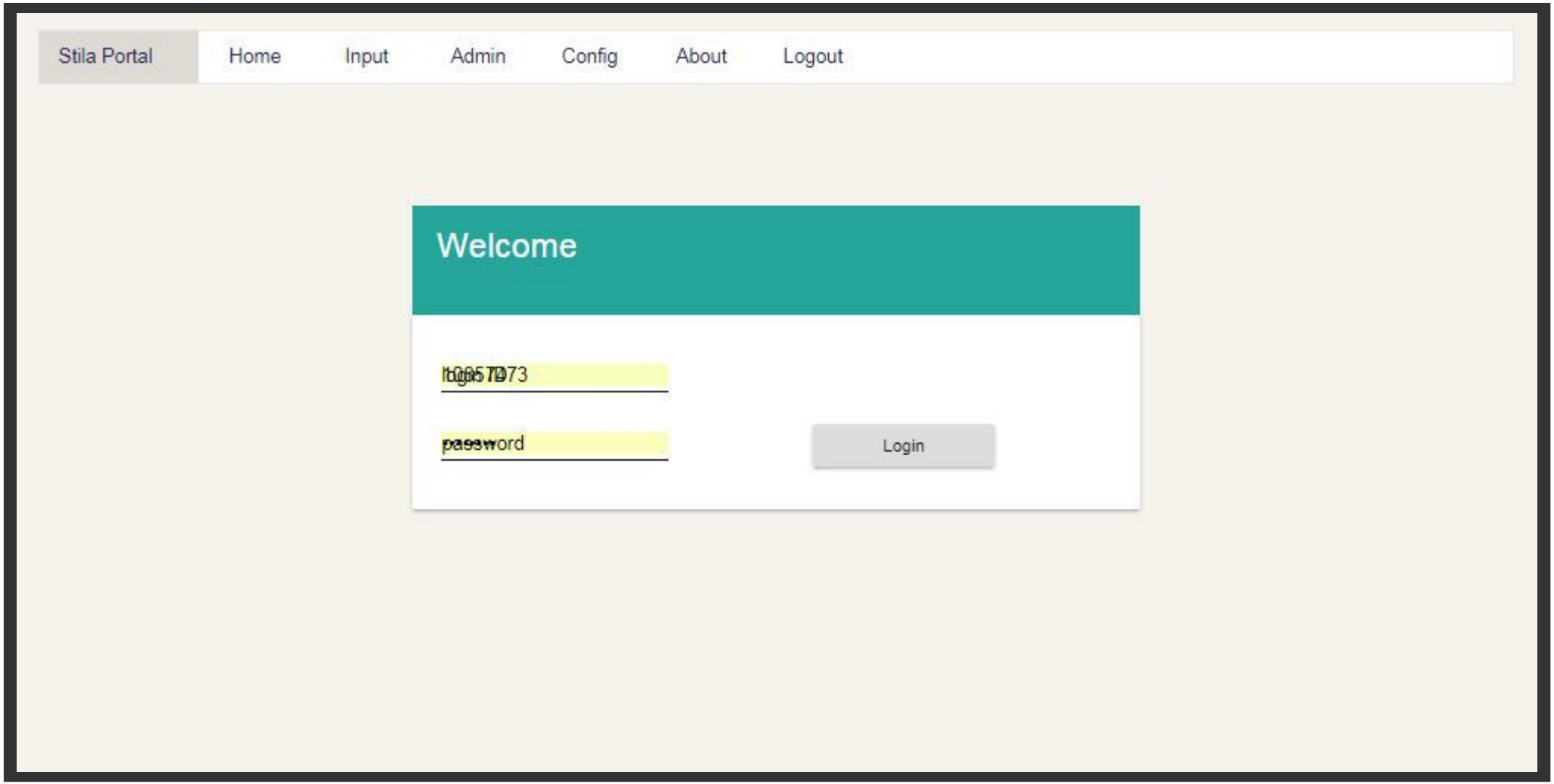


Agenda

1. Vision
2. Conception
    - 2.1 User-centered design
    - 2.2 Main goals
    - 2.3 Navigation
3. Implementation
4. Evaluation
5. Future Work
6. System Demo

