SEFAC

Social Engagement Framework for
Addressing the Chronic-disease-challenge

SEFAC app: a behaviour change support tool for lifestyle changes in chronic disease management based on mindfulness methodologies

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Behaviour Change Support Systems (BCSS)

Mobile Health Solutions to Support Person Centred Care

The emergence of social web and mobile applications to create, access, and share information in new ways has opened up opportunities for also developing new kinds of information systems for influencing users.

One of the most prominent areas for future healthcare improvement is the role of the web in fostering improved health and healthier lifestyles. Positive results in areas such as the management of smoking cessation, hazardous drinking, obesity, diabetes, asthma, tinnitus, stress, anxiety and depression, complicated grief, and insomnia have been reported.

Mobile Health Solutions to Support Person Centred Care

Computer science as a field has the responsibility of educating the general audience about the pros and cons of people's behaviors being influenced by information systems, whereas web and other software developers must realize that they exercise enormous power over the users because their designs always influence them in one way or another, whether they intend them to or not.

In addition to rigor theoretical background and proper methods for measuring the actual behavioral changes, discussed briefly later on in this presentation, two important steps (in between theory and measurement) must be taken, namely analysis of the intent and analysis of the persuasive potential of the m-health app when designing a behavior change support system (BCSS), a key construct for research into persuasion, influence, nudge, and coercion

Mobile Health Solutions to Support Person Centred Care

A behavior change support system (BCSS), is *"a socio-technical information system with psychological and behavioral outcomes designed to form, alter or reinforce attitudes, behaviors or an act of complying without using coercion or deception".*

An ideal BCSS persuades its users to adopt the target behavior. The role of inducements, that is, exchanges of money, goods, or services for actions by the person being influenced, is a more complicated issue. Yet, in its purest form, persuasion excludes at least monetary inducements; persuasion relies on the power of verbal and non-verbal symbols and allows people's voluntary participation in the persuasion process.

Behavior Change Support Systems (BCSS)

Behaviour Change Support Systems (BCSS) aim at measuring and demonstrating a behaviour change being caused by an IT artifact (Oinas-Kukkonen, 2013) such as a mobile application, an online platform, etc. that entails human and computer interaction. In its essence, such a technology is a medical intervention itself since it attempts to change the way people take up prevention and promotion services, by "creating a positive behaviour change measured by behavioural and psychological outcomes and enhancing knowledge, awareness and understanding via providing sound health related material and interactive web-based components" (Lehto & Oinas-Kukkonen, 2015), without deception or coercion.

Behavior Change

Behavior Change Support Systems (BCSS)

A BCSS, needs to conform to a design framework that can be used as a tool by IT designers and intervention developers and as **an evaluation framework for understanding and explaining the users' needs and these needs are fulfilled through the BCSS.** The Persuasive System Design (PSD) model, conceived by Harri Oinas-Kukkonen (Oinas-Kukkonen, 2013), draws on many behavioural change models and more specifically, the theory of planned behaviour (Ajzen, 1991), the social learning theory and the social cognitive theory (Bandura, 1977) the stages of change model (Prochaska & Di Clemente, 1982) and the goal-setting theory which was also used in SEFAC app design and development (Locke, 1968).

The PSD model for BCSS Evaluation

The PSD model defines seven postulates or core issues that are common for all BCSS's.

P1: IT is never neutral but rather it always influences its user(s) in one way or another;

P2: People like their views about the world to be organized and consistent;

P3: Persuasion is often incremental and often does not follow a linear pattern;

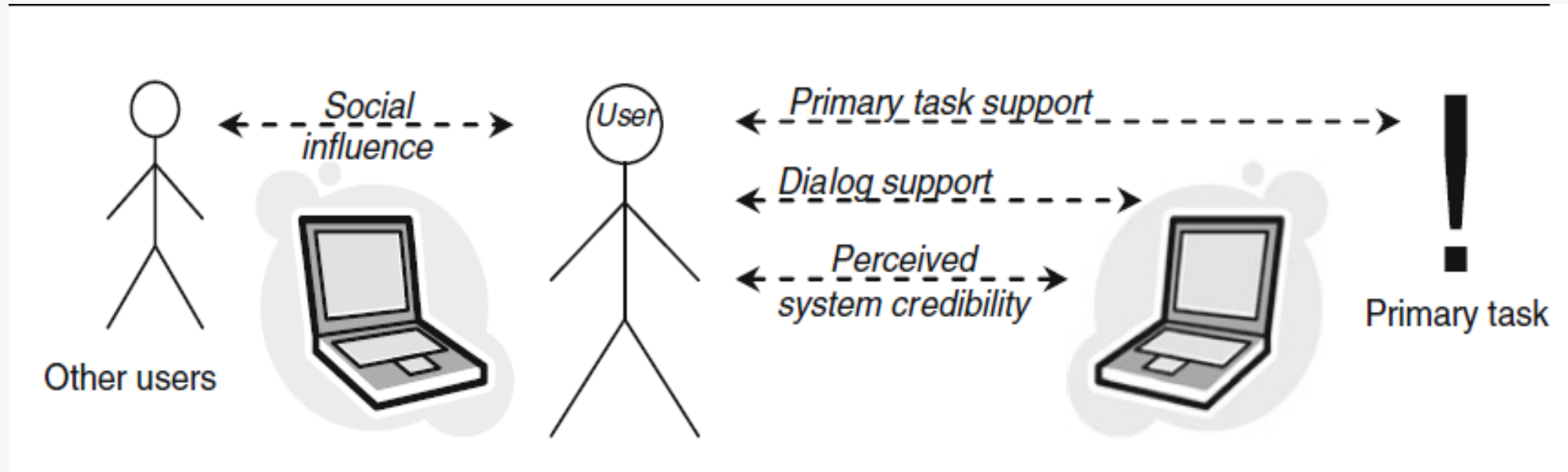**P4:** Direct and indirect routes are key persuasion strategies;

P5: HBCSS should be both useful and easy to use;

P6: Persuasion must always be unobtrusive to a user's primary tasks;

P7: Persuasion through behavior change support systems should always be transparent.

