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1 **Changing emotional engagement with running through communal self-tracking:**
2 **The implications of ‘teleoaffective shaping’ for public health.**

3 **Introduction**

4 The benefits of physical activity are well established and institutionalised
5 (Das and Horton 2016). Given the public health burden of obesity (Baum and Fisher
6 2014), low physical activity rates continue to be a key public health concern (Guthold,
7 Stevens et al. 2018). In this context, self-tracking of physical activity participation and
8 other ‘healthy’ behaviours is highlighted in public health research focused on the use of
9 technology (sometimes referred to as ‘M-health’ (mobile health) research) as having the
10 potential to prompt and sustain behavior change and subsequently to improve public
11 health (Piwek et al. 2016). This research tends to take an individualist perspective in
12 focusing on the benefits of self-tracking, reporting that it can enhance self-knowledge
13 and personal empowerment (Cox et al. 2013) and prompt change in associated
14 constructs such as health consciousness (Stiglbauer et al. 2019) and self-efficacy (van
15 Dijk et al. 2017). These insights are built on assumptions about individual capacity for
16 self-change if deficits can be overcome. Despite concern over unsupported industry
17 claims (Heneghan et al. 2012) and prior research that suggests engaging with M-health
18 apps may not in fact cause sustained behaviour change (Allman-Farinelli, Partridge et al.
19 2016; Jakicic, Davis, et al. 2016; Svetkey, Batch et al. 2015), medical professionals
20 promote their potential to revolutionise and disrupt health care, self-care, medical
21 research, public health practice, and to reduce healthcare expenditure (Lupton 2014,
22 2017).

23 Understanding of the role of self-tracking technologies in health behaviour compliance
24 or change has been explored at length through the ‘M-health’ lens (e.g. Mercer, Li, et al.

25 2016; Patel et al. 2015). This work seeks to understand how particular elements of self-
26 tracking, for example different ‘motivational design components’ (Hassan et al. 2019),
27 can trigger a range of measurable, individual-level health outcomes (Huang, Pham, et al.
28 2018; Zhang, Li, et al. 2019). One design component of particular interest to M-health
29 researchers is the social media connectivity features of an increasing number of self-
30 tracking consumer technologies (Comstock 2015). Strava, for example, which links to
31 many fitness-tracking wearables, claims that it lets you do “what we call social fitness –
32 connecting and competing with each other... providing motivation and camaraderie”
33 (Strava 2019). In addition to writing comments and messages to each other, users can
34 offer ‘kudos’ by tapping the ‘thumbs up’ button as a way of appreciating others’ efforts
35 and can see and acknowledge each other’s successes on different pre-designated
36 segments or accumulated distance or elevation data. Studies have noted that
37 communicating with other Strava users, and sharing your own achievements, is an
38 inherent part of being a Strava user (Smith and Treem 2017). Sharing and
39 communicating on Strava is part of an overt ‘social fitness’ approach (Lupton 2017;
40 Stragier et al. 2015) and a key feature of the latest communal self-tracking ‘boom’ in self-
41 tracking consumption (Millington, 2016) that moves beyond the personal to the
42 ‘communal’ (Lupton 2018). Existing research into communal self-tracking finds strong
43 evidence for the influence of social interaction on sustaining or changing behaviour
44 (Benetoli et al. 2017; Goodyear and Armour 2018; Oduor et al. 2014; Ploderer et al.
45 2014; Purpura et al. 2011; Wang et al. 2012).

46 In addition to ‘M-health’ studies is a well-established body of work that critiques self-
47 tracking as voluntary self-optimization. In this view, self-tracking is an example of neo-
48 liberal governmentality where power is diffused through a myriad of mediating
49 mechanisms and discursive regimes producing subjectivities consonant with the

50 pervading political ideology (Viseu and Suchman 2010). Related critiques include: self-
51 tracking can be ‘imposed’ as a form of behaviour change (Lupton 2016); can be used to
52 mine data for commercial and political ends (Lupton 2016); and can have negative
53 implications as self-trackers lose bodily sensations through reliance on objective
54 monitoring (Toner 2018).

55 There is also body of work exploring how self-tracking has emerged in the context of
56 socio-material and technological developments of consumption (Pantzar and
57 Ruckenstein 2015; Pink and Fors 2017) and how it permeates and colours people’s
58 everyday routines and embodied experiences (Charitsis et al. 2018; Mol and Law 2004;
59 Oxlund 2012; Ruckenstein 2014). It has been noted that we know little about people’s
60 practical engagement with self-tracking (Didziokaite et al. 2017; Lomborg and Frandsen,
61 2016) and that more investigation is needed (Lupton and Smith 2018). Taking up this
62 challenge, studies have begun to explore the everyday, often mundane practices of self-
63 tracking (Didziokaitė et al. 2017; Gorm and Shklovski 2019), often by those managing
64 illness or for leisure-time athletes, rather than self-measurement enthusiasts. These
65 studies explore how self-tracking comes to be meaningful and might be, or fail to be,
66 integrated into everyday routines (Lupton and Smith 2018). These studies move away
67 from individualist accounts of self-tracking that emphasise behavioural and psychological
68 outcomes and assume self-tracking can overcome individual deficits and help with
69 achieving politically approved self-management and risk reduction goals. Rather, practice
70 approaches emphasise the ‘ordinary’ (Didziokaitė et al. 2017; Lomborg et al. 2018),
71 routine, unreflexive and integrated experience of self-tracking as it permeates everyday
72 life (Pink and Fors 2017); and explore how self-trackers collectively negotiate and
73 reconstitute the conventions relating to different practices through their engagement
74 with it (Gorm and Shklovski 2019; Smith and Treem 2017). Furthermore, self-trackers

75 and their self-tracking practices (including the materials and technology) are seen as equal
76 partners in the constitution and reconstitution of understandings and routinized
77 enactments of self-tracking (Lupton and Smith 2018).

