Ayobi, A., Marshall, P., & Cox, A. L. (2020). Trackly: A Customisable and Pictorial Self-Tracking App to Support Agency in Multiple Sclerosis Self-Care. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20)* (Proceedings of the SIGCHI Conference on Human Factors in Computing Systems). Association for Computing Machinery (ACM).
<https://doi.org/10.1145/3313831.3376809>

Peer reviewed version

Link to published version (if available):
[10.1145/3313831.3376809](https://doi.org/10.1145/3313831.3376809)

[Link to publication record in Explore Bristol Research](#)
PDF-document

© 2020 Copyright is held by the author(s).

University of Bristol - Explore Bristol Research

General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:
<http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

Trackly: A Customisable and Pictorial Self-Tracking App to Support Agency in Multiple Sclerosis Self-Care

Example Sketches

a User interface controls that are commonly predefined in self-tracking apps.

b Types of tracker visualisations that are being used by bullet journalists.

c A pictorial week tracker consisting of seven segments for seven days.

d Three parameter descriptions with a related colour scheme.

Navigation

A. Calendar

B. Calendar and filter

C. Continuous scrolling list

Calendar-based controls are suitable for navigating temporal data that can be aggregated and visualised in traditional charts, such as bar graphs (see Figure A and Figure B). These controls are also suitable for displaying weekly pictorial tracker. However, there are limitations to displaying monthly and yearly trackers considering the visual segments of trackers and the limited screen real estate of mobile devices. Alternatively, a continuous scrolling list can be used to chronologically display and load trackers (see Figure C).

Interaction

D. Actionsheet

E. Popover

F. Selectable list

Supporting colouring with the help of actionsheets and popover controls is common in the design of mindful colouring apps (see Figure D and E). However, pictorial tracker are typically accompanied by legends that describe parameter definitions (e.g. yellow: good mood). In this case, a selectable list can help avoid repetition and guide the focus from viewing the legend and selecting a state to colouring a segment of a pictorial tracker (see Figure F).

Prototype: Example Trackers

Prototype: Creating Trackers

Type of Tracker

Users can choose from different types of trackers. Week trackers consist of seven segments which represent each day. Day trackers consist of seven tracker visualisations: one for each day.

Examples

By tapping on the question marks users can learn more about the different types of trackers and how to create tracking parameters. Each page provides a general description and examples.

Colour Scheme

Since creating distinct and balanced colour schemes is challenging, the prototype offers a set of predefined colour schemes. Future versions will allow users to mix and add custom colour schemes.

Parameters

Custom parameters are assigned to the selected colour scheme. Users can enter text and add emojis. Parameters could, for example, represent a scale or different activities.

Prototype: Colouring Trackers

Tap mode

1 Select a parameter

2 Tap on a segment to colour it. In this way, you can colour segments of trackers in a quick way.

i A hint will explain the selected colouring mode, only when you tap on a blank segment the first time.

Touch move mode

1 Select a parameter

2 The touch move event is bound the transparency of the segment colour. Touch a segment and move your finger around the screen to experience a more mindful colouring experience.

i To delete a coloured segment, just tap on the coloured segment. This works for both colouring modes.

Prototype: Exploring Data

Explore all data

Users can explore all the data that they logged with the help of tracker visualisations.

Exploration view

The exploration view is initially blank and allows users to add and delete data.

Selection view

Users can select different types of tracker visualisations that they created in the past.

Exploration view

Users can, for example, view mood data that was logged with mandala trackers.

Prototype

Participant Summaries

Healthy Eating

Mon 05 Nov - Sun 02 Dec

- Great! 5 fruit and veg, no processed food
- OK! A bit of a mix
- Uh-oh! OTT on the bad stuff!
- Pretty good! Some processed stuff
- Not so good! Several sugary or fatty foods

Water Intake

Mon 05 Nov - Sun 02 Dec

- 1 bottle (750ml)
- 2 bottles (1500ml)
- 3 bottles (2250ml)
- 4 bottles (3000ml)
- More!

Week 6

Mon 03 Dec - Sun 09 Dec

- Low pain
- Medium
- Increasing pain

Fatigue

Mon 12 Nov - Sun 18 Nov

- Fuelin' fine! - Onward!
- Noticeable - plan rest break
- Shattered - sleep needed
- Haven't quite right - monitor
- Tired - nap needed

Overview of Interactions

	Active use	Tracked days	Colour taps	On time	Retro-spectiv
P1	4	24	509	97	412
P5	4	5	55	54	1
P4	5	13	192	112	80
P2	7	23	97	21	76
P11	8	8	239	239	0
P12	8	28	729	204	525
P10	11	27	0	0	0
P3	12	28	87	37	50
P6	17	28	208	150	58
P13	17	22	174	32	142
P7	18	28	2136	824	1312
P14	20	28	1217	633	584
P8	25	28	747	618	129
P9	27	28	866	399	467
SUM	183	318	7256	3420	3836
%	46.68%	81.12%	100%	47.13%	52.87%
Ø	13.01	22.71	518.29	244.29	274

Example Participant Interactions

● Text entries

Participant: P10

Active use: 11 days

Tracked days: 27 days

Text trackers: 26

Text style: Logging with key words

Content: Food, alcohol, water intake; house work, exercises (e.g. gym); abnormalities (e.g. "Woke up with tired legs")

Example Participant Interactions

● Text entries ● Coloured on-time ● Coloured retrospectively

Participant:	P11
Active use:	8 days
Tracked days:	8 days
Day trackers:	28 body shapes, 56 time rings
Colouring taps:	239 in total 239 on-time 0 retrospectively
Text trackers:	5
Text style:	Narrative text entries
Tracker content:	Fatigue, pins and needles, numbness, pain

Example Participant Interactions

● Text entries
 ● Coloured on-time
 ● Coloured retrospectively

Participant: P9
 Active use: 27 days
 Tracked days: 28 days
 Day trackers: 28 body shapes, 21 time rings
 Week trackers: 4 matrices, 4 flowers,
 4 dinosaurs
 Colouring taps: 866 in total
 399 on-time
 467 retrospectively
 Tracker content: Fluid, mood, pain, fatigue

Average Use of Trackers

**Matrix
Trackers**

4.3

**Ring
Trackers**

3.5

**Body
Trackers**

3.4

**Mandala
Trackers**

1.6

**Origami
Trackers**

0.9

**Created
Trackers**

13.5

**Deleted
Trackers**

1.7

**Text
Trackers**

3.3

Content of Trackers

Symptoms	29	Exercise	20	Non-Exercise Activities	18	Mental health	10
Symptoms	2	Exercise	4	Sleep	5	Mood	5
		Walking	3	Chill, Chilling	3	Stress	3
Pain	6	Gym	3	Work	2	Anxiety	2
Areas of pain	1	Running	2	Chores	1		
Shooting pain	1	Steps	1	Admin	1		
Lower back pain	1	Mat work	1	Work/chores	2	Medical care	2
		Stretching	1	Relaxing/hobbies	1	Electro-stimulation	1
Fatigue	7	Cycling to work	1	Reading	1	Injection sites	1
Energy levels	1	Exercise bike	1	Fun	1		
Pins and needles	2	Bouldering	1	Rest/nap	1		
Spasm	1	Swimming	1				
Bladder problems	1	Weights	1				
Eyes	1			Nutrition	9		
Stiffness	2			Selected foods (e.g. veg)	3		
Numbness	1			Healthy eating	1		
Headache	1			Fluid intake	3		
Defecation	1			Water	2		