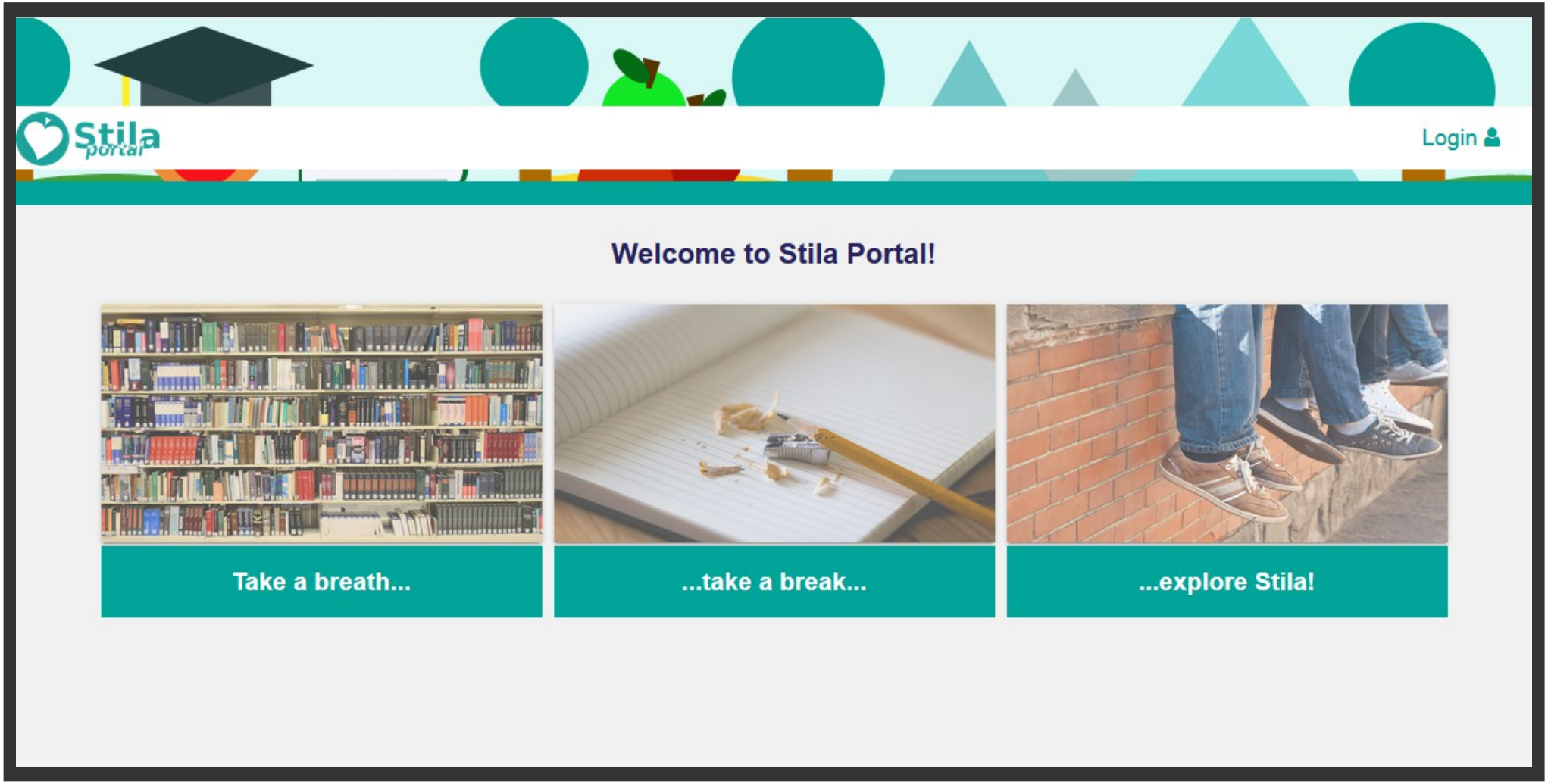
Implementation

Start page (before redesign)



Implementation

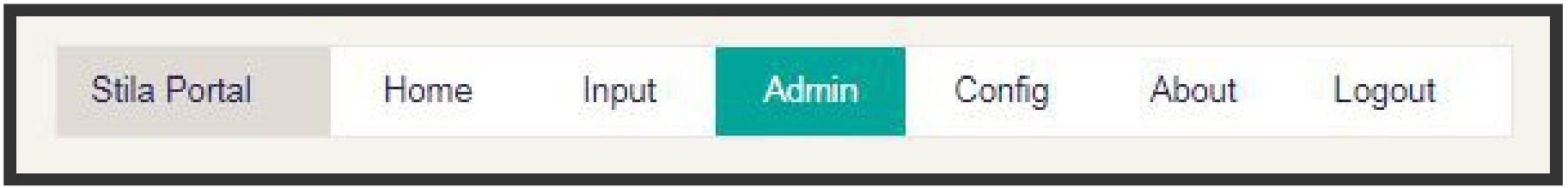
Start page (after redesign)