78 We seek to extend our understanding of how people enact communal self-tracking to
79 shape their associations with the practice being tracked. Like others (Lupton and Smith
80 2018), we view communal self-tracking as a number of related ‘practices’. At a minimum
81 these entangled self-tracking social practices include the gathering of data and the activity
82 from which the data originates (Lupton 2014), but also the practices of measuring,
83 analyzing and planning based on the data, and socializing or communicating around data
84 in different ways for different purposes (Smith and Vonthethoff 2017). We explore how
85 these practices, and the practices being tracked, co-evolve through routine, repeated and
86 collective practitioner enactments and how meanings relating to the tracked activity are
87 co-created and digitally mediated via communal self-tracking. Specifically we focus on
88 the entangled teleoaffective structures (Schatzki 2002) of self-tracking and running; that
89 is, the emotional associations and understandings of purpose that co-ordinate how the
90 practices of running and self-tracking are performed by indicating what is to be achieved
91 and why. A practice lens illuminates how routine, communal self-tracking actively shapes
92 teleoaffective structures - associations of purpose and emotion - of the tracked activity.
93 Our findings have implications for the way self-tracking is understood to ‘work’ in
94 maintaining physical activity participation.

95 **Self-tracking as health practice**

96 Prior sociology of health studies highlight that activities relating to health more
97 accurately manifest as a multiplicity of intersecting practices that co-evolve (Blue et al.
98 2016). This is in contrast to viewing health ‘behaviours’ as discrete activities (Cohn 2014)
99 individually enacted. Practice theory emphasises that over time and through repetition,

100 socio-material routines become entangled with others (Schatzki et al. 2001) in a ‘bundle’ -
101 separate practices but inherently entangled. The trajectory of different parts of a bundle
102 of practices will impact on other parts in complex ways (Schatzki 2017) and important
103 insights into the context of particular ‘health’ practices emerge from this view. For
104 example Blue et al. (2016) show how smoking is not a discrete behaviour but is shaped
105 into different forms by being integrated with related practices, such as socialising,
106 working, eating and drinking. Similarly, drinking alcohol is shaped into different practices
107 according to its interconnectedness with different socialising or celebratory practices
108 (Ally et al 2016; Meier et al. 2017).

109 A focus on the way bundled practices are integrated and influence each other is useful
110 for illuminating how self-tracking and the practices being tracked interrelate, particularly
111 in terms of the teleoaffective structure of the tracked activity, experienced as emotional
112 intensities. Although it has been noted that the theorisation of this emotional
113 connectivity between self-tracking and tracked activities has received little attention
114 (Lupton 2017), the nature of the associations with tracked activities emerging from self-
115 tracking has been repeatedly noted. For example, participants gain pleasure from noticing
116 how their physical activities contributed to a ‘good’ data reading (Ruckenstein 2014).
117 Ruckenstein’s respondents began to ‘cherish’ the steps they had taken and develop a
118 more affective relationship either with their walking or the steps taken, creating a
119 feedback loop. Positive experiences of heart-rate tracking have also been noted to lead to
120 a renewed relationship with one’s heart as an object of emotional attachment (Pantzar
121 and Ruckenstein 2015). In the tracking of everyday movement, Ruckenstein (2014)
122 found that tracking the physical activity of housework meant that people gained ‘new
123 value’ from their chores. Other studies found that self-tracking provides activity with
124 purpose that is lost when tracking ceases (Pink and Fors 2017). More negatively, studies

125 also find that for some tracking itself can be unpleasant (Bergroth 2019), especially when
126 the results of self-tracking are unexpected or undesirable leading to anxiety and fragility.
127 Lupton (2013) also finds that when people find digital interactions ‘tiresome’, they can
128 respond by ‘resisting’ the obligations expected of them, while some ‘play the system’ or
129 withdraw. Pink and Fors’ (2017) respondents note that when self-tracking technology
130 fails, activities like soccer or running can feel ‘like a waste’.

131 These studies illuminate that self-tracking is entangled emotionally with the practices
132 being tracked. This is often presented in Latourian terms; of technology or data ‘acting
133 on’ emotional and sensory experiences relating to the tracked activity (Charitsis et al.
134 2017; Klauser and Albrechtslund 2014; Mol 2000), or even acting on embodied instincts
135 (Smith and Vonthehof 2017) and understandings of what is valued (Ruckenstein 2014).
136 Runners become more competitive because their data will be compared with others
137 (Lupton et al. 2018). Physical activity is perceived as a constant demand, as the absence
138 of data will be noted by followers (Charitsis et al. 2017). When self-tracking is perceived
139 as failing to make people become ‘better people’, behavioural attrition can result (Etkin
140 2016). The controlling (Lupton et al. 2018) nature of self-tracking is emphasised, with
141 people responding emotionally, such as enjoying the perceived benevolence and validity
142 afforded by devices and data, or resisting the ‘tiresome’ aspects of self-tracking
143 (Ruckenstein 2014).

