TEAM
Technology Enabled Mental Health
Assess Prevent Treat

TU WIEN
TECHNISCHE UNIVERSITÄT WIEN
Vienna | Austria

Toni Michel

Developing an inclusive technological toolkit to support prevention approaches

PhD Supervisors
Geraldine Fitzpatrick, Technische Universität Wien
Stephen Brewster, University of Glasgow
Petr Slovak, University College London

Summary

The relevance for mental health, not just for the benefit of the individual, but for society as a whole, is well established (Christakis & Fowler, 2009).

And yet, young people arriving in Europe as refugees, often burdened with enough traumatic experiences for multiple lifetimes, don't receive the necessary support (Gadeberg & Norredam, 2016). If not resolved, this will become an issue for decades, both to the detriment of wider societal mental health, as well as at the cost of individual quality of life.

This projects aims to provide part of a solution to this problem, and also to improve access to mental health support in general. Through emerging technologies, evidence-based psychological practice, and using participatory design methods, we will develop a scalable, multimodal technological toolkit, which young people and their caregivers may use to support their mental health and wellbeing.

Special research focus will be given to ways of using multimodality to circumvent the language barrier and improve accessibility.

Upcoming studies

» **Review of multimodality in apps for youth mental health**
Status: write-up

» **Directions for design of multimodal youth mental health interventions**
Status: starting in March '18

» **Technological challenges and opportunities around multimodal youth mental health interventions**
Status: starting in May '18

Research questions

» Which set of interventions could be re-interpreted using multimodal and non-language based approaches to improve inclusiveness of youth mental health (YMH) technology?

» Which set of modalities for input and output may be used for improving inclusiveness of YMH technology?

» How could a platform, making use of multimodal input and output, and also offering interchangeable, customizable components, look like?

» What would be a suitable user interface, offering usability and positive user experience, and sufficient guidance in how and what to select, to enable both direct use, as well as use mediated by caregivers?

Planned contributions

Reinterpreting a set of YMH interventions to make them usable in a multimodal, inclusive and non-language based way.

Identifying inclusive and non-language based technological modalities for input and output in YMH applications.

Developing an architecture using these modalities, which allows the creation of customizable, engaging YMH applications.

Designing a user experience optimized user interface for the toolkit, for both young people and also their caregivers.

Large-scale study with diverse Austrian youth to identify points of interest for further research in this area.

Methods

Participatory Design

Interviews

Observation

Contextual Inquiry

Sketching

Prototyping

Preliminary results

Background: There is a range of literature showing that the use of multimodality correlates both with increased effectiveness of, as well as increased engagement with mental health interventions (see „Related works").

Motivation: One way young people receive mental health support is through smartphone apps. Subsequently, the question is raised how well these apps do with regards to multimodal intervention delivery.

Methods: We collected 279 smartphone applications connected to mental health. By analysing their descriptions, we classified them as belonging to assessment, prevention, treatment, or education about mental health.

Additionally, we classified them along their target audience, as for children, adolescents, adults and seniors. Through this, we identified 29 prevention apps aimed at adolescents.

Next, we analysed how these 29 prevention apps incorporated multimodal delivery of interventions and mapped, whenever possible, the use of certain interventions onto the modalities they've been presented with.

Results: With few exceptions, there was an underwhelming use of multimodality in the 29 prevention apps we identified. Input was dominated by single-tap touch, and output modalities, though more diverse, were still primarily static text alongside static images.