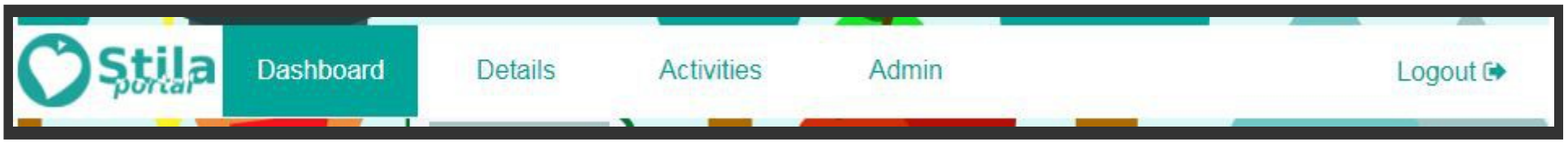
Implementation

Navigation bar

- before redesign

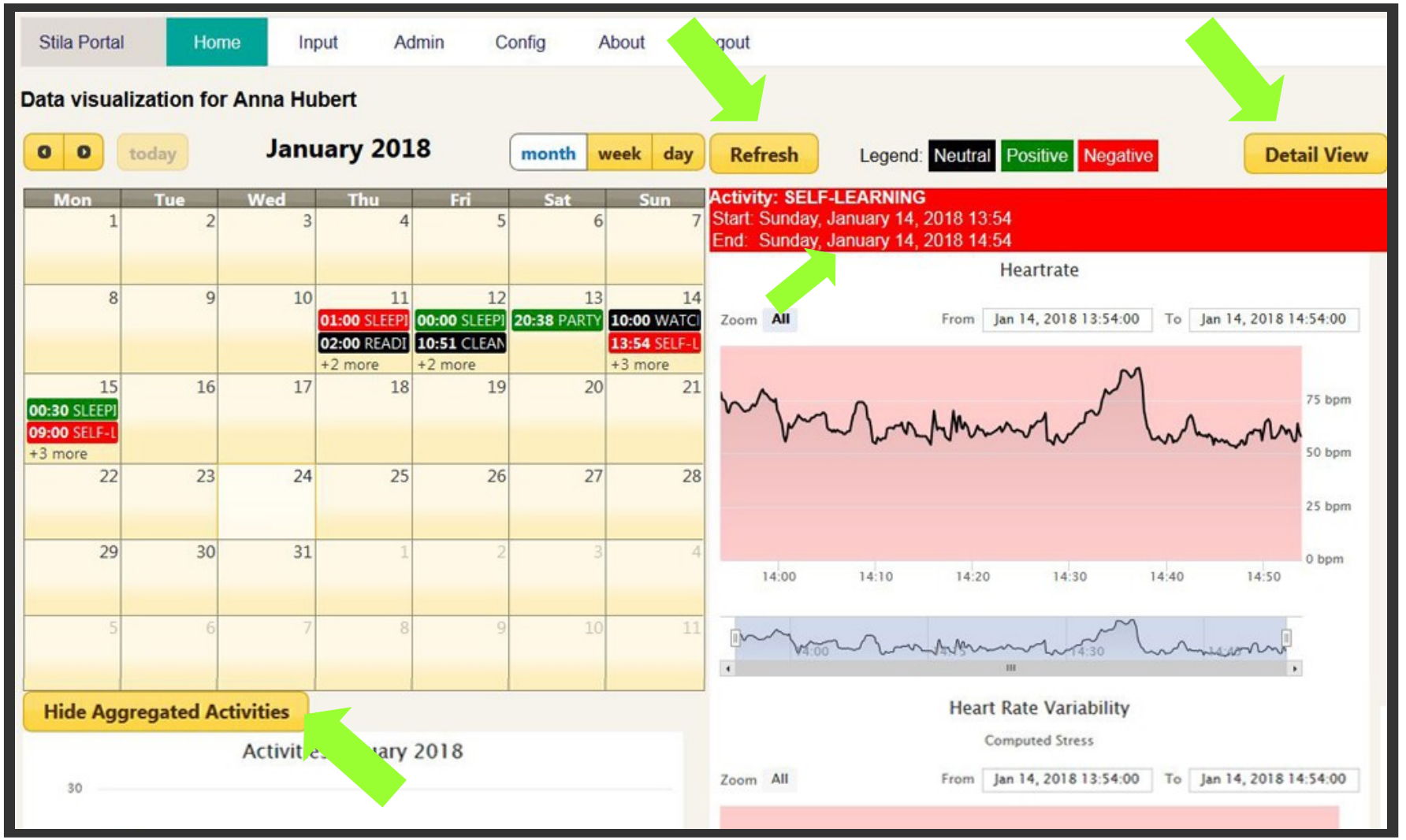


- after redesign



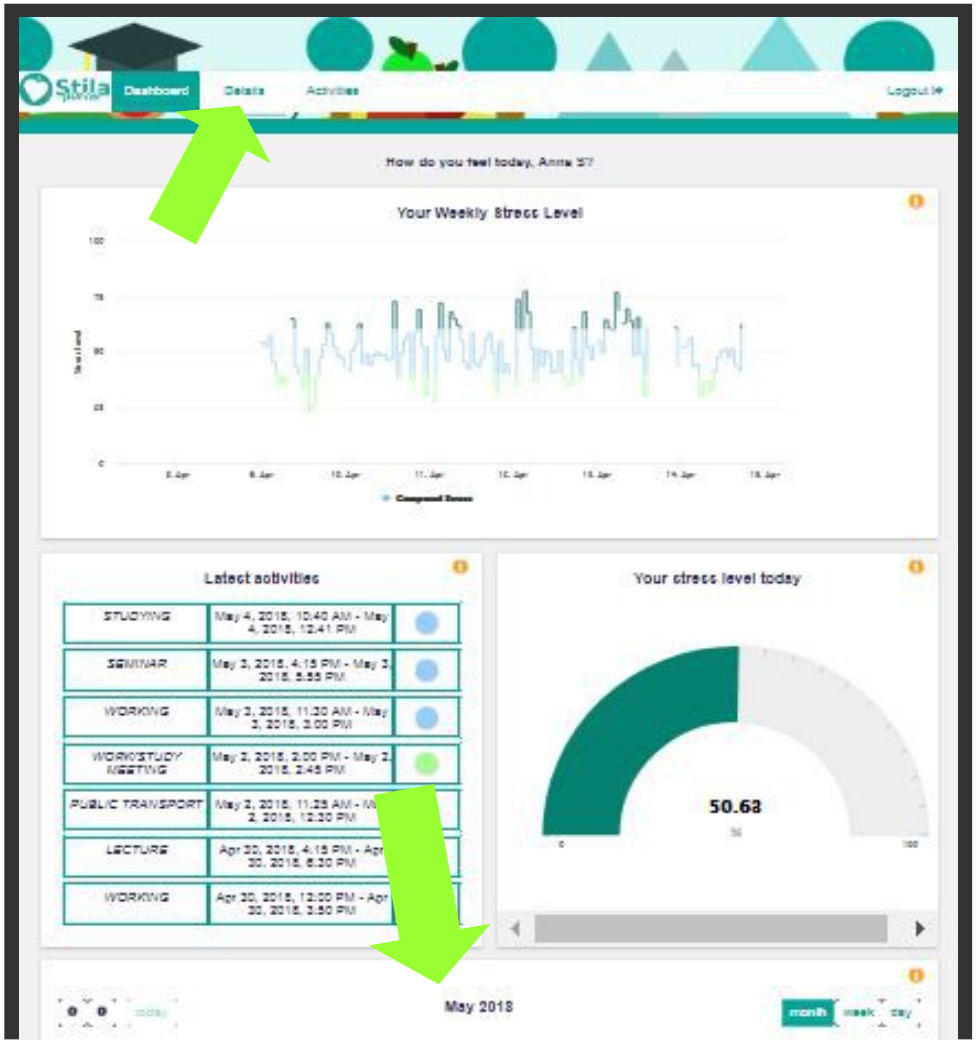
Implementation

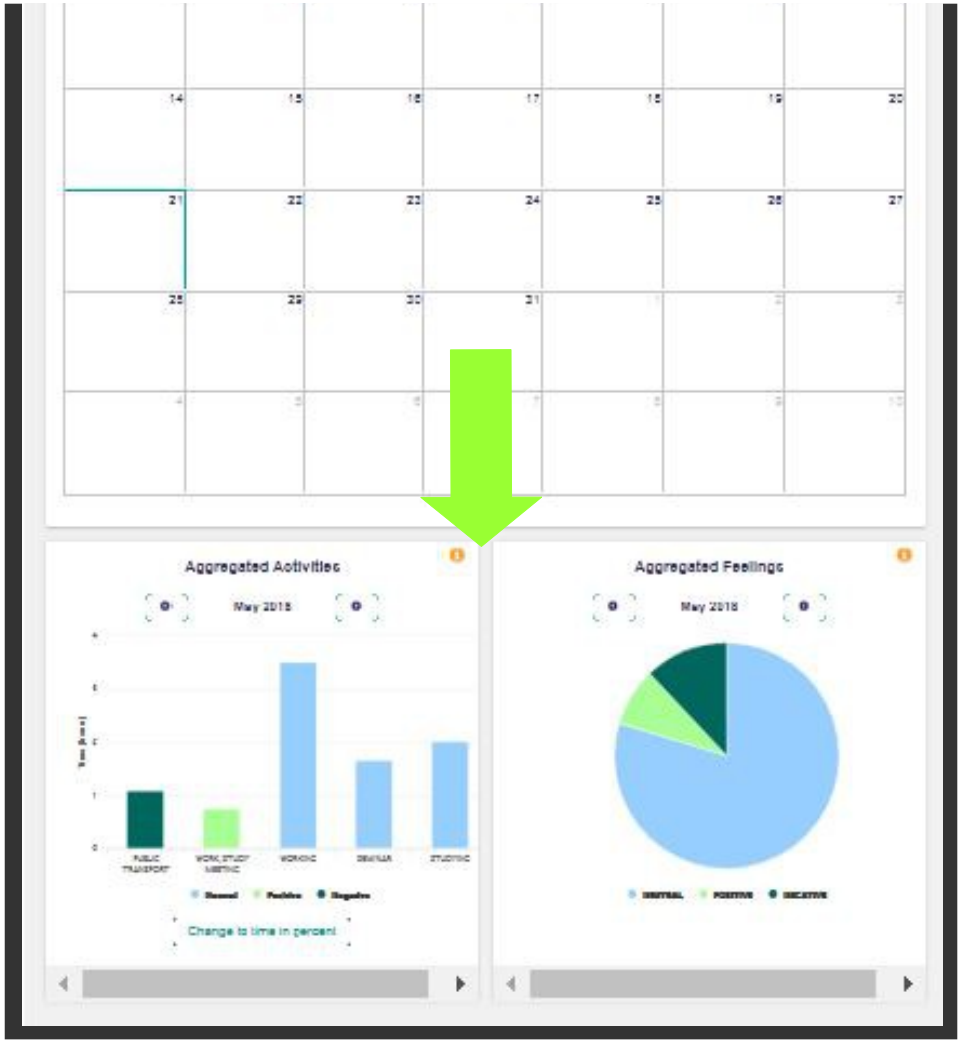
Dashboard (before redesign)