144 These studies offer an important starting point for examining the emotional
145 entanglement between communal self-tracking and tracked activities. However, the
146 concept of teleoaffective shaping which emerged from the current study allows this
147 research to advance the theorization of this entanglement by examining the more co-
148 constitutive ways that practitioners use self-tracking to actively shape their routine
149 engagement with tracked activities. In order to examine the role of communal self-

150 tracking on the associations that people have towards tracked activities, we explored the
151 use of the social fitness app ‘Strava’ by leisure-time runners, asking how self-tracking
152 might encourage sustained healthy physical activity. The practice theory concept of
153 ‘teleoaffective structures’ (Schatzki 2002) was used to sensitise the data. Teleoaffective
154 structures refer to the inherent purpose and collectively agreed emotional associations of
155 practices, which help to coordinate their enactment. As Schatzki (2001, pp.52-3) explains:

156 “The teleoaffective structure... provides both goals and emotive aspirations: [It
157 includes] a range of acceptable or correct ends, acceptable or correct tasks to
158 carry out for these ends, acceptable or correct beliefs (etc.) given which specific
159 tasks are carried out for the sake of these ends, and even acceptable or correct
160 emotions out of which to do so.”

161 Teleoaffective structures are ‘of the practice’ template in that they guide practice
162 performance, but they manifest as emotional associations and understandings of the
163 goals and purpose of practice. Practitioners draw on these associations in their enactment
164 of practice, and they can be implicated in failures to continue with a practice. Our
165 analysis identifies how communal self-tracking, bundled tightly with the running it tracks,
166 can actively shape the collectively-held teleoaffective structure of running through a set
167 of mechanisms afforded by the functionality of Strava. We call this active and co-
168 constitutive emotional integration between practices ‘teleoaffective shaping’.

169 **Methodology**

170 In order to explore the ways that communal self-tracking and running are dynamically
171 entangled, this study deployed a multi-stage methodology, all parts of which were
172 approved by the appropriate university ethics committee. To begin with, one of the
173 researchers (author one) joined a local running club in the South-West of England and
174 participated in weekly evening runs for six months. In addition, she joined the club’s

175 Facebook group and three other running communities on Facebook to observe online
176 interactions during the six months of her club membership. Online posts were read on
177 average twice per week and key themes were noted, particularly relating to self-tracking
178 and Strava usage. The running club was selected for its non-elite ethos. Some club
179 members were new runners while others were more experienced. The researcher also
180 joined Strava to track her own running, as this was the foremost self-tracking app used in
181 the club. She then connected via social media with a selection of the other runners in the
182 club, with their consent, to observe their use of Strava, thereby ‘hanging out’ with
183 runners both in person and online (Molander and Hartmann 2018) in order to access a
184 range of practitioner responses, interactions and emotions.

185 Strava uses GPS to track running and cycling, and is one of many apps that can be
186 synchronised with wearable self-tracking devices or mobile phones to log and analyze
187 personal physical activity. Strava is also a platform for user-user engagement, and is
188 designed so that a user’s Strava ‘feed’ can easily be shared via other social media
189 platforms. Strava users can compare their performance across different, user-defined
190 ‘segments’ that make up a running or cycling route. Users can win ‘cups’ for being top
191 ten on a segment, receive notifications about personal records, rank themselves against
192 others, and analyze, download and follow other people’s routes.

193 This first phase of practice immersion highlighted two areas of interest; the variable
194 nature of runners’ engagement with running, and the variable way they engaged with self-
195 tracking. To explore these topics further, a series of in-depth interviews were conducted.
196 The result of this staged data collection was rich qualitative reflection by runners about
197 how and why they use self-tracking and what role self-tracking plays in their engagement
198 with running.

199 Runners were purposively recruited from the running club and online fora. All runners
200 self-identified as self-trackers. In total, seventeen face-to-face interviews (eight women
201 and nine men) were conducted. Follow-up discussions were conducted with some
202 participants, mediated by Strava messenger. Interviewees self-tracked using a range of
203 wearable devices

204 Interviews took place in Spring 2016 and lasted between 50 and 150 minutes. All
205 interviews were digitally recorded. Each was conducted using a topic guide that centered
206 on probing the interviewee to explain the detail of how, as well as why, they use self-
207 tracking, and the role that running played in their lives both at the present time and in
208 their past. All interviews were transcribed verbatim. Transcriptions were open and axially
209 coded, and emergent themes identified using NVIVO11. Coding was done in an iterative
210 process whereby researchers interrogated the data, identified emergent themes,
211 considered theoretical implications, and went back to the data to further contextualise
212 emerging theoretical ideas.

213 **Findings**

214 The teleoaffective associations that participants have with running, manifesting as
215 different emotional intensities (Molander and Hartman 2018), are an important context
216 for understanding the way self-tracking interacts with running. The associations inscribed
217 in the practice of running are variable and matter enormously to practitioners. They are
218 experienced as volatile engagements which colour their running ‘career’ (Shove and
219 Pantzar 2007). Self-tracking practices are tightly bundled with running and act to shape
220 these emotional experiences in a process of ‘teleoaffective shaping’. After contextualising
221 the findings with an overview of the experienced emotional intensities of running, we
222 present examples of how our participants used various self-tracking practices to actively

223 shape the teleoaffective structure of running and facilitate their ongoing engagement with
224 the practice.