Categories of Persuasive Features of a BCSS

- The BCSS supports the user's primary task and goals
- The BCSS keeps the end user active and motivated to continue use the IT artifact and to perform the behavior "prescribed".
- The BCSS supports users' perceptions of credibility via showing trustworthiness and expertise.
- The BCSS motivates users by leveraging social features

Persuasive Features within Categories of a BCSS

Primary Task Support	
Reduction	System should reduce effort users expend when performing target behaviour
Tunnelling	System should guide users in attitude change process by providing means for action that brings them closer to target behaviour
Tailoring	System should provide tailored info for user groups
Personalization	System should offer personalized content and services for users
Self-monitoring	System should provide means for users to track their performance or status
Simulation	System should provide means for observing link between cause & effect with regard to users' behaviour
Rehearsal	System should provide means for rehearsing target behaviour

Dialogue Support	
Praise	System should use praise via words, images, symbols, sounds to provide user feedback based on behaviours
Rewards	System should provide virtual rewards for users to give credit for performing target behaviour
Reminders	System should remind users of their target behaviour or steps towards it while using the system
Suggestion	System should suggest users carry out behaviours while using the system
Similarity	System should imitate its users in some specific way
Liking	System should have a look & feel that appeals to users
Social Role	System should adopt a social role

Credibility Support	
Trustworthiness	System should provide info that is truthful, fair & unbiased
Expertise	System should provide info showing knowledge, experience & competence
Surface Credibility	System should have competent look & feel
Real-World Feel	System should provide info of the organization/actual people behind its content & services
Authority	System should refer to people in the role of authority
Third-Party Endorsements	System should provide endorsements from respected sources
Verifiability	System should provide means to verify accuracy of site content via outside sources

Social Support	
Social Learning	System should provide means to observe others performing their target behaviours to see outcome of their behaviour
Social Comparison	System should provide means for comparing performance with the performance of others
Normative Influence	System should provide means for gathering people who have same goal & make them feel norms
Social Facilitation	System should provide means for discerning others who are performing the behaviour
Cooperation	System should provide means for co-operation
Competition	System should provide means for competing with others
Recognition	System should provide public recognition for users who perform their target behaviour

SEFAC Mobile App

Main functionalities

Mindfulness based interventions:

My Mood
Writing, exercise for emotional awareness. Based on Emotional Intelligence theory.

My learning
8 video lessons based on stage of change status and for a 4 stages. Turning theory into practice, weekly challenge.
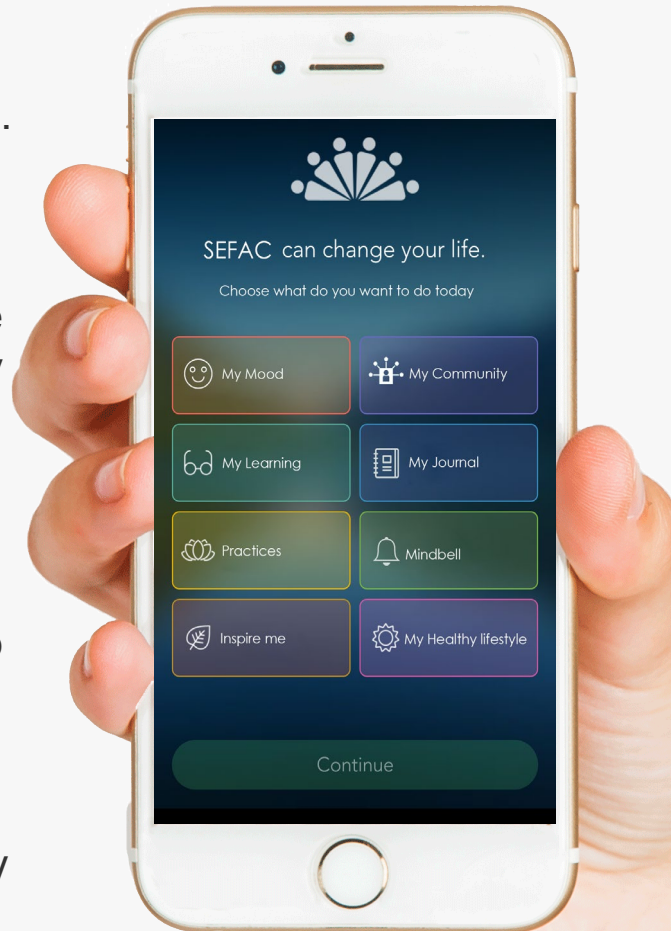
Practices
Audios on mindfulness practices, deep breathing, body scan, self compassion etc

Inspire me
Text reflections on training mind and body for health and wellbeing during the day

Available in four languages: English, Italian, Dutch, Croatian

My community
Connect with your healthy buddy, find out the SEFAC community in your pilot.

My Journal
The goal of mindful writing is to take time to acknowledge thoughts, sensations and feelings with a non-judgmental attitude.

Mindbell
Learn to pause mindfully, step out of automatic pilot. Set reminders for practices.

My healthy lifestyle
Design a plan, set goals and change habits. Also, step out of your comfort zone methodology

GET IT ON
Google play

Based on PSD Model
Persuasive features

Based on the PSD model, the following persuasive features were used in design of the app:

Self-monitoring

The app helps the end user to start a new goal and track progress toward accomplishment as well as mood.

