
On the Stories Activity Trackers Tell

Marc Hassenzahl

Folkwang University of the Arts
Essen, Germany
marc.hassenzahl@folkwang-uni.de

Matthias Laschke

Folkwang University of the Arts
Essen, Germany
mattias.laschke@folkwang-uni.de

Julian Praest

Folkwang University of the Arts
Essen, Germany
julian.praest@folkwang-uni.de

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the Owner/Author.

Copyright is held by the owner/author(s).
UbiComp/ISWC'16 Adjunct, September 12-16, 2016, Heidelberg,
Germany
ACM 978-1-4503-4462-3/16/09.
<http://dx.doi.org/10.1145/2968219.2968325>

Abstract

Activity trackers tell stories about exercising. They entail "scripts," which suggest courses of actions and amplify the perception of particular aspects and structures (i.e., numbers, performance). This paper discusses the need to critically examine the stories suggested by activity trackers and to develop alternative stories.

Author Keywords

Activity trackers; story telling; critical discourse.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

The Story a *Fitbit* Tells

For many people, activity trackers, such as *Fitbit*, *Fuelband* or *Endomondo* are the latest success story of consumer technology: tiny gadgets to carry around in trouser pockets, neat wristbands, or even more sophisticated smartwatches. To us, activity tracker are among the worst of uninspired and uninspiring design. This is neither because of their industrial nor because of their interaction design. It's because of the story they tell.

"Which story?" you may ask. Trackers are just a bunch of sensors, boxed in some plastic, combined with databases and helpful visualizations. No harm done. Of course, this is not true. Trackers are a good example of "solutionism" [8]. While exercise is the "wonder drug"

[2], trackers promise a fix to the "problem" of not getting enough of it. In this story, exercise is a cure, a bitter pill to be swallowed, and the tracker is the regime to submit to. The tracker introduces metaphors of discipline, performance, and managerial control. Getting the daily dose of exercise is the goal, no matter whether you enjoy it or not. If you start to use a tracker, you'll find yourself trying to become faster or to walk longer very quickly. You will monitor and optimize routes. And in the end, all this has even meaning and can become enjoyable of sorts. Fritz et al. [5:491] provide an example of the practices that emerge from such as story. One of their participants reported: *"I was at I think 17 flights, and I thought, oh, I could get to 25. I just started walking up and down the steps while I was reading my Kindle. [...] After I hit 100 floors, I decided okay I probably ought to cool down now because it was 11:00 at night ... and I just walked at a slower pace while I was reading for the next hour"* (P17, 6 months). So, picture meeting a neighbor, who is walking the stairs for hours while reading a book and glancing at her tracker. You fail to see what's wrong with this? First, the tracker worked for this person's health and she even got some extra reading. Second, people all around the world buy trackers the same way they invest into gym memberships. The tracker is merely a piece of technology. People are responsible for whether and how they use it, aren't they?

This implies a neutrality of technology, we find questionable. As Verbeek [11:10] points out: *"The mediating role of technologies, after all, can have a distinctly moral dimension. By helping to shape our practices and the interpretations on the basis of which we make decisions, technologies can play an explicit and active role*

in our moral actions." Theories of (social) practice emphasize the closely knitted relationships between people and their things. Shove, Pantsaar and Watson [10], for example, distinguish meaning, competencies and materials as elements of everyday practices. The elements influence each other. Things entail "scripts," which suggest specific courses of actions and discourage others [11:10]. They amplify the perception of some aspects and structures, and reduce others. The material inevitably shapes the practice. A thing such as a tracker is thus neither passive nor neutral. It is an active agent shaping everyday life, ripe with values and propositions.

While contemporary theories within the sociology of technology or within psychology (e.g., embodiment) emphasize the large impact the particular form of the material can have, they do not address the problem of distinguishing a good from a bad practice. Anthropologists, ethnographers and sociologists typically busy themselves with describing existing practices. By borrowing methods from these fields, Human-Computer-Interaction got better in understanding everyday life. Fritz et al [5], for example, is a collection of practices emerging when people appropriate a commercially available tracker. While those papers are in fashion, their value is limited. They can only describe, how life is. They cannot describe how life could be or even should be. But design –per definition –is concerned with this. It is to a good part normative.