Implementation

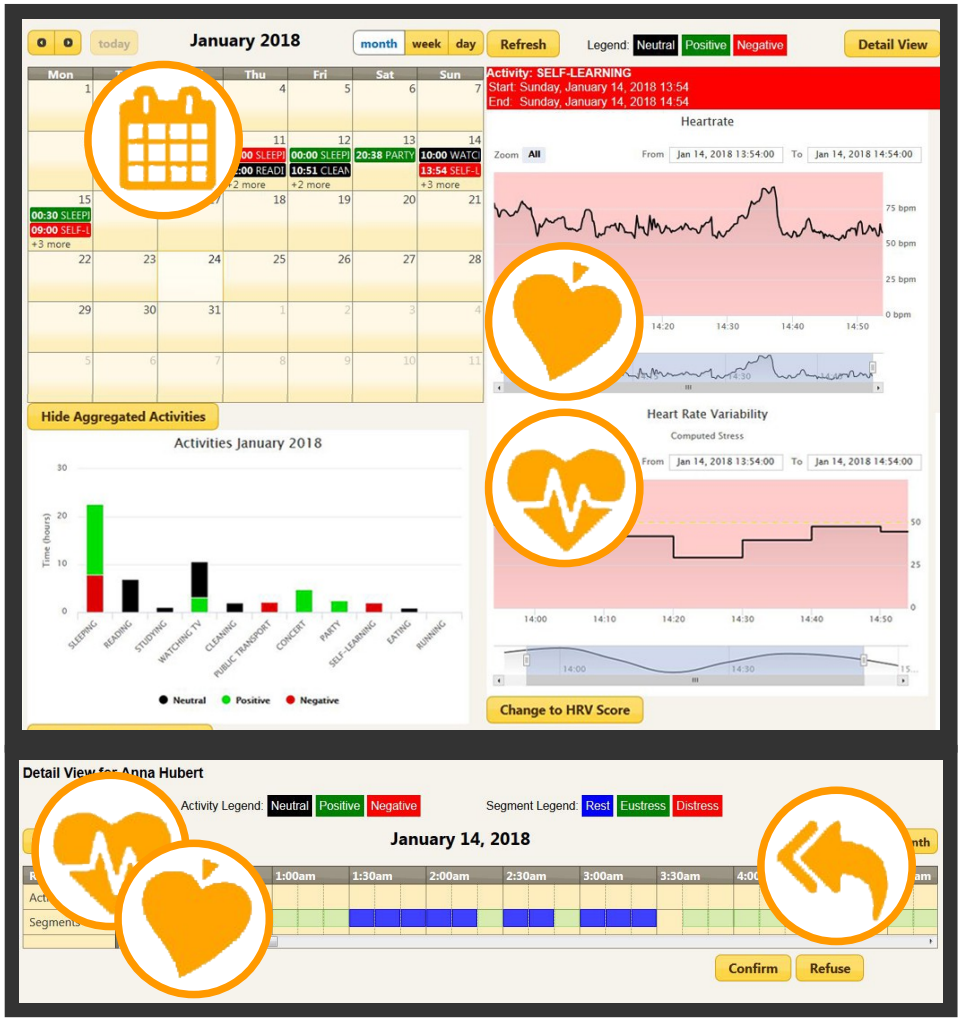
Dashboard (after redesign)





Implementation

Detail view



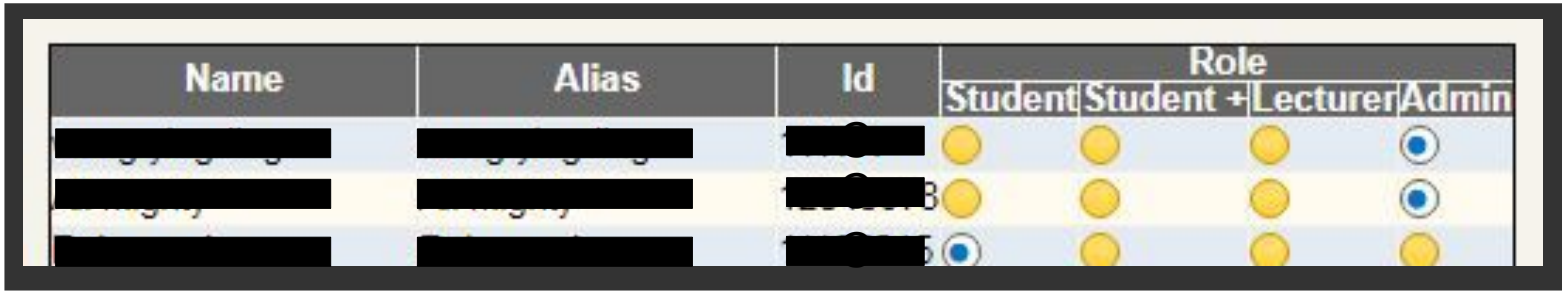
before redesign

after redesign

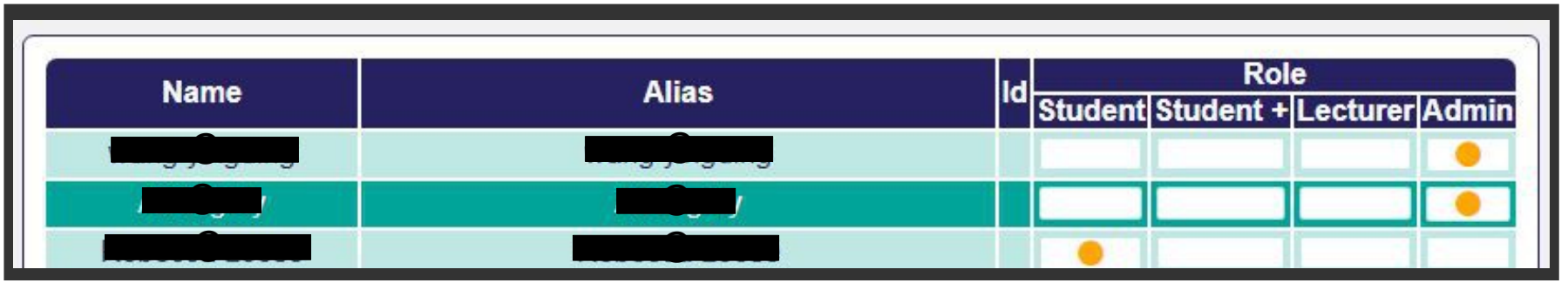
Implementation

User authorization (Admin view)