225 Variable engagements with the teleoaffective structure of running emerged in our data
226 through the emotive language used to describe running; as something ‘hated’ or ‘loved’
227 or something done in the “grim and dark” but also something positive that respondents
228 would “never stop talking about”. Here, Bronwen (age 36, runner for 4 years) explains
229 how her early running experiences were painful and emotionally volatile:

230 “I hated every minute of it. The only good thing about it, it was dark, it was in
231 October so... nobody could see me... [I was] at the back, huffing and puffing
232 but determined to do it. It was really, really tough”.

233 Other respondents also described running as difficult, even long after running had
234 become an established routine for them. Anne (age 28, runner for 5 years) explains how
235 she would tell her friends how much she hated running: “I would say to all the other
236 people in my running club: ‘You don’t understand! This is so much harder for me than it
237 is for you because you guys enjoy it.’” Bronwen described sobbing in her husband’s car
238 when he dropped her off at running club because she desperately did not want to go.
239 However, emotional associations with running were not straightforward and evolved for
240 practitioners through each engagement, and through engagement with related practices
241 such as socializing with running club members and taking part in races. Over time, a
242 number of emotions associated with running would run counter to each other (Woerman
243 and Rokka 2015). Running was associated with personal and public pride,
244 accomplishment and joy. Anne explained how an ex-boyfriend told her she would never
245 be a runner due to her body shape but now she runs regularly. Anne describes feelings of
246 accomplishment which she accesses through her enactment, which she draws on to
247 protect her loyalty to the practice.

248 Entwined with the emotional associations of running is its teleology, or purpose.
249 Running is described by different participants as a way to overcome embodied
250 difficulties, to overcome psychological obstacles (Wiltshire et al. 2017), to represent
251 achievement and model commitment. Some mentioned the purpose of running as being
252 for health or fitness and for many it was a way to socialise. Bronwen ran for instrumental
253 reasons initially, to demonstrate commitment to her teenage son. Then it became a way
254 spend time as a family, a way to socialise and a way to mentor others. For Anne, part of
255 the reason she continues to run is because it proves her ex-boyfriend wrong and so
256 provides a sense of personal pride as well as a means to create her desired body shape.

257 Through ongoing repeat performance of running in different contexts, and through
258 interaction about running, the anticipated teleoaffective structure of running is constantly
259 re-constituted. Teleoaffective structures are not static, but are subject to change as
260 practitioners experience actualised emotional episodes, assess these and amend their
261 ongoing engagement with running (Molander and Hartman 2018). In other words,
262 practitioners actively shape their future engagement with running by creating, enhancing
263 or protecting particular versions of it. For example, Zak explains how he managed to
264 change how he thinks about running in line with his colleague's advice; moving away
265 from focusing on how hard it is towards the enjoyment and achievement associated in
266 completing a half marathon:

267 “I was speaking to a colleague... and we were talking about running and I said I
268 have always fancied doing a half marathon. And she was like, ‘well you need to
269 change how you think about running. Rather thinking about it as something
270 that’s hard work, think about it as time away from stuff and that opportunity to
271 get your thoughts to yourself and all that stuff?. And I literally... I decided I was
272 going to run the [local] half marathon in the September...”

273 Zak's story illustrates the active involvement of practitioners in their future engagement
274 with running through actively shaping associations relating to its purpose and meaning.
275 Our study focuses particularly on the way practitioners use communal self-tracking to
276 shape their future engagement and the running practice template, positioning communal
277 self-tracking as a collective means of meaning production (Lomborg and Frandsen 2016).
278 The mechanisms we have identified below are examples of the way that self-tracking
279 affords the active teleoaffective shaping of running by enabling practitioners to work on
280 their collectively held emotional and purpose-related associations with running.

281 *Mechanism for teleoaffective shaping: Labelling*

282 Our data highlights the way that Strava affords the labelling of running engagements as a
283 mechanism for establishing, changing or emphasizing practitioner-held meanings and
284 emotions associated with running. Strava auto-assigns running logs with simple labels
285 such as 'afternoon run', 'morning run' and so on, depending on the time of day. The user
286 is always easily able to change the name of a run should they wish. Some of our
287 respondents reflected that they would change these labels to explain when expectations
288 of performance were not met; for example to denote illness, slow-paced recovery after a
289 race or a slower running partner. However, labelling was also used to assign runs with
290 particular personal value. Some respondents were adamant that everyday commutes to
291 work should not "litter" the Strava feed of people they follow, and mostly only used
292 Strava to record fun, social runs or hard training runs because these were the runs that
293 "counted". However, others, like Mark (age 30, runner for 15 years), logged every run
294 but simply changed the name of 'proper' runs such as interval sessions and club training
295 to reflect their intensity or significance. Similarly, Ralph (age 38, runner for 8 years)
296 explained that he changes the name of runs when he has been somewhere interesting. He
297 tends to ignore the daily commute, which he tracks for completeness.