Praise

The app praises the end user e.g. via daily tips for healthier eating habits, as a way to provide positive feedback
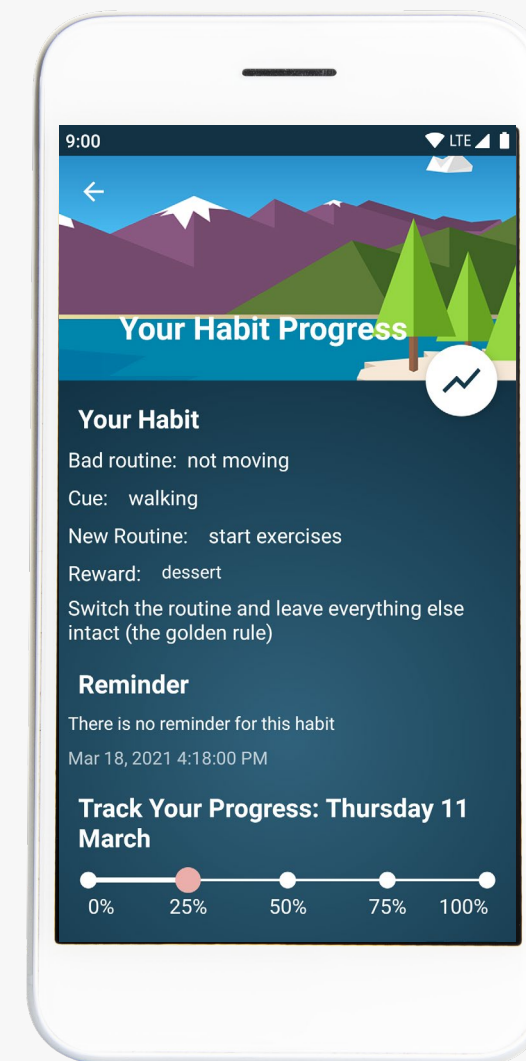
Reminders

Reminding end users of their target behaviour or activation of the Mindbell for raising awareness during the use of the application
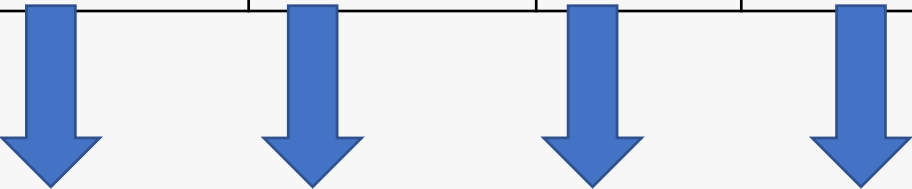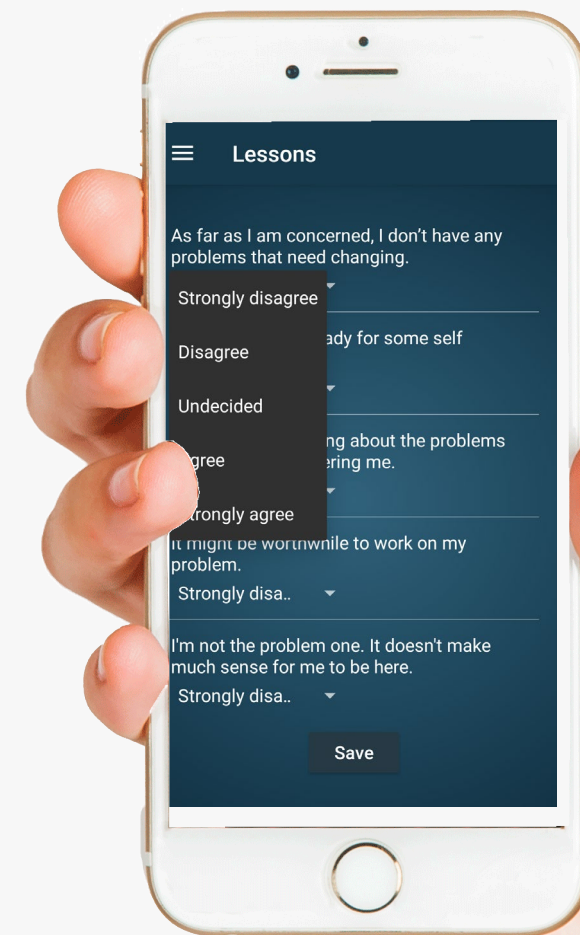
Rewards

The app allocated titles and thumbnails on a ninja accomplishment scale to end users if they achieve a goal

9:00   LTE

Your Habit Progress

Your Habit

Bad routine: not moving

Cue: walking

New Routine: start exercises

Reward: dessert

Switch the routine and leave everything else intact (the golden rule)