Diving into people's daily practices with trackers can certainly highlight potential areas for change. For example, Fritz et al's [5] study shows that with their metrics and permanent feedback, trackers rather alienate from the actual physical activity. Instead of making the



Figure 1: *Zombies, Run!*
(zombiesrungame.com)

activity an end in itself, it turns into a mere means to accumulate steps and satisfy metrics. The fun of "number fishing" replaces potential enjoyment from commanding and feeling one's own body. In the long run, this can make exercise feel like work. Consequently, people may exercise more, but they do not necessarily enjoy the activity more [3].

Of course people *deliberately* buy trackers to get into exercising. If running would be already perceived as enjoyable, people would just do it. The tracker is a cheat, a scaffolding technology. As novices of a practices, these people are especially prone to adopt the offered story of metrics, discipline, and performance. Of course, some manage to escape this. Fritz et al. [5] argued that current trackers could support long-term goals better, if designed differently. They observe: *"Even so, people's practices sometimes veered away from system metrics as they became more engaged in fitness. Metrics and data that had been valuable early in use could become insufficient over time; activities that became important to people as their practices changed, such as weightlifting and yoga, were no longer reflected by the system's metrics"* (p. 495). In fact, we suppose that those people whose practices "veer away from metrics" are actually liberating themselves from the narrow regime of the tracker. They found a better story. While some suggest new sensors and metrics as a remedy, an alternative story would be the better option.

Alternative Stories

In fact, examples of alternative stories told by trackers are hard to find. Most follow the same plot of goal, feedback, achievement, and competition. An exception is *Zombies, Run!* (<https://zombiesrungame.com/>) (see

Figure 1). *Zombies, Run!* wraps running into a narrative of a – surprise, surprise – zombie apocalypse. Each five kilometer run is styled as an episode in an unfolding story of survival. For example, the first episode starts with being in a helicopter crash. You are unharmed, but stranded in an area heavily infested with fast running zombies. To survive, you need to reach a guarded camp about five kilometers away. You better start running now. On the way, the story is advanced at certain milestones and tracker data is used to trigger events. Now and then you meet a zombie horde chasing you. In the episode's finale, you encounter the best runner from the camp. A runner's duty is to scavenge for provisions. Unfortunately, this runner has turned and is posing a serious threat. Run as fast as you can through the gates of the camp into safety.

Not anybody likes zombies, some might even be repelled by the story. However, the story is quite well chosen. Being chased is deeply connected to the pop cultural archetype of the zombie. However, zombies are never too fast, there is a realistic chance of escaping, as long as one has the stamina. A golden rule is to never look back. Thus, when being chased, the sound of the approaching zombies, growling and running, is sufficient to maintain the illusion of a threat. You won't turn around and spoil the fantasy. Thus, even if it all is only a fantasy, this fantasy is deeply connected to the activity the story seeks to motivate. Escaping is different from competition or health. If you allow yourself to plunge into the fantasy, running becomes a means of survival, a source of self-assertion, a way of being prepared for the world. In the movie *Zombieland*, for instance, the most important rule for survival is "Cardio:" The fat will be eaten first. Through this, running is not framed as bitter pill to swallow to benefit from the

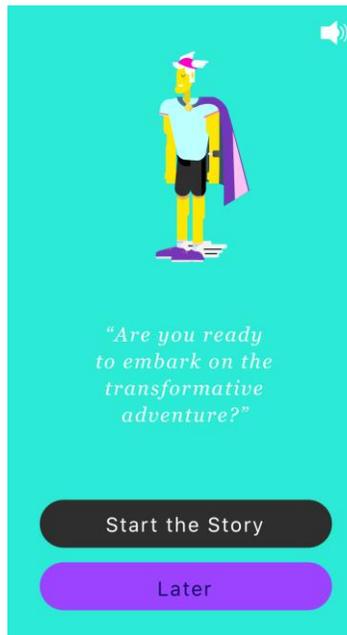


Figure 2: Hermes (Authors)

vague promise of future health, but as an essential survival technique. Besides this, in *Zombies, Run!* runners enjoy status. They are the ones who scavenge for provisions, guaranteeing the survival of the people in the camp. With each run, I put my life on the line and will eventually become a hero.