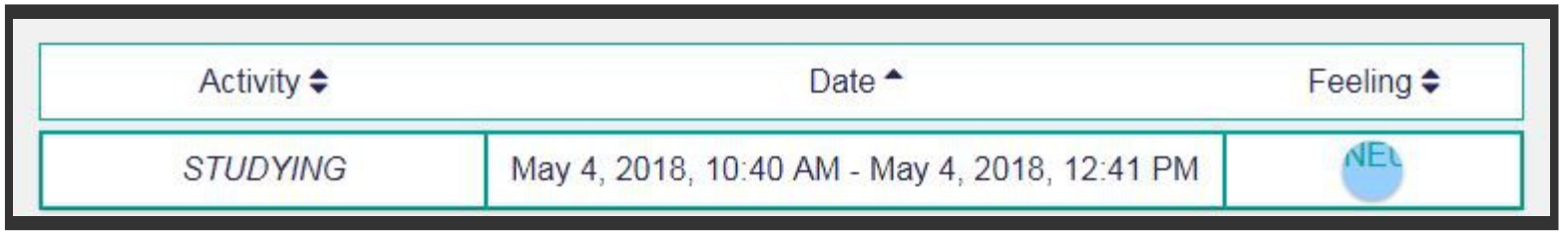
before redesign



after redesign



Activities



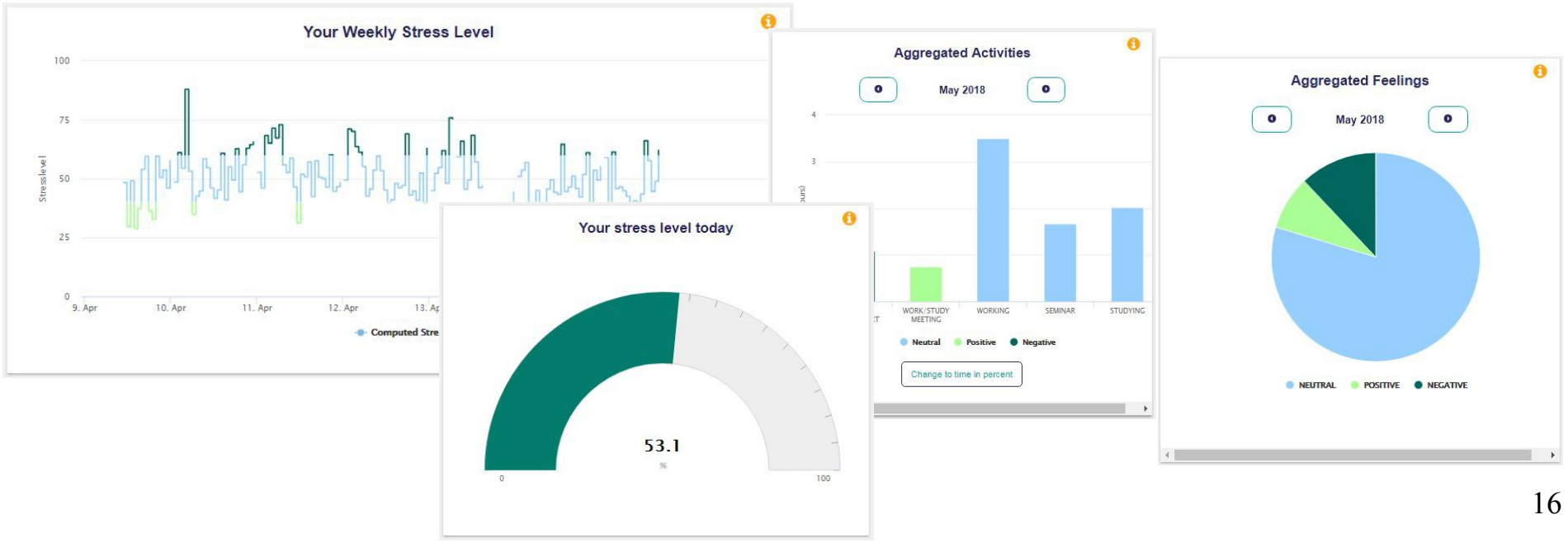
Data visualization

Dashboard

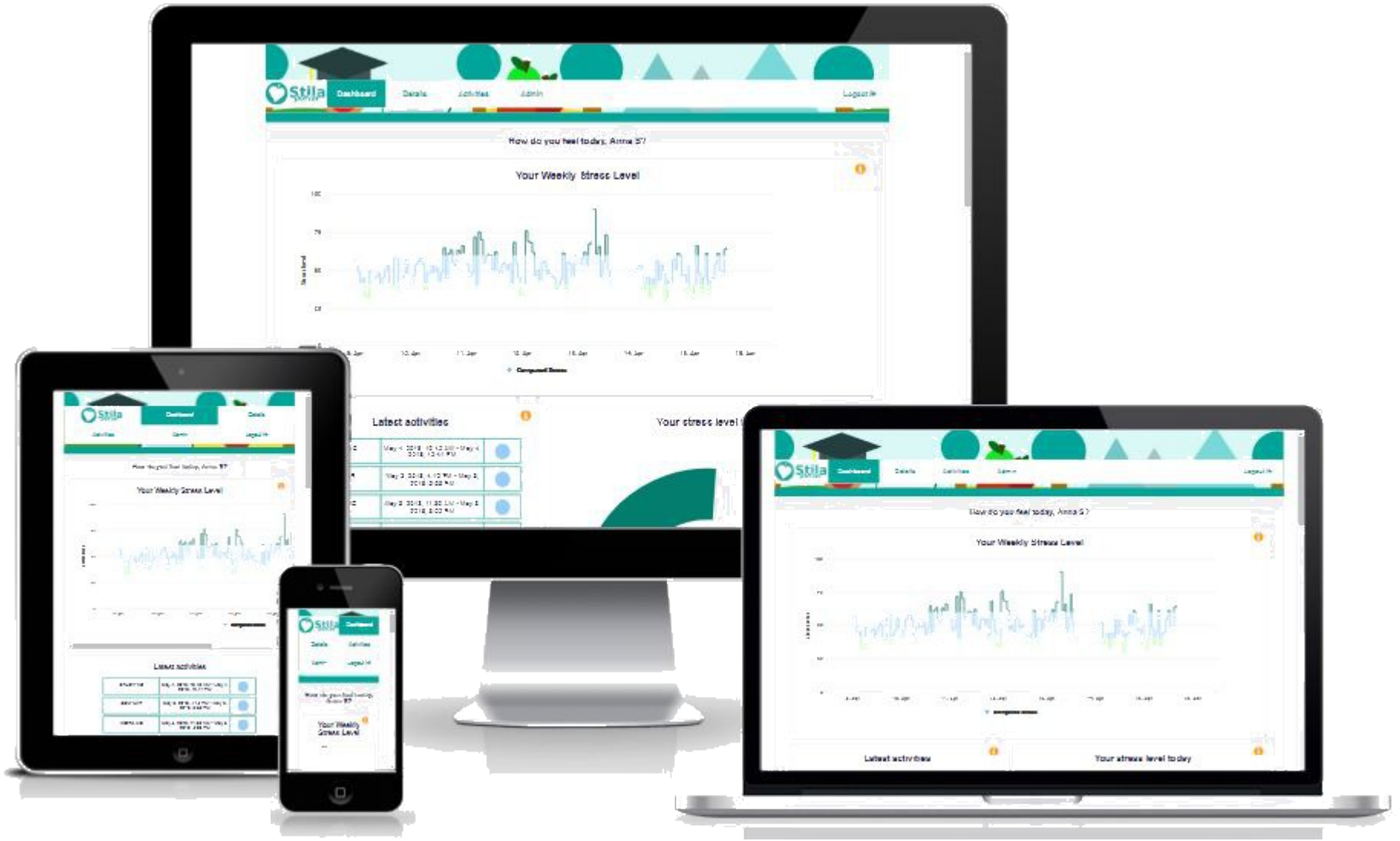
- Weekly stress level
- Today's stress level
- Monthly aggregated feelings
- Monthly aggregated activities