Reminder

There is no reminder for this habit

Mar 18, 2021 4:18:00 PM

Track Your Progress: Thursday 11 March
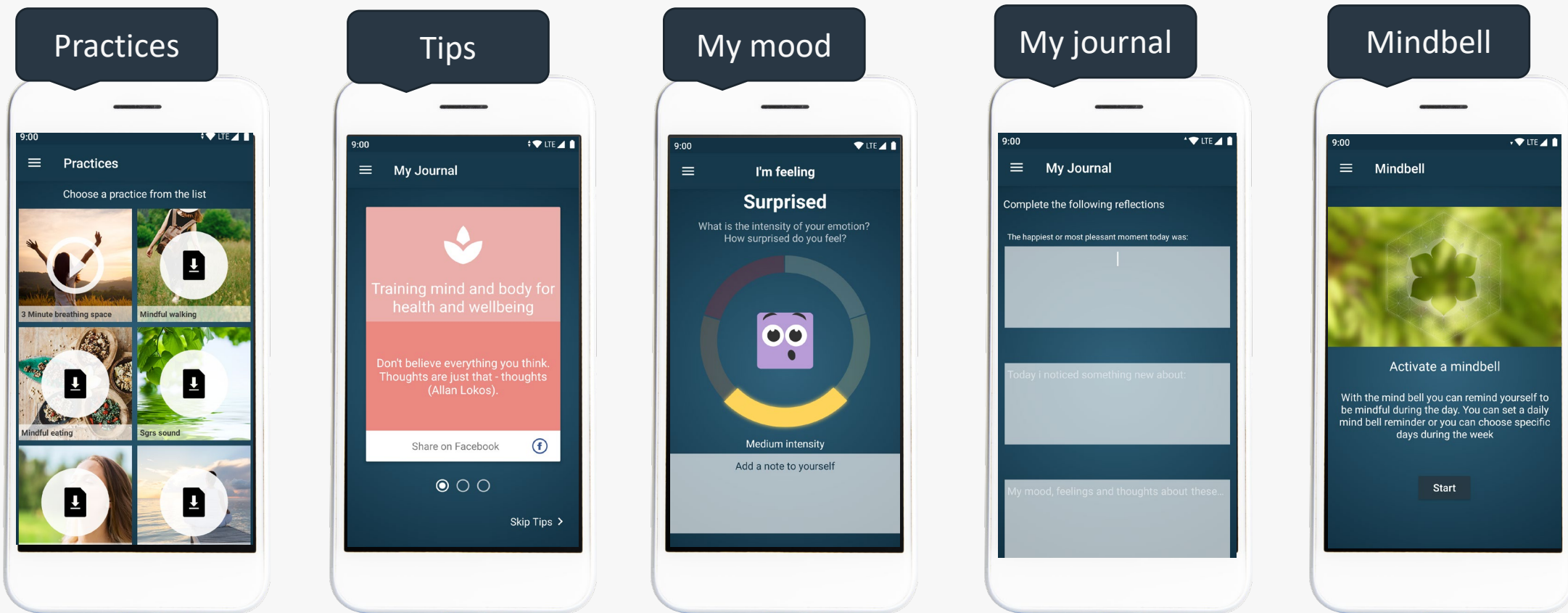
0%   25%   50%   75%   100%

My Learning
Change behaviour

Based on Transtheoretical Model of Behaviour Change and URICA scale the app personalizes the learning material. The TTM emphasizes behavior change as a dynamic