Field Trial (5.2) Effects of motivational and self-regulation components on physical activity and diet
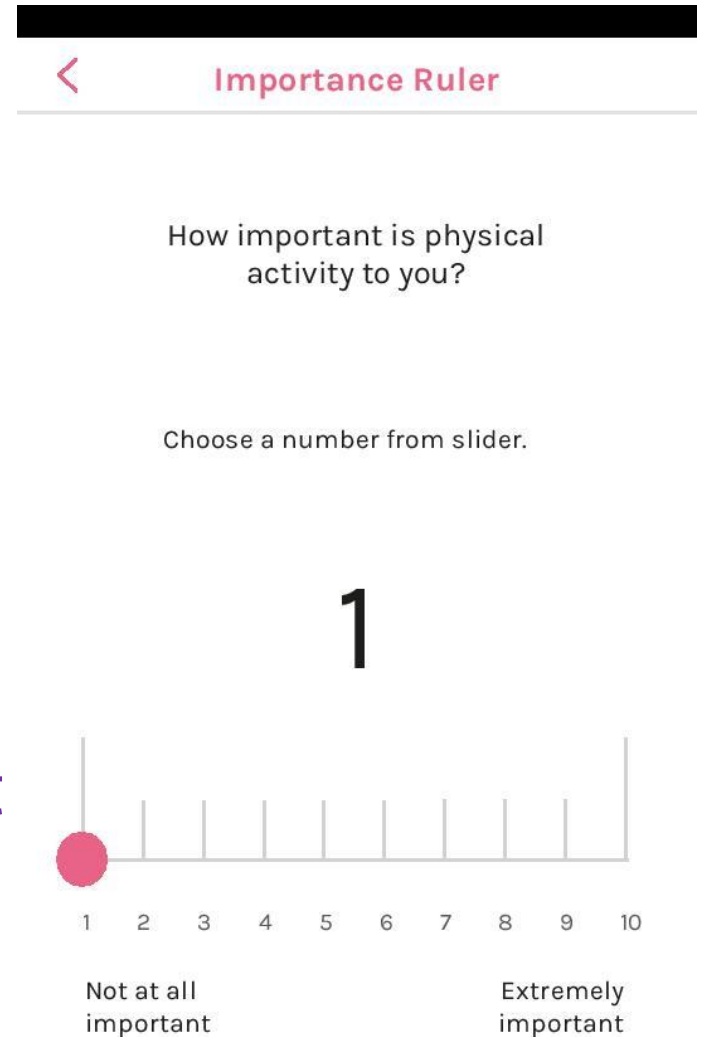
PRECIOUS Meeting, 23 September 2016

London, UK

From theorhetical concept to practical application

Importance ruler

- "Why did you choose 7 and not 5?"
- helping the user to think about reasons that make PA important

→ **Change talk**

Research questions in Trial 5.2

1. Does *motivational interview (MI) components* increase a) motivation b) use of other components c) Physical Activity (PA)