There are also elements, which do not work especially well in *Zombies, Run!* For example, the story refers to specific places, such as abandoned hospitals. The first author's running route leads through a quiet neighborhood. Since it is a little longer than five kilometers, the finale of the first episode took place amidst a wide, sunny field, with not too many people around. It was almost impossible to picture the half open gates, I had to reach to survive. While the story turned dramatic, the actual environment did not. A runner would have to actively select a new route – through some backyards or abandoned industrial estates – to better fit the story. While not perfect, *Zombies, Run!* offers an alternative to becoming an accountant of calories and steps. While zombies as a fantasy might not suit everybody, the story is well chosen because of its intimate link to running itself. It has the power to reframe the meaning of exercising.

Fish 'n' Steps [6] offers a different story. People walk with a tracker. In the evening, the data is transmitted to a "virtual fish tank." Depending on the achievement of specific walking goals over the day, the virtual fish grows healthily. On each day the fish smiles, if the goal was achieved, but becomes sad, if not. This is a sweet story of caring and nurturing, which however appears completely disconnected from the actual activity of walking. Of course, people respond to this nevertheless. They start to walk to please the fish and again one

may argue that this is enough. If numbers don't work as reward, one may just replace them with a cute character. However, the story is not as deep as the one offered by *Zombies, Run!*. Walking remains an arbitrary means to tell a story of (virtual) care.

In a thesis we supervised, the third author [9] developed yet another story of running. For his app *Curro*, Julian tapped into Greek mythology. Zeus is short on messengers. Hermes, whose job this is, is too busy. Thus, Zeus decided to invite some "earthlings" to become apprentices supervised by Hermes. Upon starting the app, the runner is told: "Welcome, earthling. As your fate determined, you received one of the secret invitations to embrace an exciting adventure, guided by Olympian god Hermes himself." Hermes is a cool guy, wearing an appropriate flying messenger outfit (see Figure 2). He is youthful, intelligent, eloquent and fit. On this background, Julian developed a story, which cares more about fun than historical accuracy. Missions include delivering love letters to Leto, a declaration of war to Cronos and the Titans and a threat to Hades. When Hermes injured his Achilles tendon(!), the runner has to step in. And finally, the runner meets Zeus himself to demonstrate the progress made. This story refers to the ancient Greek's rich culture of exercise. As Young ([12], Pos. 172) points out: "exercise was not just a dull duty for the classical Greeks. Yes, citizen soldiers had to be fit, and no doubt many wearied of the daily oiling and grappling, grunting and lifting. But, from nobles like Xenophon to commoners like Socrates, the Greeks often saw exercise as a way to savour their full humanity. [...] They kept sprinting, wrestling, and throwing their javelins, not just because of war or health, but because it polished their souls [...] exercise offers virtues and pleasures, alongside hard bodies."



Figure 3: Animus Moverandi (Authors)



Figure 4: An angry Watchdog equals high blood pressure (Jan Falkenberg)

The suggested story is not about war, but about delivering messages with style. Running is framed as a bodily as well as spiritual activity. Runners do not count kilometers or achieve badges, but are asked to develop their "animus moverandi" (see Figure 3) and a culture of running. Similar to *Zombies, Run!*, Curro's story is a fantasy, trying to reframe running. We argue that it is a good story, because it is linked to running. It implies a potential reframing of exercise. It suggests an alternative.

The Good and the Better

Accounting, *Zombies*, *Fishes* or *Greek Gods* – each tracker embodies a story, and obviously we like *Zombies* and *Greek gods* a little better than counting calories or caring about virtual fishes. However, the notion of good and better stories poses a challenge to Human-Computer Interaction. It is no longer enough to describe general mechanisms. We already know that feedback, goals, and rewards have an impact. It is not about feedback per se, but about the particular form of feedback. It is not about rewards, but the particular content of rewards. It is not about stories, but about the particular stories.

Of course, one may find some principles of a good story. Above we made the point that a good story about running should tap into a fantasy world, where running already has a role. It is not about distraction, but about discovery of meaning.