298 The following list of labelled runs is taken from Hettie’s Strava feed over the course of
299 three weeks:

300 “Evening easy run... ventured over some trails thanks to a v bright moon”

301 “Couldn’t face being sociable tonight so lone run it was”

302 “4.5/5 miles easy chat run with Kathy”

303 “Long run route with the team”

304 “Club run with cool down”

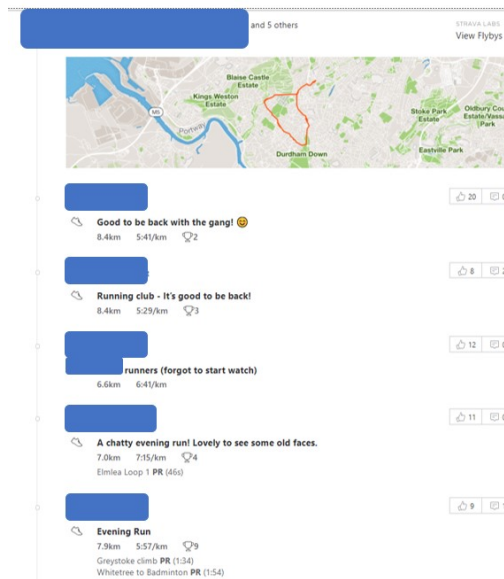
305 Hettie (age 23, runner for 5 years) actively assigns purpose, emotion, projects and goals
306 to the practice of running through these labels (Schatzki 2002). She positions running as
307 sociable, an opportunity for time alone, an opportunity for relaxation or as part of the
308 routine performance of club membership. The labels both create a record of what
309 running meant in each unique enactment, but also creates meaning itself, as labels
310 become anchors for understandings about engagements with future running. Labelling
311 opens up the possibility for runners that enacting running can draw on a number of
312 associations. The purposeful creation of meaning through labelling can be taken forward
313 to organise future enactments.

314 As well as helping to organise ongoing individual practitioner engagements, labelling was
315 enacted in the context of ‘social fitness’ to provide a visible and shared label around
316 which associations can be collectively negotiated. For example, labels might actively
317 invite affirmation that running is tough and as such represents an enjoyed shared
318 moment of triumph amongst a tight group. Glen’s label for a hard training run illustrates
319 this: “Some sort of masochistic hill torture session – loved it! Cheers fellas” (Glen, age
320 42, runner for 10 years). Glen is creating emotional associations and purpose for his own

321 engagement with a version of running that most appeals. However, he is also inviting
322 interaction around the toughness of the training session and creating a sense of
323 exclusivity amongst the ‘fellas’ with whom he shared the engagement. His label reframes
324 the run from being just ‘tough’ to being collectively and individually appealing in its
325 toughness. Similarly, other labels invite interaction around the fun of running, as when
326 Rose’s labelled a run as “Tough run with the Tuesday crowd. Thanks guys!” (Rose, age
327 31, runner for 4 years). The interactions prompted by these labels affords collective
328 affirmation about the purpose, expectation and moods associated with the running
329 practice template which are constituted and reconstituted via interactions facilitated by
330 the self-tracking app as much as they are by the repeated performances of these versions
331 of running practice.

332 *Mechanism for teleoaffective shaping: Reward*

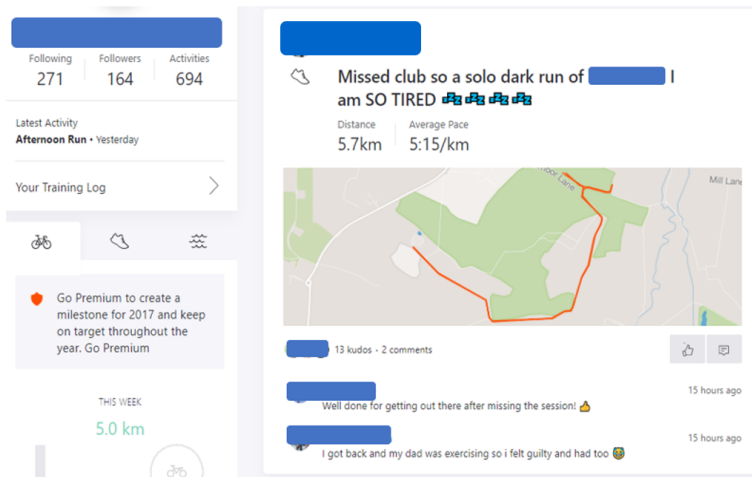
333 Strava provides rewards for achievements for top ten achievements in different segments
334 in the form of trophies that automatically appear in a user’s feed. However, runners also
335 proactively *use* Strava to reward engagements with running and this repositions running
336 positively; away from any actualised sense of embodied struggle. In the Strava interaction
337 extract below, club members self-refer as a ‘gang’ and reward fellow members through
338 mutual appreciation, comments of support and multiple offerings of ‘kudos’ (visible
339 through the number of ‘thumbs ups’ per comment):



340

341 The run, however it was in fact experienced, is positioned through this rewarding activity
342 as social, 'chatty' and 'lovely', which is reinforced through the collective 'kudos' and co-
343 created narrative. The teleoaffective associations of 'running as social', repeatedly created
344 through such collective rewarding, can be carried forward into future engagements with
345 running.