2. Does use and *feedback of Firstbeat reports* increase a) motivation b) use of other components c) PA
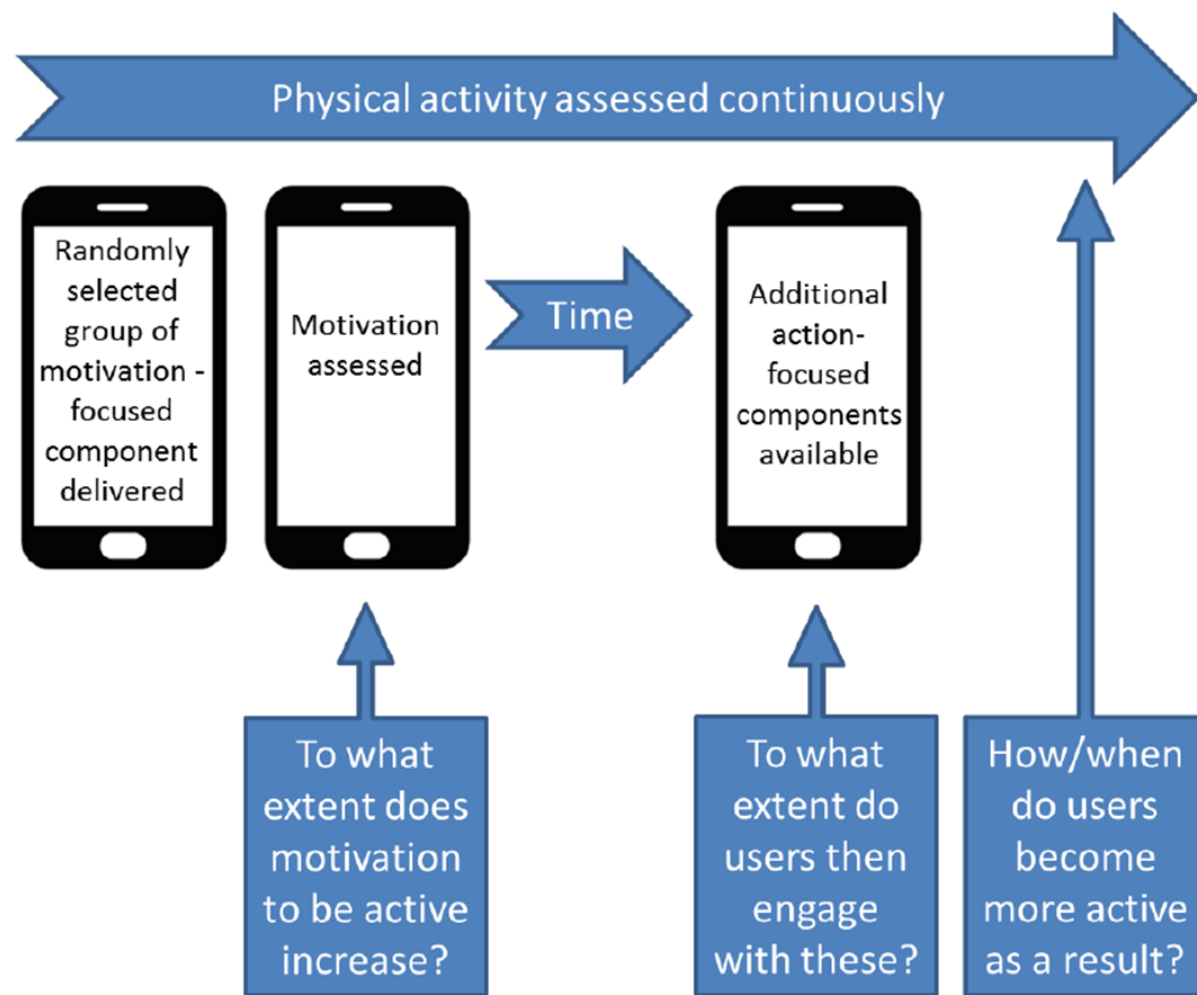
In N of 1 study design

Interventions and PRECIOUS components in Trial

Intervention	Precious features on/off
Self-regulation (always on)	"**Mountain climber**" on = Goal setting, action planning, self-monitoring
Self-regulation **+ Motivational interviewing**	"Mountain climber" **+ the Precious MI turned on** Importance ruler, what do I wand, Time Machine
Self-regulation **+ Biofeedback**	"Mountain climber" **+ Firstbeat report**
Self-regulation **+ Motivational interviewing + Biofeedback**	"Mountain climber" + Precious MI service + Firstbeat

Figure 3. Plan of Phase II n-of-1 trial

14 periods x 3 days starting with "washout day

Name	All	Test	Test	Test	1	2	3	4	5	6	7	8	9	10
	0	0a	0b	0c	1	2	3	4	5	6	7	8	9	10
Mountain Climber self-regulation components (Always On)	On	On	On	On	On	On	On	On	On	On	On	On	On	On
MI components	On	-	-	-	Off	On	-	-	-	Off	On	-	-	-
MI Components - Set A (What do I want, Choose Favorite PAs)	On	On	Off	Off	Off	-	On	Off	Off	Off	-	On	Off	Off
MI Components - Set B (Importance Ruler, What's Next (stage of change))	On	Off	On	Off	Off	-	Off	On	Off	Off	-	Off	On	Off
MI Components - Set C (Time Machine, Confidence Ruler)	On	Off	Off	On	Off	-	Off	Off	On	Off	-	Off	Off	On
Firstbeat Feedback Tile	On	Off	On	Off	Off	Off	Off	Off	Off	On	On	On	On	On

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Measures

- **Main outcome**: Objective physical activity data from the phone accelerometer and the activity bracelet.

- **Service usage data**: timestamped data about the use of each service feature.

- **Daily questionnaires** to assess fluctuation in psychological features such as intention, motivation, and self-efficacy.

Biofeedback + objective PA

Firstbeat Bodyguard heart rate variability sensors

Xiaomi Mifit wristbands

Recruiment

- 12 adults, aged 18-64,

- Android users (5.0 or newer)

- Aiming to increase PA

- Newspaper advertiment in Helsinki METRO newspaper

- *If first trial is feasible, 2nd trial notifications within PRECIOUS*

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Thank you!