process, in which an individual progresses through different stages to intentionally modify her/his behavior.

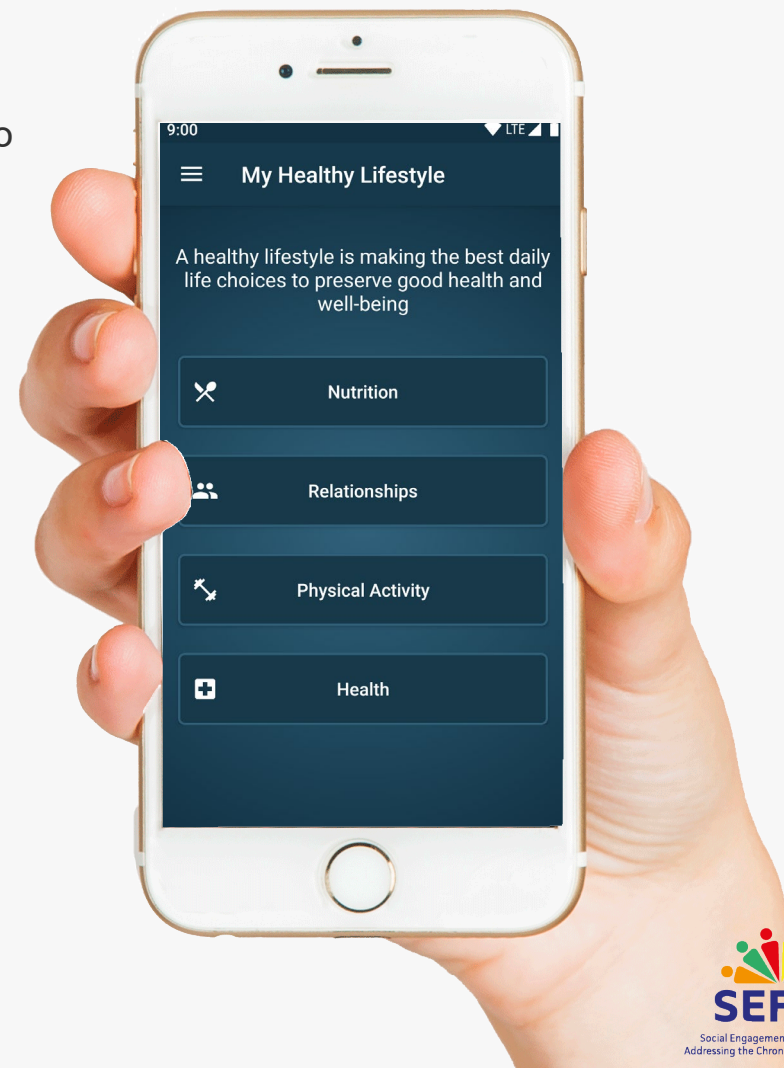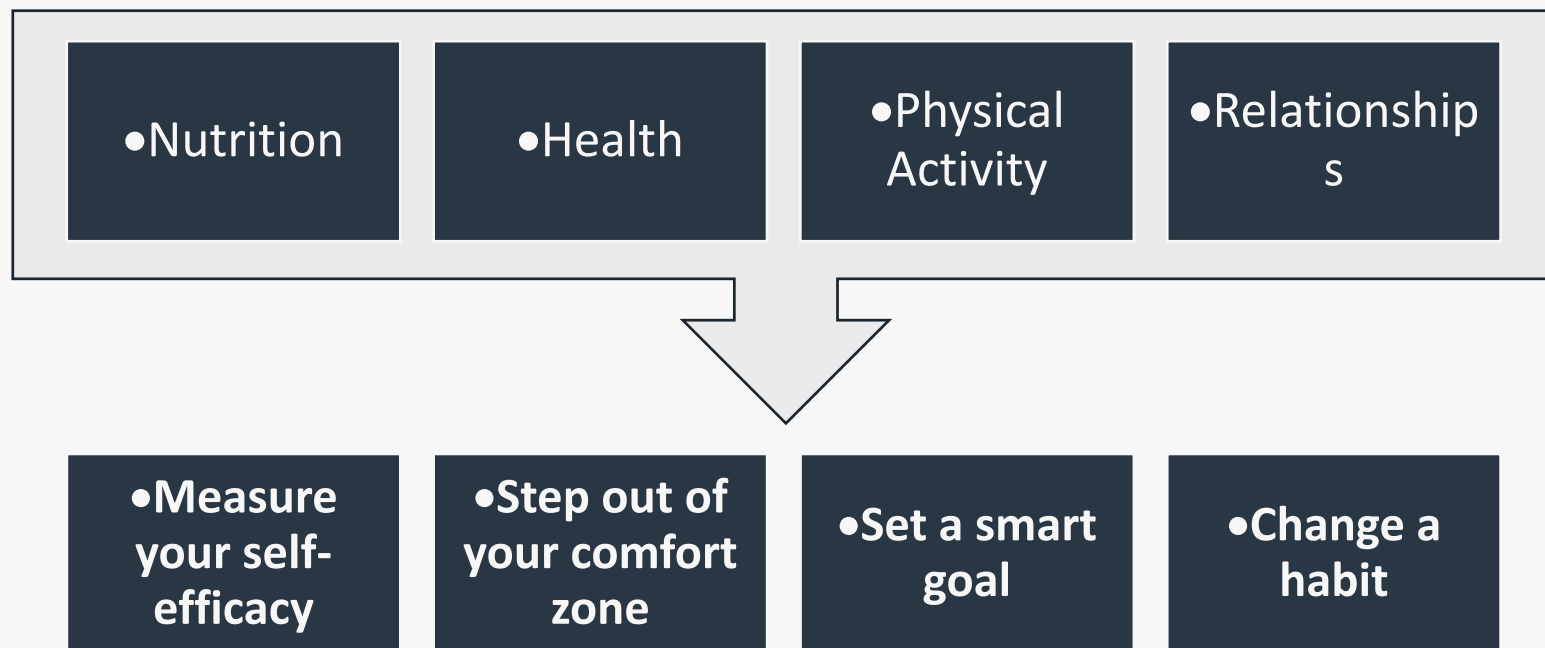| Readiness Stages			
Pre-contemplation	Contemplation	Action	Maintenance
8 Lessons HABIT	8 Lessons PROs and CONs of CHANGE	8 Lessons GOALS and COPING SKILLS	8 Lessons MINDSET and RESILIENCE