346 The process of rewarding the Strava-mediated construction of meanings associated with
347 running also works when the engagement with running is a solitary activity. In the
348 following extract, Hettie is transparent about the difficulties she felt in getting out for a
349 solo run, but the comments and 'kudos' her log attracts shift the emphasis from the
350 hardship of her individual encounter to the social reward her Strava entry attracts:



351

352 Hettie responds to the comment from her ‘follower’ within the hour, showing how the
353 comments function in Strava also facilitates an opportunity for assessing the bygone
354 performance of running and for guiding its future practical enactment (Molander and
355 Hartmann 2018). She does this by shaping emotional associations away from hardship or
356 guilt and, in this case, towards accomplishment. The reward offered by followers in this
357 vein allows the practitioner to continue with running even if difficult, because it has been
358 repositioned as worthwhile. Indeed, the very difficulty often becomes part of the
359 routinised and anticipated appealing aspects of running. Runners know that the reward
360 will come once the run appears on Strava, and this may explain some of the ‘devastation’
361 our participants described when their self-tracking technology failed, because they will
362 miss the rewards.

363 As demonstrated by the number of ‘kudos’ rewards in the above extracts, Strava’s kudos
364 button represents a popular way of demonstrating reward, and a useful cue for followers
365 and trackers to scan for clusters of collective appreciation. Bronwen, for example talks
366 about the ‘kudos’ button, noting that, “There is a lot of support for each other because
367 we all know how hard it can be sometimes to do it.” For Bronwen, receiving multiple
368 ‘kudos’ for a run reframes her effort as worthwhile in the eyes of a social network of
369 other runners, even if no comments are written. For Ralph, social affirmation through

370 the kudos function is a way of starting a conversation in Strava about particular runs or
371 future plans. He explained that he “likes to see what people are noticing” and he will
372 often “follow up with my own comments”. For him, ‘kudos’ carries a lot of meaning; of
373 respect and interest, and it positions his activity as having been noted by particular
374 ‘followers’, which he will check, so that he might follow up with a comment or direct
375 message to individuals. It is also significant how many thumbs up an activity attracts, and
376 Ralph explained that he will notice the volume of support for particular runs and often
377 ‘click’ the kudos button himself. Jane (age 38, runner for 5 years) explains that often she
378 barely engages with her actual running data, but routinely scans the Strava feed for shows
379 of support. She explains that ‘kudos’ is an ‘automatic’ or routinised part of interacting
380 through the Strava:

381 “There is always the kudos, always the thumbs up, that is almost an automatic.
382 You don’t always look at [the run feed] but you give a thumbs up.”

383 Providing reward for others is part of the self-tracking bundle of practices that is
384 facilitated by Strava (Lupton 2017). The labelling and ‘kudos’ and comment functions
385 allow runners to easily and collectively create a narrative around the practice of running
386 that ameliorates individualised experiences of enactment. In this way, running becomes a
387 socially constructed and dynamically negotiated activity. It is both a rewarded and
388 rewarding activity facilitated through these easy, automated virtual interactions and
389 recreated through every repeated ongoing engagement with running.

390 *Mechanism for teleoaffective shaping: Materialising effort*

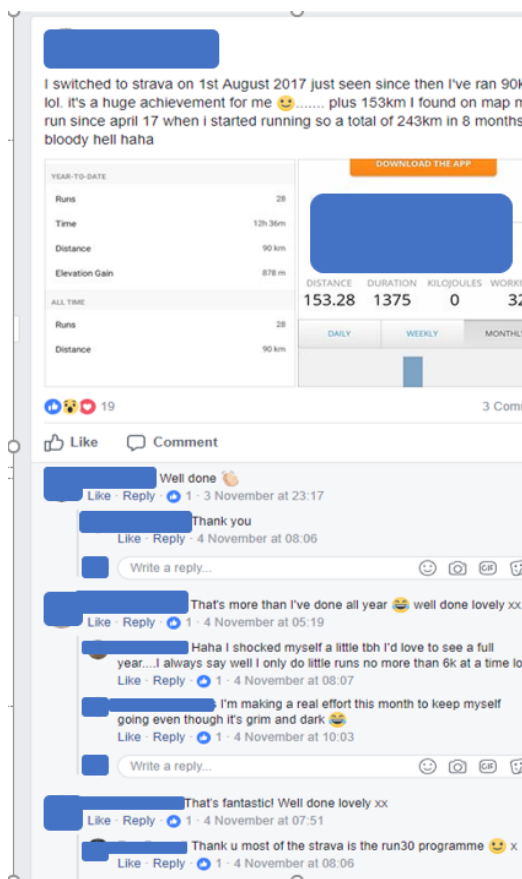
391 Materialisation refers to the use of self-tracking to make permanent and concrete
392 otherwise intangible engagement with running, by visualising it materially. This drive to
393 capture physical accomplishments has been noted by others (Throsby 2016). When
394 reflecting on their logging activities, practitioners describe this logging as the

395 materialisation of the intangibility of running and it is highly significant for their ongoing
396 relationship with running. Materialisation was often underpinned by principles of
397 completeness and accuracy, and framed by rules and procedures for maintaining
398 completeness. For example, Sam (age 40), a daily logger and established runner of 17
399 years, explains that he logs every run, and indeed every bike ride and swim, that he
400 completes, no matter how short. Sam's commute to work on foot might only be a few
401 kilometers, but having a complete log feels important; to create the full picture of his
402 commitment. He writes notes to explain the context of particular efforts, and ensures
403 that no run is missed, however short. Sam's explanation for why he is preoccupied with
404 completeness is twofold. On the one hand he explains that he is "scared to miss a day; it
405 feels like I'm losing fitness", and on the other he uses his impressively crowded Strava
406 feed as the basis for friendly competition amongst his co-workers: "It's about who's
407 done the most and who's been fastest on the way in". Sam works to materialise his
408 running in order to make it meaningful for his understanding of his own fitness and as
409 an enduring record, which is a source of pride.