Any questions?
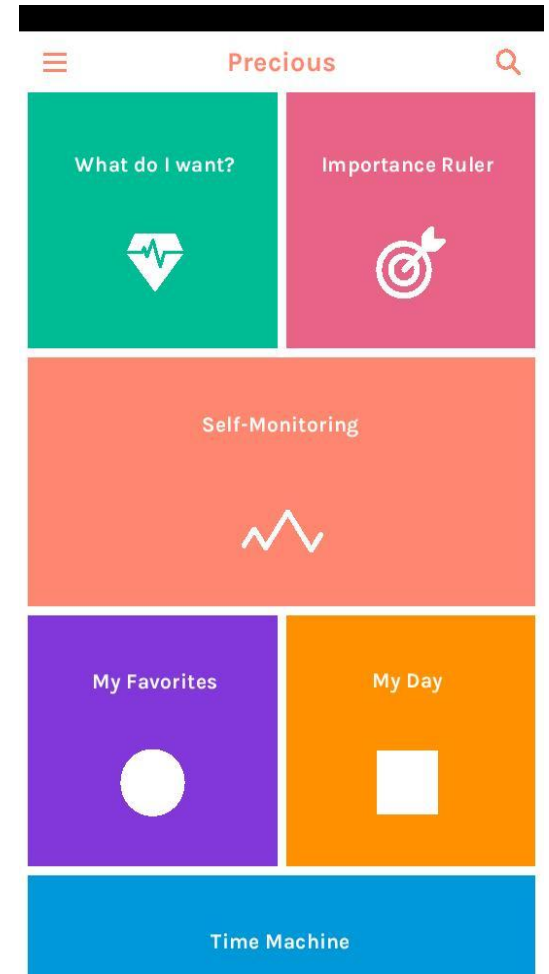
Original "plan" 2013

- The field study is following N-of-1 randomization
- 12 subjects are randomized to three self-monitoring conditions
  - 1) by self-report diary PA and HE (active control)
  - 2) by PRECIOUS feedback PA + HE, (Sleep /Stress blinded)
  - 3) by PRECIOUS + sleep/stress.
- The findings of the study will answer
  - how applicable PRECIOUS is in real life environment outside of laboratory.
  - does PRECIOUS system increase PA and HE compared to self-report diary.
  - does additional feedback from sleep and cardio-physiological stress measures increase PA and HE.