Detail view

- Computed stress
- Heart rate
- Heart rate variability
- Feature chart



Responsive Design



Source: http://ami.responsivedesign.is

Summary of important changes

1. consistent layout
2. reduction of highly saturated colors
3. grid/ flex layout
4. easy and intuitive navigation
5. focus on important functionalities (hierarchical structure)
6. info toolbars/ hints for users

Agenda

1. Vision
2. Conception
    - 2.1 User-centered design
    - 2.2 Main goals
    - 2.3 Navigation
3. Implementation
4. Evaluation
5. Future Work
6. System Demo

Approach of evaluation

Field study

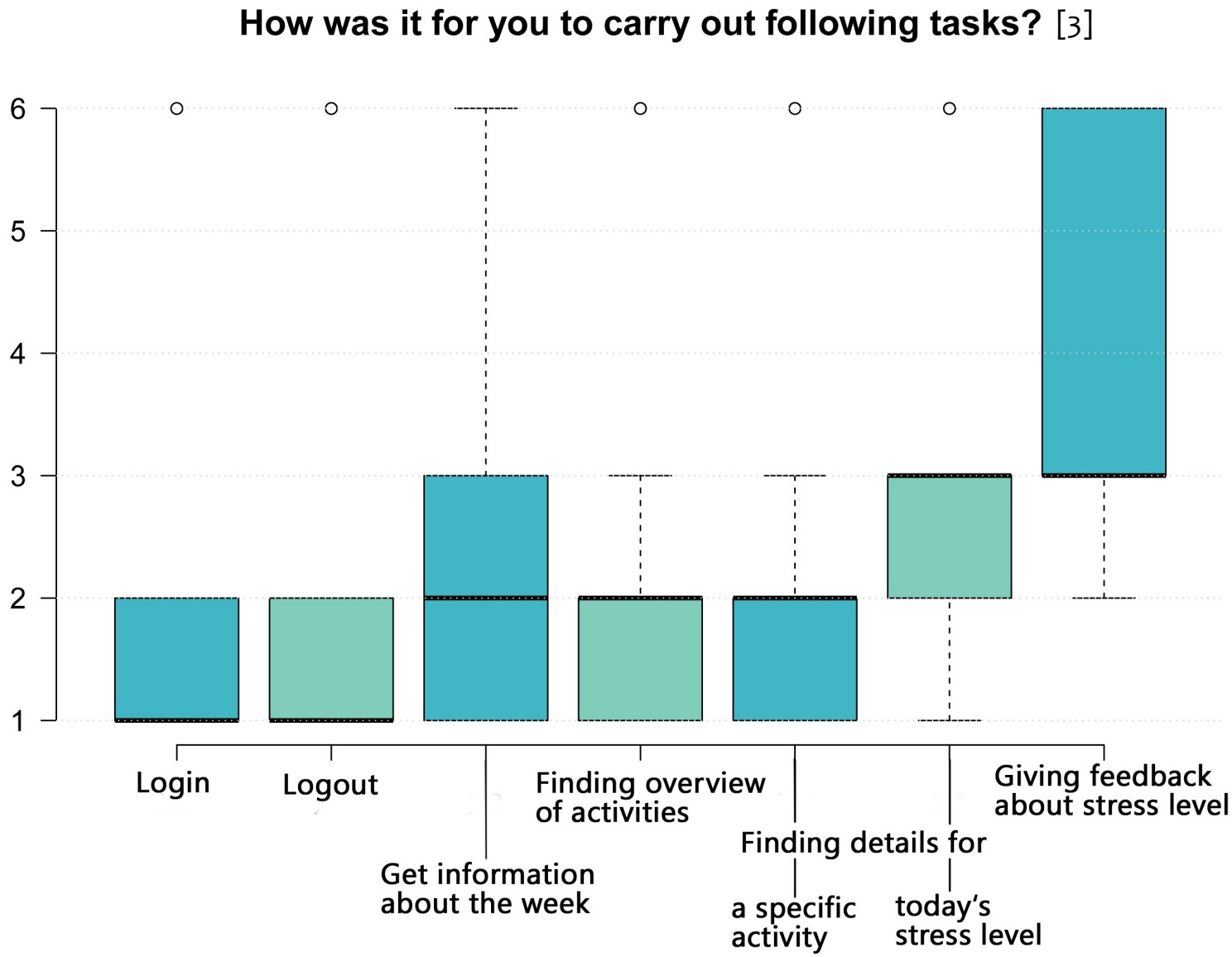
- 9 participants (aged 22 – 36 & 61), 8 days
- enrolled in Informatics MSc / PhD
- questionnaire containing 14 questions

Categories of interest:

- navigation through website
- comprehensibility of charts
- personal attitude towards stress
- role of Stila regarding stress awareness