410 Zak is another respondent who works hard to ensure his Strava feed is fully and
411 materially illustrative of his efforts, and like Sam he uses this as a tangible account of his
412 commitment to running, and as a basis for engaging with an audience. In Zak's case the
413 audience is both on and offline. Zak (age 37, runner for 6 years) set a challenge for
414 himself to run every day in January, but this carried on and on until "at one point I was
415 saying I was on January the 79th; it was a resounding joke. It was always January". He
416 explained how soon he would have to announce at his running club that he was planning
417 on stopping because people would expect to see his Strava feed every day. If he failed to
418 log a run he would receive messages via Strava asking what happened. For both Sam and
419 Zak, self-tracking provides a means to create and protect an accumulated Strava profile

420 and to interact around this profile with an audience. This positions their engagement
421 with running as committed, extreme and consistent, which is meaningful to them and
422 shapes the teleoaffective associations of their future engagements with running.

423 The 'pride' in accomplishment over time is evident in Eliza's Facebook post about her
424 Strava profile:



425

426 Eliza (age 43, runner for 2 years) announces to her Facebook followers that she has
427 accomplished a huge achievement by accumulating 90km of running since 1st August
428 2017, which is illustrated through the screen shot from Strava that she shares on
429 Facebook. Eliza is 'shocked' at her feat and uses the materialisation of her achievement
430 as a basis for interaction. Specifically, she attracts social affirmation that serves to
431 position her relationship with running as accomplishment and success and to move it

432 away from, as one of the follow-up comments notes, an anticipated sense that it requires
433 ‘real effort’ and happens in the ‘grim and dark’. The visibility of her accumulated totals in
434 Strava allows runners like Eliza to associate unique engagements with running, which
435 may be ‘grim’ through the lens of a larger project which has tangible form and is made
436 visible for social reward.

437 **Discussion**

438 In developing the concept of ‘teleoaffective shaping’ as an outcome of communal self-
439 tracking, we draw on Molander and Hartmann’s (2018) focus on emotion in the
440 evolution of practice. They specify that alongside the routine way that practitioners draw
441 on anticipated teleoaffective associations in their actual enactment of practice,
442 practitioners also routinely assess emotional experiences and trigger “adjustment of
443 planned future behavior” (p.12). This assessment and shaping of future engagement
444 happens as part of the routine engagement with practice, i.e. the practice *allows*
445 practitioners to ‘assess’ their engagement in an ongoing process which involves
446 monitoring past engagements, understanding anticipated engagements and understanding
447 the desired outcomes of future engagements. Our findings suggest that our practitioners
448 are able to use the various practices that make up the communal self-tracking bundle to
449 ‘work on’ the teleoaffective associations they hold with running, and shape their
450 anticipated teleoaffective engagement with running. These reworked teleoaffective
451 structures can be carried forward, repeated and reinforced through both communal self-
452 tracking interactions and actualised future experience.

453 Our study makes three important contributions to the existing body of research
454 exploring the potential of communal self-tracking for physical activity participation. First,
455 we illustrate a new way of understanding how communal self-tracking works to support
456 sustained physical activity, which may be experienced as unpleasant or have unappealing

457 associations. Our study illustrates that practitioners can change the way they engage with
458 running. Our respondents relabeled exhausted solo night runs to attract affirmation and
459 support for a version of running emphasizing self-discipline and commitment. They used
460 the kudos and comments to reaffirm informal 'club' membership and reposition running
461 as focusing on social bonds. They shared accumulated logs on Facebook to discuss their
462 achievement and invited a shared sense that running is a hard but a worthwhile
463 accomplishment. Through these interactions, running becomes reconstituted as a socially
464 shared and meaningful practice, manifesting as multiple versions, to which self-tracking
465 practitioners can align themselves. Our study therefore provides evidence for a
466 developed understanding of the way that the tight bundling of communal self-tracking
467 and physical activity might work for supporting physical activity. Communal self-tracking
468 provides mechanisms for acting upon the emotional and purpose-oriented associations
469 of physical activity in order to move it from having limited appeal to having dynamic
470 appeal that can more effectively retain practitioner attention and loyalty as careers
471 develop. Emotional entanglement between self-tracking and tracked activities has been
472 noted by others (Lupton 2013; Ruckenstein 2014), and our study provides a theoretical
473 mechanism for understanding this entanglement.