Practices; Inspire me; Mindbell; My journal;

Mindfulness

Practices

9:00   LTE

Practices

Choose a practice from the list

3 Minute breathing space   Mindful walking

Mindful eating   Sgrs sound

Tips

9:00   LTE

My Journal

Training mind and body for health and wellbeing

Don't believe everything you think. Thoughts are just that - thoughts (Allan Lokos).

Share on Facebook

Skip Tips >

My mood

9:00   LTE

I'm feeling

Surprised

What is the intensity of your emotion? How surprised do you feel?

Medium intensity

Add a note to yourself

My journal

9:00   LTE

My Journal

Complete the following reflections

The happiest or most pleasant moment today was:

Today i noticed something new about:

My mood, feelings and thoughts about these...

Mindbell

9:00   LTE

Mindbell

Activate a mindbell

With the mind bell you can remind yourself to be mindful during the day. You can set a daily mind bell reminder or you can choose specific days during the week
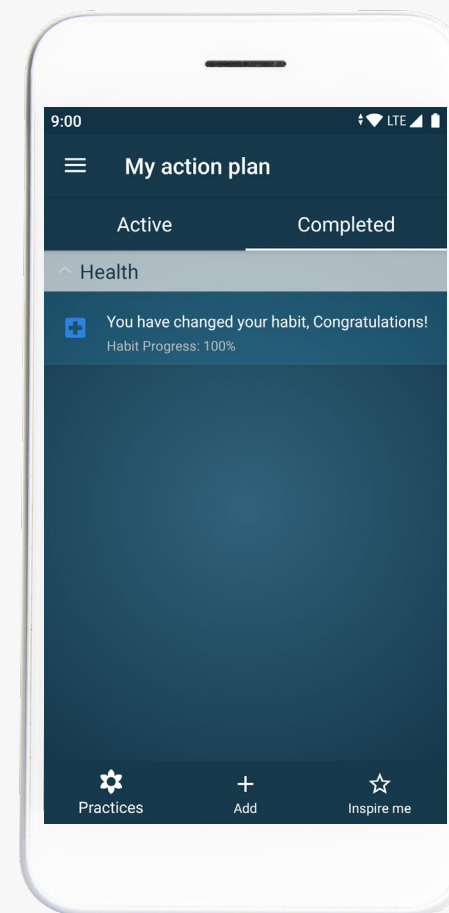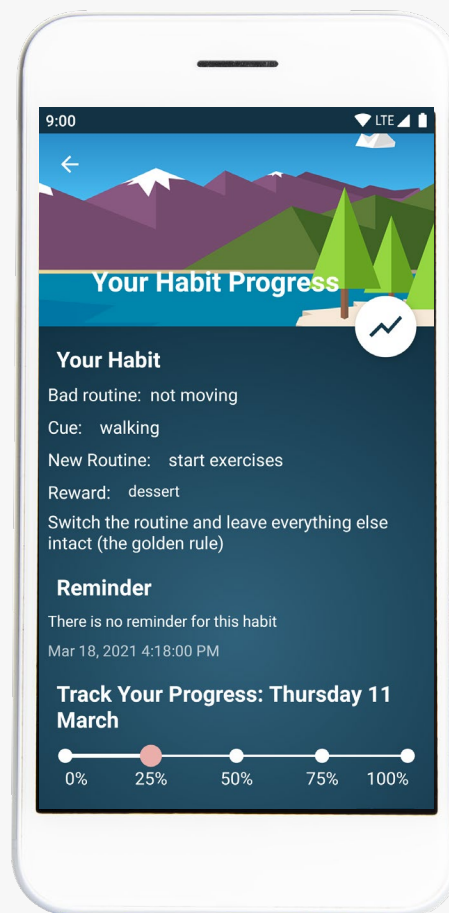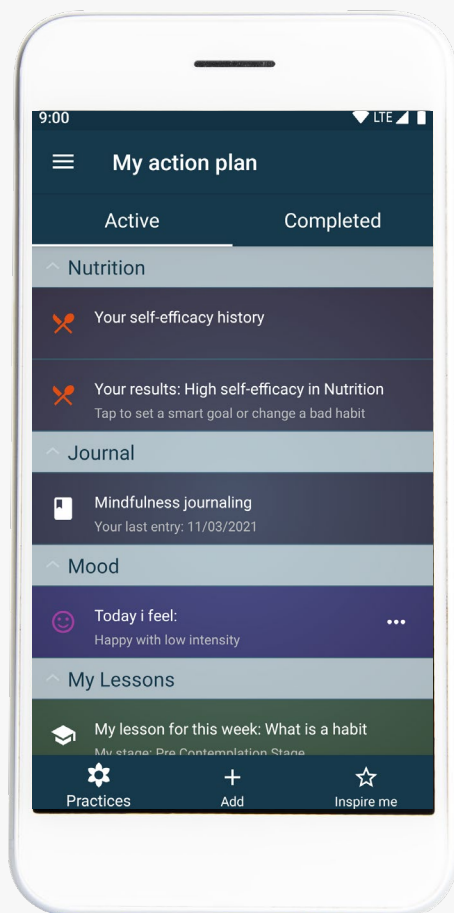
Start

My Healthy Lifestyle

SMART goal & goal setting theory

This section adapts the SMART approach and goal setting theory for helping the user to design a plan and change a bad habit. The app focuses on four domains:
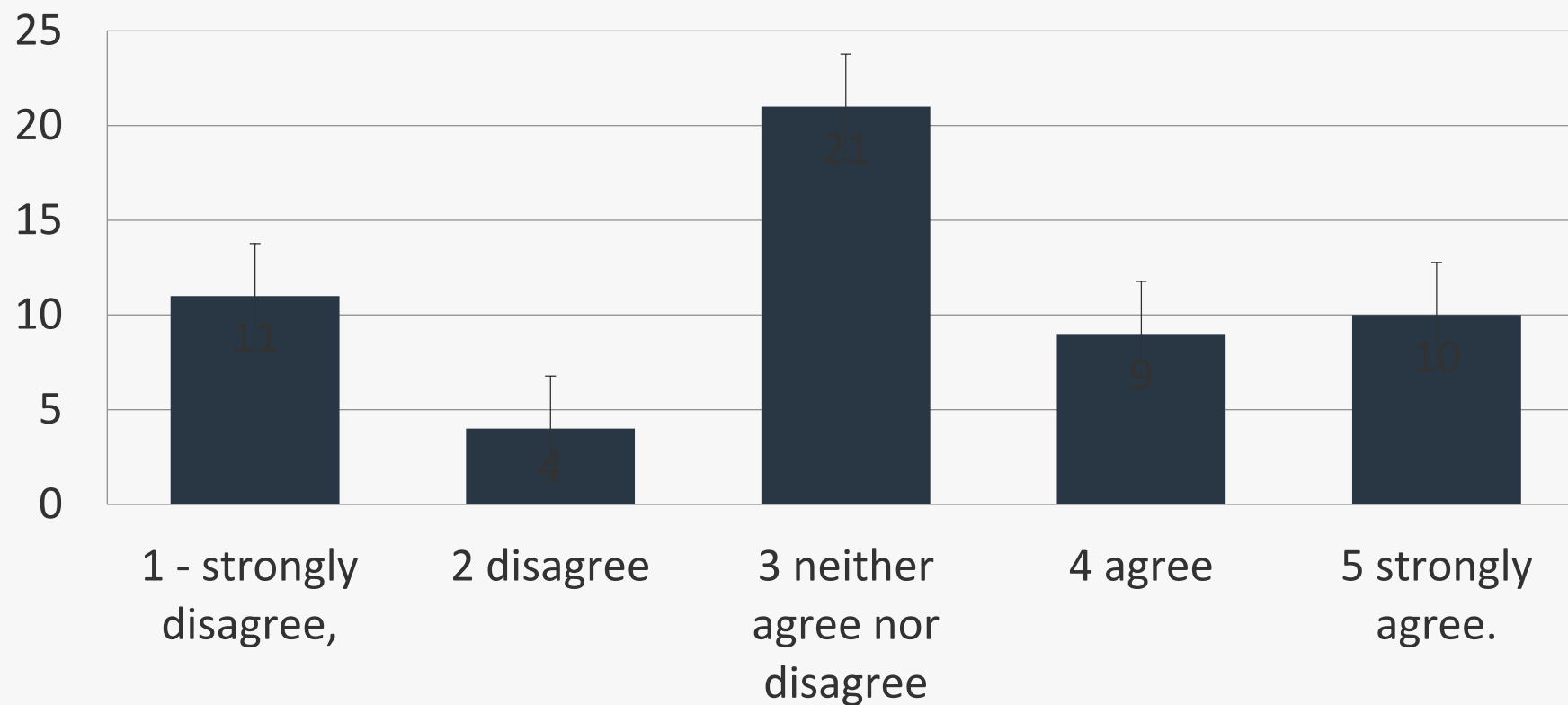
- •Nutrition
- •Health
- •Physical Activity
- •Relationships