Valtiotieteellinen tiedekunta / Henkilön

29.9.2016

Logic model
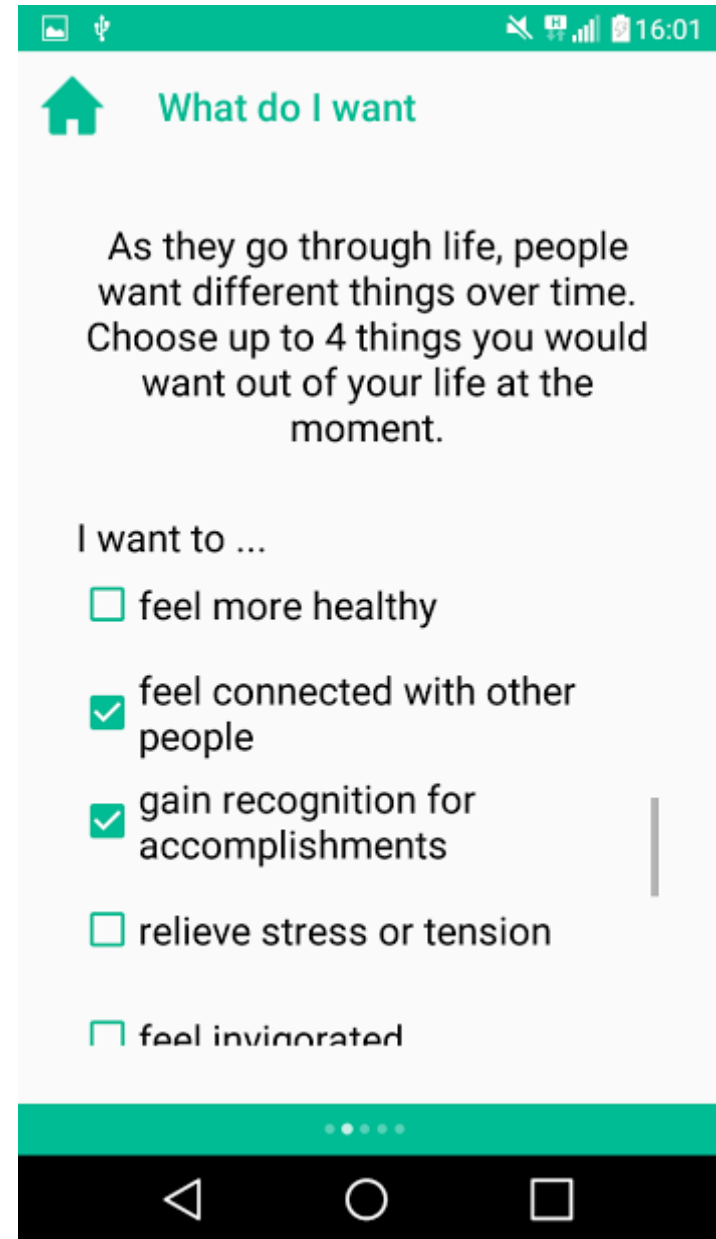
MI → Self-regulation → PA

PRECIOUS

- Autonomy
  - Freedom to choose
- Relatedness
  - Empathetic and encouraging language, avoiding judgement
- Competence
  - Guiding user to set daily, achievable goals
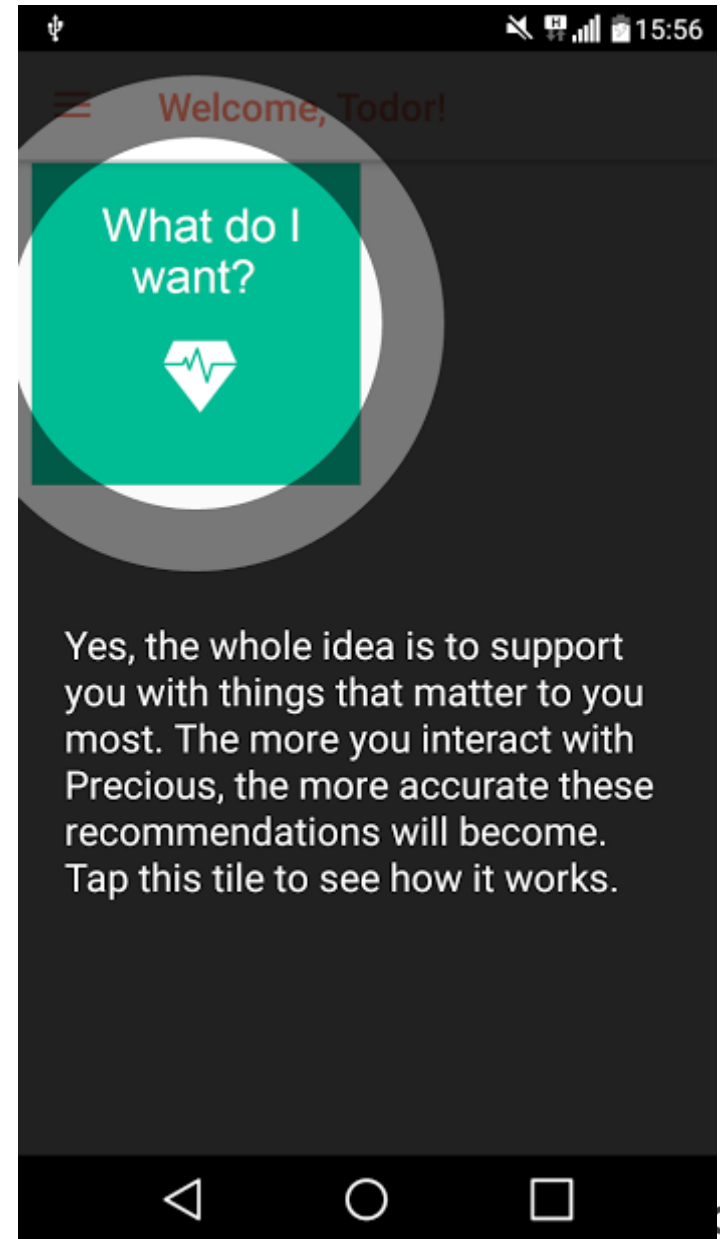
MI in Precious:
Outcome goals

Values exploration

- Recognising outcome goals that may guide the change

- Options from the Exercise Motivations Inventory

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MI in Precious:
Time machine

- Identifying past success
  – Building motivation and confidence
  – Developing sense of discrepancy

- Looking forward
  – Envisioning possible future
  – Building motivation
  – Developing sense of discrepancy

Importance ruler

- "Why did you choose 7 and not 5?"
- helping the user to think about
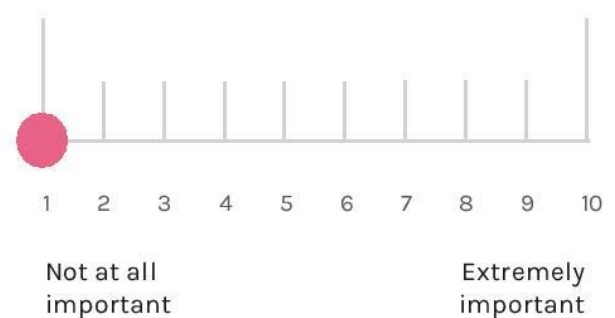 reasons that make PA important
      → **Change talk**

Importance Ruler

How important is physical activity to you?

Choose a number from slider.

1

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Not at all important   Extremely important

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