474 Second, our study emphasises the active part that practitioners play in the dynamic
475 creation and recreation of meanings relating to physical activity practice. Existing studies
476 tend to imagine users as 'responsive' to doses of the social networking functions of self-
477 tracking apps (Hassan et al. 2019), or to the agency of self-tracking technology (Klauser
478 and Albrechtslund 2014). In positive terms, self-tracking is seen as boosting social
479 comparison, emotional support, enjoyment and empowerment, and ultimately increases
480 motivation to keep active. In contrast, our analysis foregrounds the recursive nature of
481 practices and practitioner performances, which is a strong theme in recent practice-

482 oriented consumption studies (Phipps and Ozanne 2017; Molander and Hartmann 2018)
483 with neither practitioner agency nor socially normative patterns of activity taking center
484 stage. Rather, practitioners are central in the dynamics of ongoing practice change
485 (Maller 2015). Our data illustrates how the appeal of running, and by implication ongoing
486 running ‘careers’, are the result of a dynamic evolution of the way running is experienced,
487 anticipated and worked on to become progressively more ‘agreeable’ in different ways.
488 Respondents describe hating running initially but now talking about it ‘all the time’,
489 sharing accomplishments and relishing in their career stories. Via Strava, adaptive
490 practitioners share their accumulated stats or the labels they assign to runs and invite
491 collective affirmation for the versions of running that are being emphasised through the
492 online narrative, and for those which are being mollified. The survival of running
493 practice is therefore the result of a dynamic interplay between collective practitioner
494 negotiations of meaning and ongoing performances in which those meanings are
495 enacted; both of which are routinised as part of the practice bundle of running and
496 communal self-tracking. This insight advances existing conceptualisations by moving
497 away from the notion of self-trackers as ‘responsive’ and, rather, foregrounding both the
498 entangled nature of self-tracking and running, and the entangled nature of performances
499 and practice.

500 Third, our findings also suggest potential lessons for digital health interventions seeking
501 to support sustained physical activity because they highlight the multitude of ways that
502 Strava facilitates interactions for teleoaffective shaping. Teleoaffective shaping is
503 mediated in some cases by direct engagements with data, for example when practitioners
504 concern themselves with accumulated totals. However, in some cases, practitioners
505 bypass their data altogether and focus on the comments and kudos they receive for
506 logging a run, irrespective of the data produced. Practitioners examine lists of ‘kudos’

507 and pursue ongoing interactions with particular followers, or create labels that ‘speak’ to
508 particular groups with whom a run was in fact performed. Strava provides multiple ways
509 for users to interrelate, from leaderboards to kudos, comments, direct messages and
510 exporting data to other social platforms. Relating to a sense of the multiple, interrelated
511 practices of self-tracking, our findings concur with other studies (Mol 2000; Ruckenstein
512 2014) which have noted how practitioners engage with self-tracking in numerate ways
513 depending on personal projects and trajectories (Lupton and Smith 2018). Our findings
514 indicate that this flexibility and multiplicity in design underpins the sense of active
515 participation as opposed to loss of agency. We note that other studies have reported that
516 respondents can feel ‘controlled’ by wearable technology and self-tracking, which can
517 lead to attrition and protest (Ruckenstein 2014), or that social connectivity can feel
518 tokenistic (Fotopoulou et al. 2016) or part of a marketing agenda (Charitsis et al. 2018).
519 Strava, in providing a range of integrated ways through which teleoaffective shaping
520 projects can be undertaken, has created a diverse experience of social interaction and
521 meaning making, which in fact ties closely with the benefits of communal physical
522 activity found in other studies (Copelton 2010; Wiltshire et al. 2018). We note that device
523 manufacturers assume that users primarily are interested in ‘getting more health-related
524 information’ (Pantzar and Ruckenstein 2015), but in fact much of this ‘health
525 optimization’ data can fail to engage people (Ruckenstein 2014) and attrition from self-
526 tracking is common (Lupton and Smith 2018). It may be that other features, including
527 the capacity for free-flowing communal dialogue, are most important for sustained
528 engagement with self-tracking and the tracked activity. It is therefore important to note
529 that a potential downside to the routinised social interaction afforded by Strava may
530 emerge from the entangled nature of enacting and sharing physical activity
531 accomplishments. In the event of technological failure, the inability to share and interact

532 around some tracks may have a disruptive or even reverse (negative) effect on the
533 teleoaffective shaping of physical activity.

534 Finally, it is important to highlight a key limitation of our study, which is its particular
535 focus on the positive teleoaffective shaping of running by users of a social fitness app.
536 This was a useful context for a first exploration of the concept of teleoaffective shaping,
537 but future studies might consider the multiple ways that self-tracking affords
538 teleoaffective shaping of tracked practices. For example, future research might
539 interrogate how teleoaffective shaping happens in private self-tracking, and might focus
540 on how a range of collective associations relating to particular practices are shaped and
541 evolve in different ways. Teleoaffective shaping might be implicated in how notions of
542 competitiveness, adventurousness or obsessiveness might be cultivated through self-
543 tracking. We begin to see that interaction around Zak's data has begun to collectively
544 legitimise running every day, and possibly to the emergence of dangerous bodily practices
545 noted in other self-tracking studies (Charitsis et al. 2018). Similarly, other respondents in
546 our research seek and receive social affirmation for extreme or adventurous patterns of
547 running and in other cases, personal profiles are collectively rewarded for their volume.
548 Future research might explore a range of associations that may be shaped powerfully
549 through communal and other forms of self-tracking via mechanisms including, but
550 expanding beyond, those we have identified.

551

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554

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732 Data underpinning this study are not available to share, as participants did not consent
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734