While this is certainly a good rule of thumb, not even this works as a general principle: In another thesis, Jan Falkenberg [4] looked at the therapy adherence of patients with chronic hypertension. Lack of adherence is a widespread problem. Typical strategies to counteract

this are better information and reminder technologies [7]. The assumption is that people don't understand and forget. But in his conversations with patients, Jan found that they knew how serious their state is and what to do. Still they want to forget. Hypertension requires the constant monitoring of blood pressure. If it is too high, patients can either take their pills or get some exercise. This acts as a constant reminder of the threat the illness poses. Instead of explaining and reminding, Jan argued, one should distract patients from their illness, thereby making it easier for them to adhere to their therapeutic regime. He created *watchdog*, a blood pressure monitor. It provides the story of a beast, living inside one's own body. The smart watch acts as a window to communicate with this inner beast. Most of the time the beast is tame, but now and then it gets really worked up and angry (Figure 4). Its blood pressure is high. There are two ways to soothe the beast: taking it out for a walk or providing it with a pill (the actual medication). Since the beast lives inside one's own body, one has to swallow the pill to administer it to the beast. This story is not one of focus, of discovering meaning and enjoyment. It is one of distraction, of making strange to create the impression that it is not me, who is ill, but that beast living inside me.

Conclusion

If principles are not the solution, we are in trouble. How can we discuss and scrutinize the stories told by technologies? How can we argue at all about good and better stories? A form of analytical criticism, as for example proposed by Bardzell [1], is certainly a step into this direction. However, we need to go further. We need to institutionalize the discourse about the political dimension of proposed designs. It must be standard for authors to explain and critically discuss the stories they

tell. They should not get away with the naive claim of proposing just harmless bundles of sensors. Critical discourse should not remain in the realm of a particular method, but must become a part of the culture of writing cases. To us, this seems more important than the ubiquitous "user study" to "prove" the "viability" of a design. To accommodate for critical discourse, new formats must be developed. Maybe in a near future, design cases submitted to major conferences will be accompanied by independent statements prepared by non-anonymous critics, who deliver independent, witty and stimulating readings of the story told by this case. Of course, acceptance or rejection should not be based on whether critics like the story or not, rather the reader should be inspired to reflect beyond what the authors themselves were able to provide.

No matter how we will tackle these challenges in detail, we need to start trying. Activity trackers are far from being neutral and harmless gadgets. They tell a story – pervasive and subtle. They frame exercising in a particular way, often letting this way appear without alternative. Whether we find the suggested story appropriate should not predominantly remain a matter of taste and liking, but must become the subject of a critical discourse to explore the implications of the story provided and its possible alternatives.

References

1. Jeffrey Bardzell. 2011. Interaction criticism: An introduction to the practice. *Interacting with Computers* 23, 6: 604–621. doi.org/10.1016/j.intcom.2011.07.001
2. Jack W. Berryman. 2010. Exercise is medicine: A historical perspective. *Current Sports Medicine Reports* 9, 4: 195–201. doi.org/10.1249/JSR.0b013e3181e7d86d
3. Jordan Etkin. 2016. The hidden cost of personal quantification. *Journal of Consumer Research* 42: 967–984. doi.org/10.1093/jcr/ucv095
4. Jan Falkenberg. 2014. *Watchdog*. Bachelor-Thesis, Folkwang University of the Arts.
5. Thomas Fritz, Elaine M Huang, Gail C Murphy, and Thomas Zimmermann. 2014. Persuasive technology in the real world: A study of long-term use of activity sensing devices for fitness. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, 487–496. doi.org/10.1145/2556288.2557383
6. James J. Lin, Lena Mamykina, Silvia Lindtner, Gregory Delajoux, and Henry B. Strub. 2006. Fish'n'steps: Encouraging physical activity with an interactive computer game. *UbiComp 2006*, Springer, 261–278.
7. Heather P McDonald, Amit X Garg, and R Brian Haynes. 2002. Interventions to enhance patient adherence to medication prescriptions. *The Journal of the American Medical Association* 288, 22: 2868–2879. doi.org/10.1001/jama.288.22.2868
8. Evgeny Morozov. 2013. *To Save Everything, Click Here: The Folly of Technological Solutionism [Kindle Edition]*. PublicAffairs.
9. Julian Praest. 2016. *Wearable Computing im Sport*. Bachelor-Thesis, Folkwang University of the Arts.
10. Elizabeth Shove, Mika Pantzar, and Matt Watson. 2012. *The dynamic of social practice*. SAGE.
11. Peter-Paul Verbeek. 2011. *Moralizing Technology: Understanding and designing the morality of things*. University of Chicago Press.
12. Damon Young. 2014. *How to think about exercise [Kindle edition]*. Macmillan.