Results

Navigation

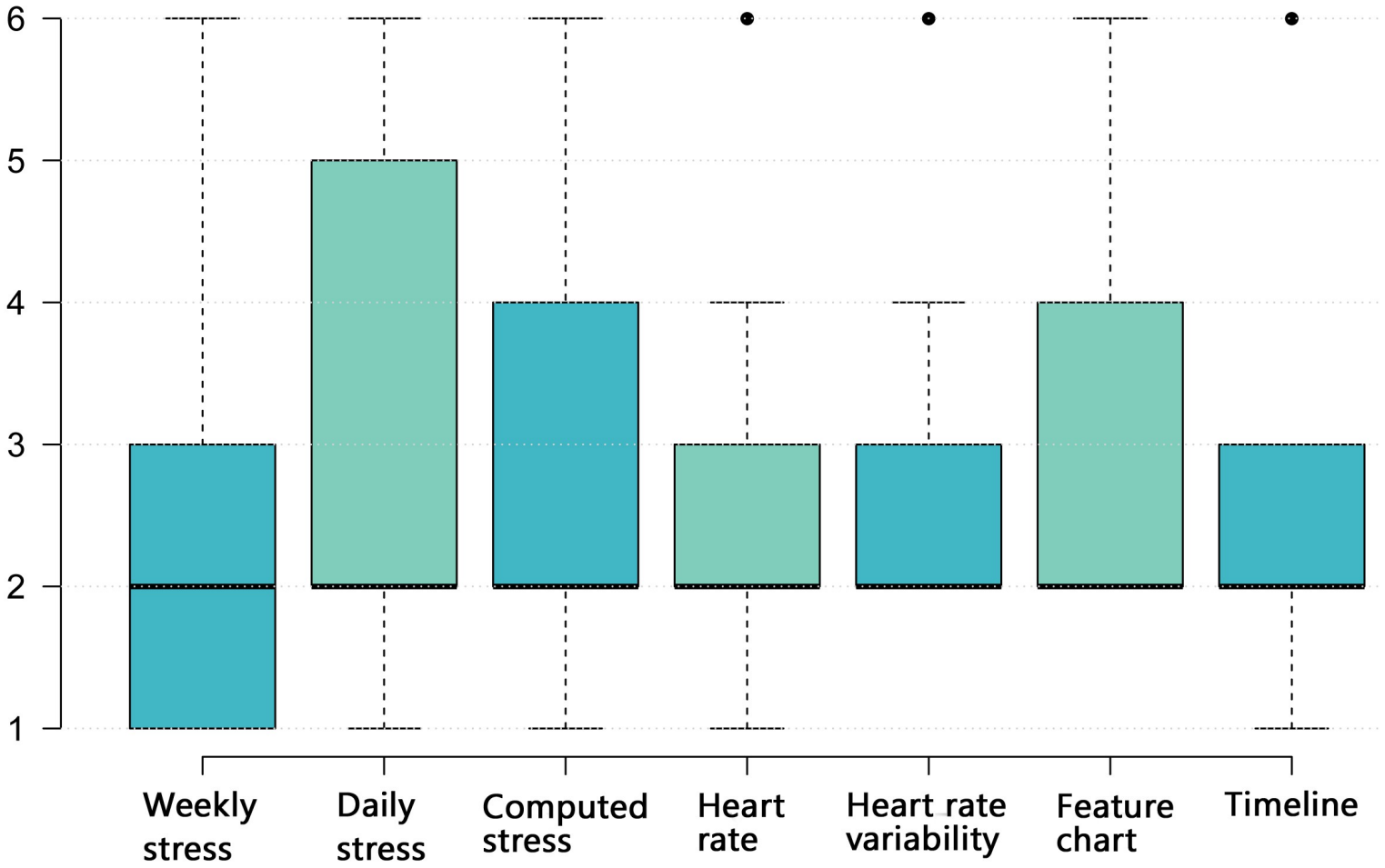


1 = very easy
2 = easy
3 = okay
4 = difficult
5 = very difficult
6 = don't know

Results

Comprehensibility

Was it clear for you to interpret the data visualization? [3]



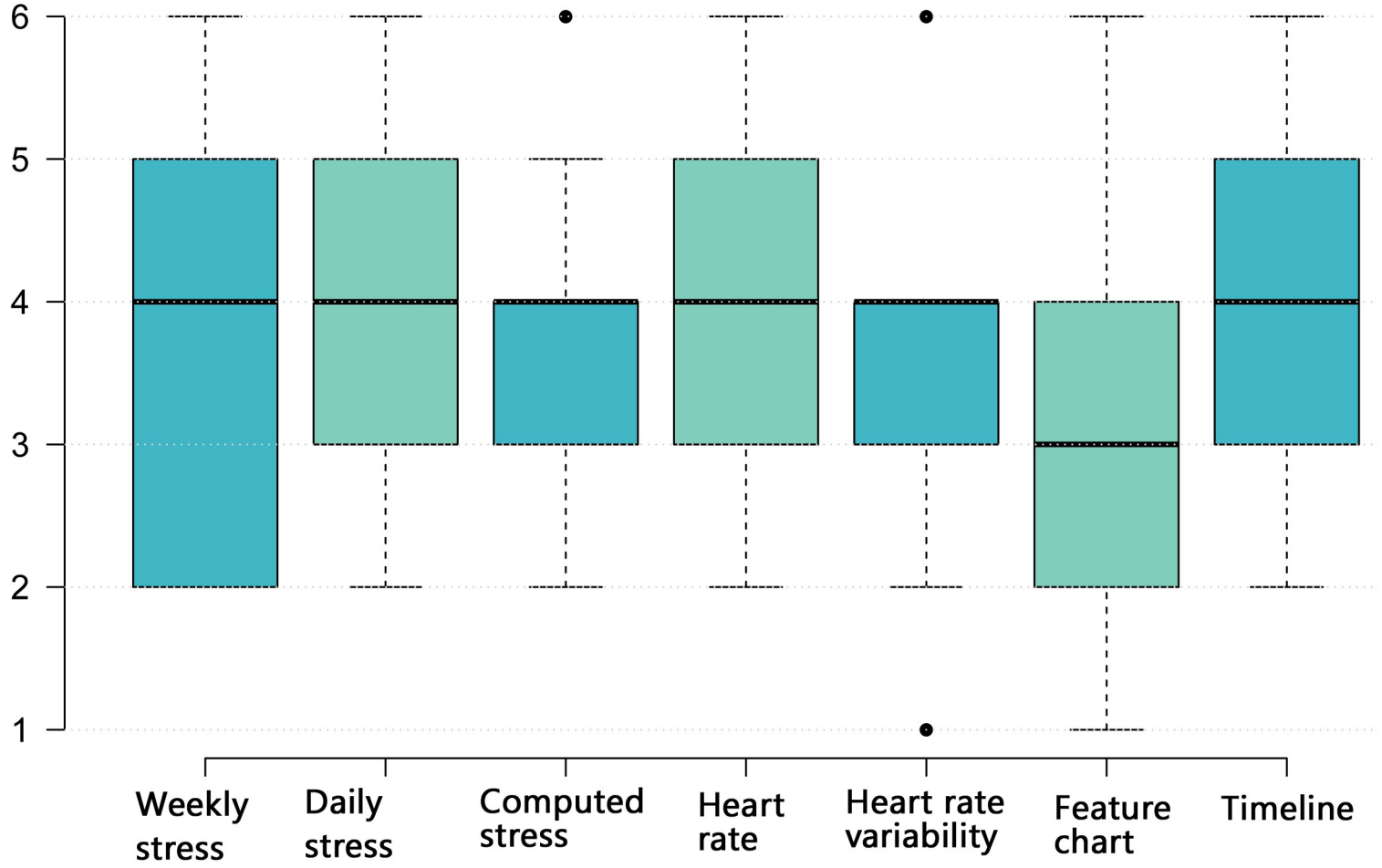
1 = very easy *
2 = easy *
3 = okay *
4 = difficult *
5 = very difficult *
6 = don't know *