- •Measure your self-efficacy
- •Step out of your comfort zone
- •Set a smart goal
- •Change a habit

9:00   ▼ LTE
☰ **My Healthy Lifestyle**

A healthy lifestyle is making the best daily life choices to preserve good health and well-being

Nutrition

Relationships

Physical Activity
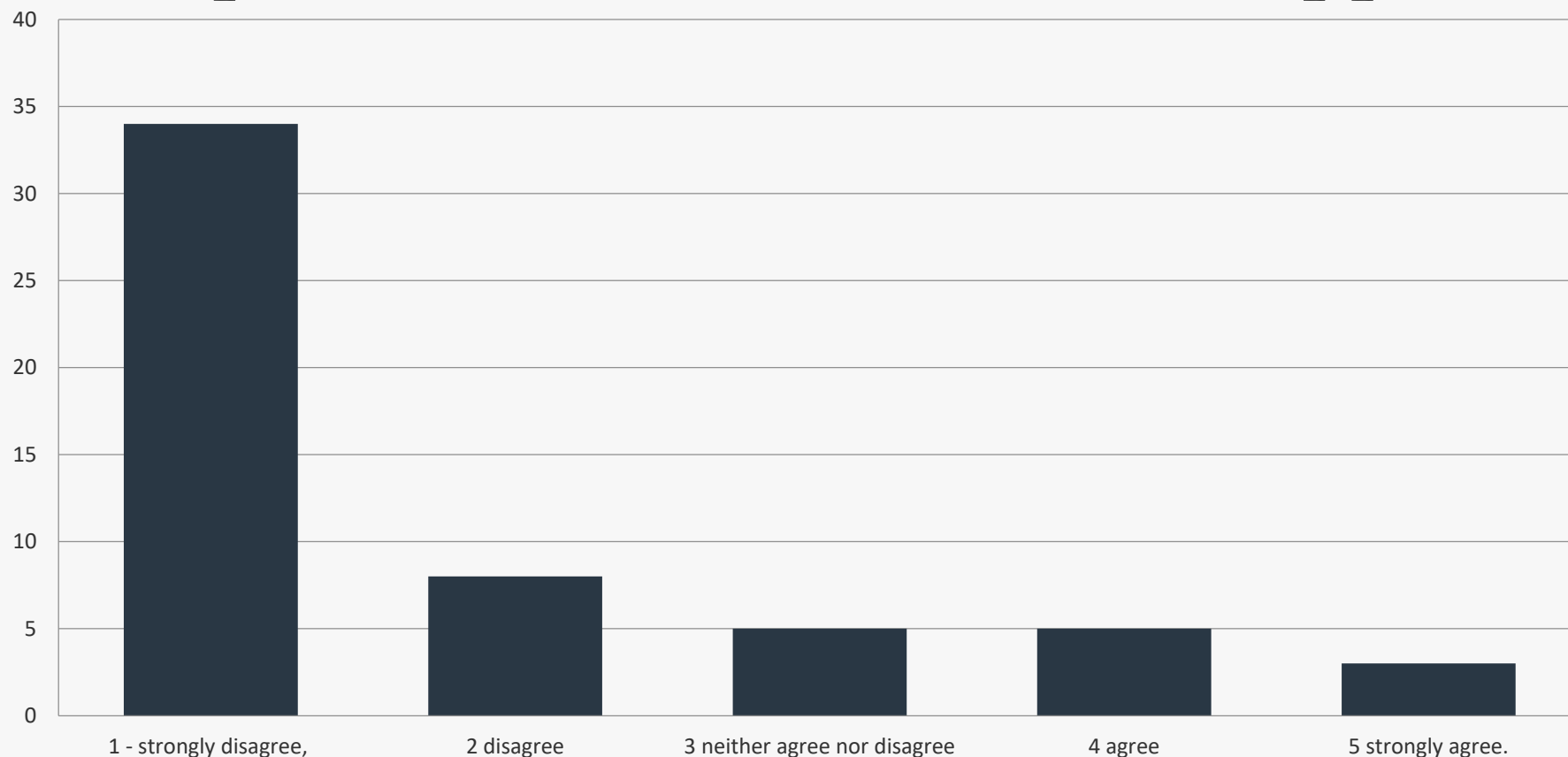
Health

Action plan

Results of System Usability

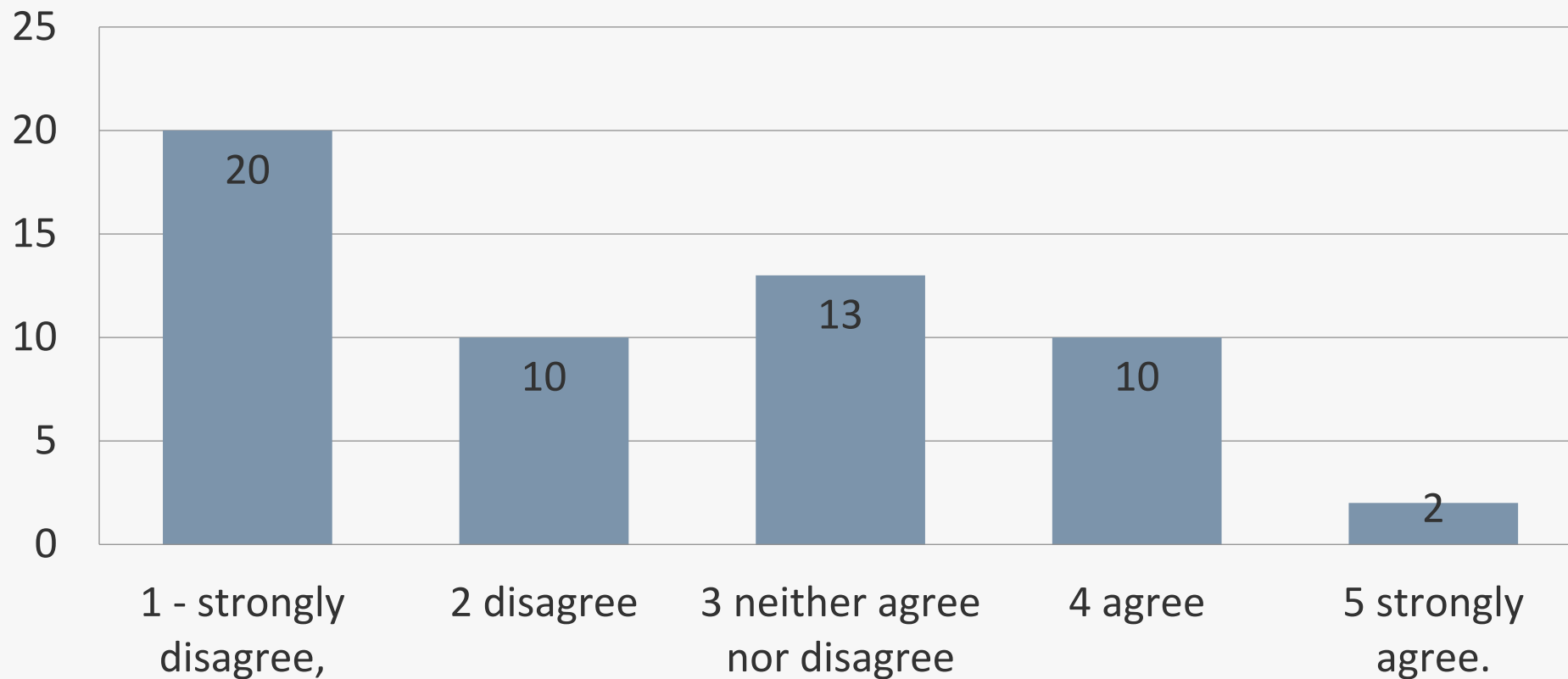# I think that I would like to use this app frequently

Results of System Usability

I think that I would need the support of a technical person to be able to use this app.