Examples of prevention apps

Fabulous

Pacifica
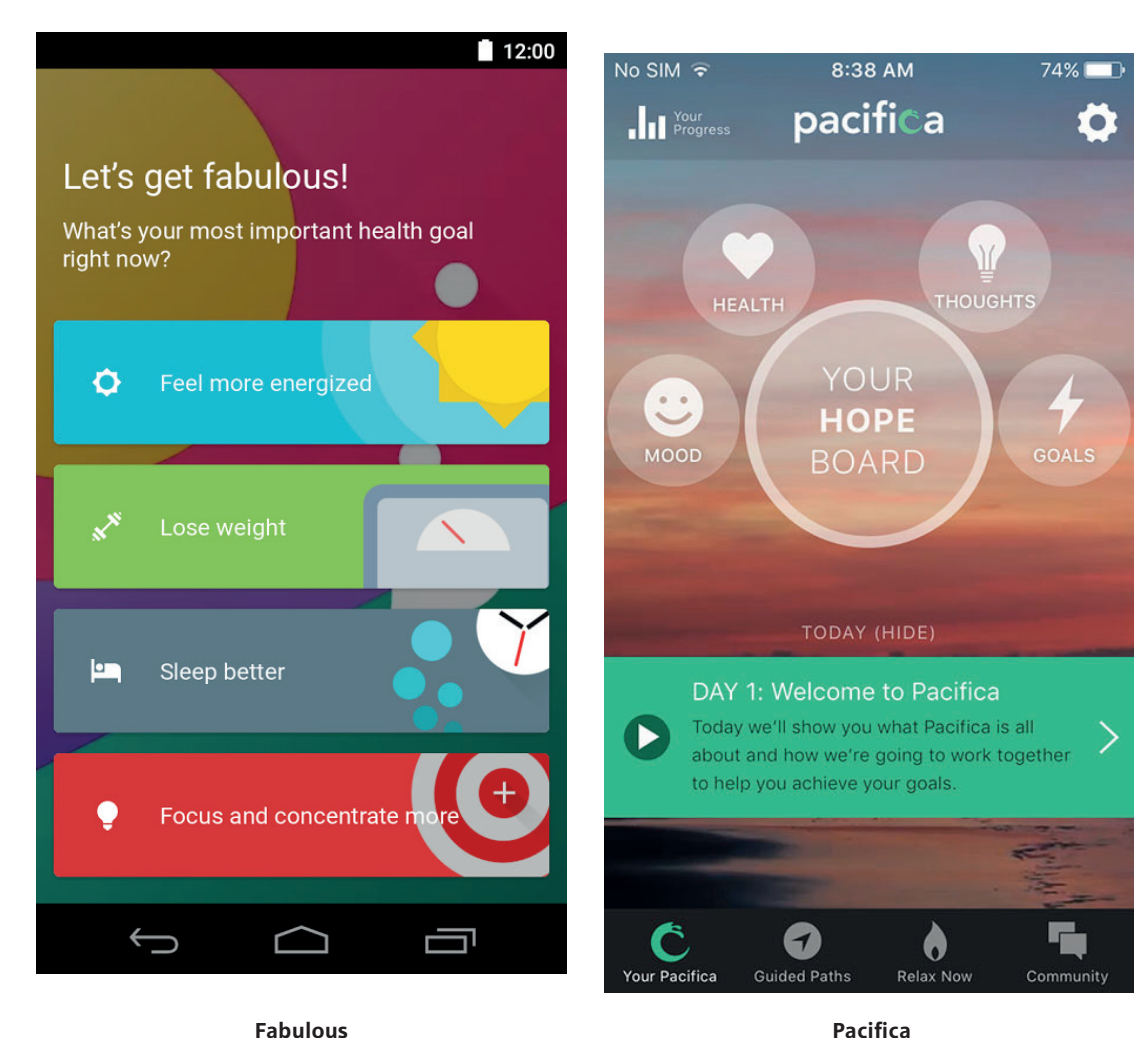
Related works

» Sin & Lyubomirsky (2009) reviewed 51 positive psychology intervention studies with overall 4,266 participants and found significant impact on wellbeing. However, responsiveness to individual differences seems highly important, which is something a multimodal toolkit would support.

» Silverstone et al. (2016) conclude a review of existing mental health technologies by recommending a stronger use of multimodal solutions and emphasing the potential of multimodal solutions in this space.

» Clarke, Kuosmanen & Barry (2015) conclude a review of existing mental health technologies by pointing out the effectiveness of specifically module-based interventions for promotion of mental health.

» Spijkerman, Pots & Bohlmeijer (2016) reviewed 15 randomised control trials, specifically for the effectiveness of online mindfulness-based interventions and conclude a significant effect on mental health.

» Hollis et al. (2017) were able to identify 147 existing digital health interventions, which primarily used computer, smartphones, internet and text messages as delivery mechanisms.

» Aye mind (n.d.) offers a toolkit to facilitate learning about mental health technology for young people.

» Almirall & Chronis-Tuscano (2016) emphasize the necessity of adaptive interventions in support of child and adolescent mental health, because needs and preferences change over time.

» Taylor, Leslie, Grampian & Boddie (2017) point towards high potential of wellbeing promoting technology for adolescents.

» Fleming, Lucassen, Stasiak, Shepherd & Merry (2016) showed that computerised therapy has significant potential for educationally alienated groups, which is often the case with refugee youth.

Contact

Toni Michel, MEng
Mobile: +49 177 3075 023
Mail: toni.michel@tuwien.ac.at
Twitter: @T__Michel

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