*to understand

Results

Personal stress level

How helpful were the charts to understand your stress level? [3]

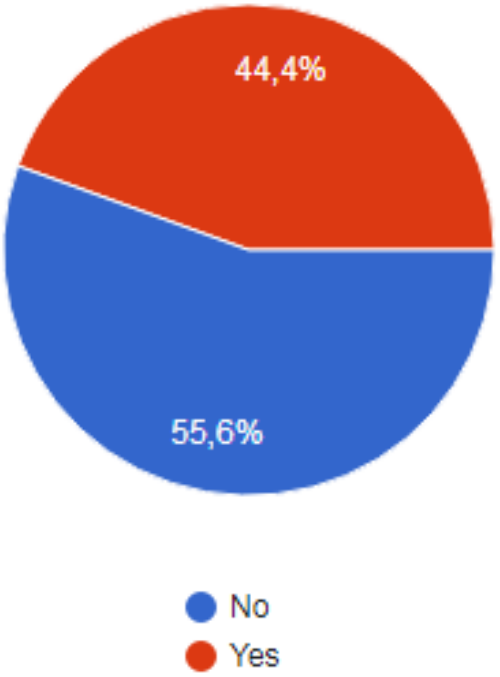


1 = least helpful
5 = very helpful
6 = don't know

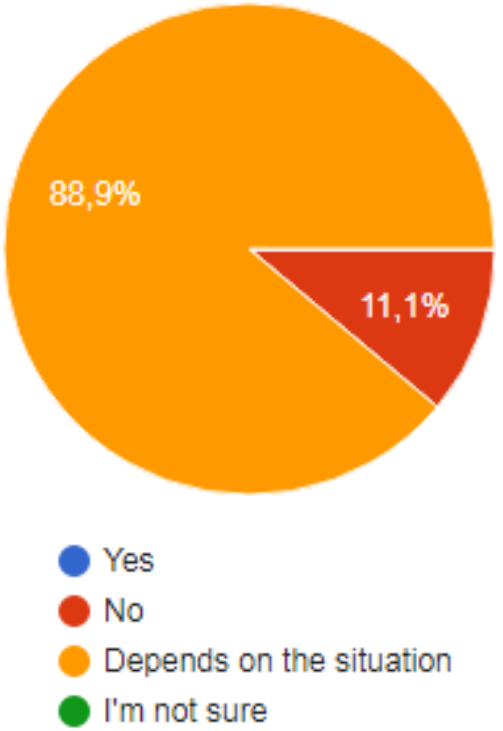
Results

Stress awareness

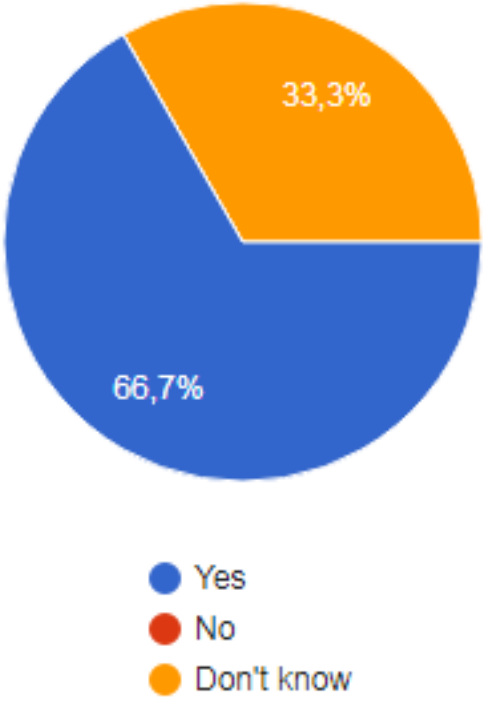
Do you often feel stressed?



Do you think stress is bad for your life?



Does Stila web portal help you to perceive your stress?



[4]

Evaluation

Users' suggestions:

- ``It is somehow confusing, which type of chart is opening or is it opening or where is it opening.´´
- ``A short legend for the used colors would be nice. ´´
- ``[A] short information about the meaning of the charts would help a lot. The actual tooltips don't provide any good information.´´
- ``diagrams should be scaled down on mobile device´´

Users' compliments:

- ``I really like the look and feel of the portal and the graphs that you are using for showing Heart Rate etc. are super nice!´´

Agenda

1. Vision
2. Conception
    - 2.1 User-centered design
    - 2.2 Main goals
    - 2.3 Navigation
3. Implementation
4. Evaluation
5. Future Work
6. System Demo

Future Work

- Improving display of Highcharts
- Detailed explanation for charts
- Improving Feedback functionality
- Accessible aggregated data of all users (anonymized) e.g. for start page
- Grouping of activities similar to mobile application

Anna Hubert

24.05.2018

Quellen

- [1] https://www.medien.ifi.lmu.de/lehre/ss17/id/Day%203%20Approaches%20to%20IxD%20.pdf
- [2] Ben Shneiderman. 1996. The Eyes Have It: A Task by Data Type Taxonomy for Information Visualizations. In Proceedings of the 1996 IEEE Symposium on Visual Languages (VL '96). IEEE Computer Society, Washington, DC, USA, 336-.
- [3] http://shiny.chemgrid.org/boxplotr/
- [4] https://docs.google.com/forms/d/1vsh6DiXWH32QfaC0jefAziU-m_Zhdhy-Awz6fwHB3A0/edit#responses
- Screenshots on pages 8, 10- 17 : https://stila.pms.ifi.lmu.de