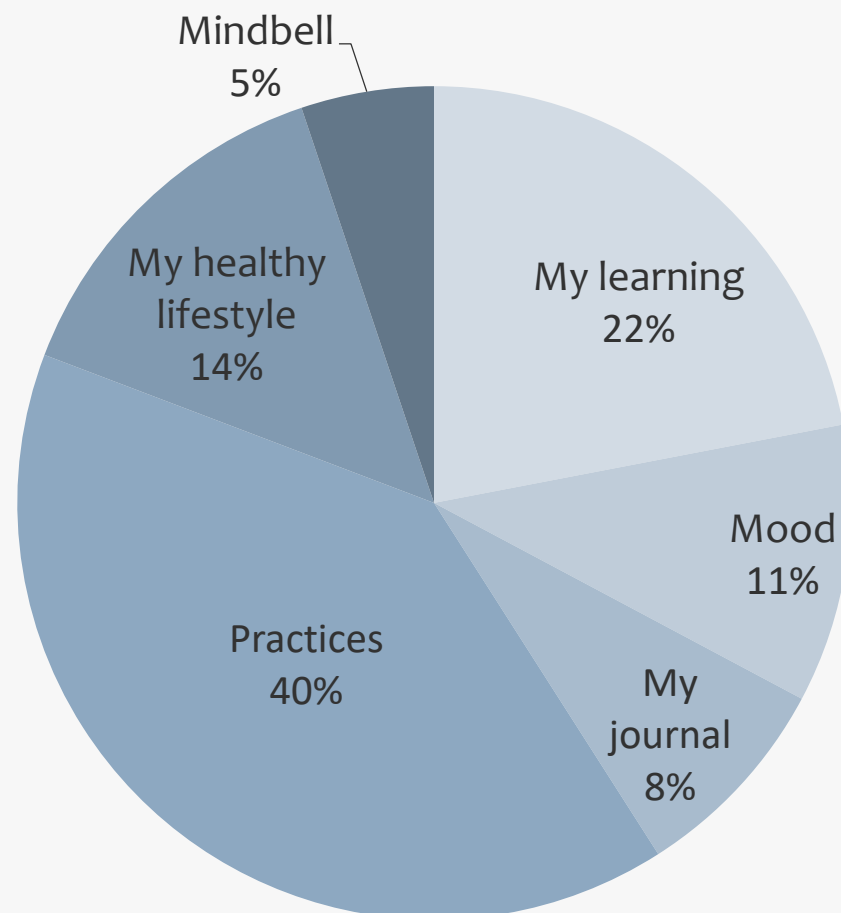
Results of System Usability

I found the app unnecessarily complex

Analytics

Most used items on the app

Analytics

Engagement rate

Country ▼	➕	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count All events ▼
Totals		5,016 100% of total	77.73% Avg 0%	8.103 Avg 0%	31m 05s Avg 0%	89,669 100% of total
1 Croatia		1,732	74.59%	10.012	40m 32s	28,087
2 Italy		2,132	78.85%	18.222	58m 57s	39,265
4 Netherlands		656	82.72%	7.209	21m 46s	11,111
8 United Kingdom		8	160%	1.6	1m 05s	71

Thank you!

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