

# **Apps as Companions: How Quantified Self Apps Become Our Audience and Our Companions**

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**Abstract:** Self-tracking apps gather intimate information about our daily lives. One way apps encourage us to entrust them with this knowledge is by taking the role of a confidante, an anthropomorphized companion we can trust. Humans have long confided in non-human companions, from diaries to apps, and the relationship between user and app is structurally similar to the relationship narratologists and literary theorists have identified between diarist and diary. Our agency is always shared with the technologies we use, whether they are simply pen and paper or a complex AI. By comparing apps to diaries, I demonstrate how these technologies, or media, act not simply as objects but also as narratees, as audiences to our human narratives. While diaries are mostly silent listeners, self-tracking apps speak back to us in a feedback loop, and thus enter a role as our companions rather than simply as our audiences.

Self-tracking requires technology. Not necessarily digital technology, but always, technology. Tally marks pressed into clay or scratched into stone; paper charts with pens for making check marks and perhaps calculations; smartphone apps that track everything a smartphone can measure: all these are ways in which humans have used technology to create an external, quantified representation of an aspect of our lives.

As long as the technology we use is simple, like a pen and paper, we tend not to think of the technology as adding much to the process. But we could not possibly remember the events we record in anything like as exact a manner without recording them, even if the only technology we are using is paper. If we think about it, we also

know that the organisation of the charts we draw affects what we measure and how we think about it.

When we use simple technologies, though, we tend to still feel as though *we* are *using* the paper. We are in no doubt as to who is the subject here: the human feels fully in charge, at least in cases of voluntary self-tracking, where the person doing the tracking is free to stop at any time, or to change the chart she is using. The human is the subject with agency to act upon objects, that is, upon the pen and paper and the data that the human collects.

This chapter is an examination of self-tracking apps that emphasise the agency of the app through a conversational interface, where the app uses simple scripts or more complex artificial intelligence (AI) to speak to the user. Until recently, self-tracking apps have displayed user data in lists or graphs, but as conversational agents like Siri on the iPhone or Amazon's Alexa have become popular, self-tracking apps are also beginning to use the technology. Examples range from text-based chatbots like Lark, Instant and Pepper, which send encouraging messages and ask simple questions of the user, to speaking workout assistants like Vi (pronounced *vee*), which is what Andrea L. Guzman calls a Vocal Social Agent (Guzman 2017).

Telling our secrets to a simulated confidante like Vi is structurally similar to confiding in a diary. Diarists often anthropomorphise their diaries, addressing them as "Dear Diary," and confiding in them as though to a human friend. In this chapter, I outline a history of humans confiding in non-human companions, from diaries to apps, in order to show how our agency is always shared with the technologies we use, whether they are simply pen and paper or a complex AI. By comparing apps to diaries I show

how these technologies, or media, act not simply as objects but also as narratees or audiences to our human narratives. While diaries are mostly silent listeners, self-tracking apps speak back to us, and thus enter a role as our companions rather than simply our audiences. We don't see this to the same extent in social media, where we share content intended for a human audience, using technology as a medium between humans rather than as a companion or a tool for organising our data. This also occurs, to a lesser extent, in other digital media – but that it is more obvious in self-tracking apps because they are designed to work *without* necessarily having any other human audience than the user themselves.

## **Trusting Our Apps**

Digital devices are far less transparent to us than pens and paper or most other pre-digital technology. Most of us don't really understand how our self-tracking apps work, and we're not always entirely sure what they're measuring. Interestingly enough, this often means we trust them more than we trust ourselves. José van Dijck calls this *dataism*: a 'widespread *belief* in the objective quantification and potential tracking of all kinds of human behavior and sociality through online media technologies' (Dijck 2014). We may even trust our devices more than our own experiences or memories. In her study of nurses wearing heart-rate variability monitors, Minna Ruckenstein found that her informants changed their stories about their day after being shown the data:

Significantly, data visualizations were interpreted by research participants as more 'factual' or 'credible' insights into their daily lives than their subjective experiences. This intertwines with the deeply-rooted cultural notion that 'seeing' makes knowledge reliable and trustworthy. (Ruckenstein 2014)

This surrendering of subjectivity or agency to our machines tends to worry people. We trust the machine's representation of our life more than our own memories. Do we really want our machines to be writing the stories of our lives?

Perhaps, though, we have never written the stories of our own lives. At least not completely alone. We write with the tools we have at hand: pen and paper, Snapchat, a typewriter. These tools also determine how we write, how we are able to see our own lives. Literary theorist Paul de Man wrote of this in the late seventies, arguing that perhaps, rather than a lived life leading to an autobiography, it is the other way around:

We assume that life produces the autobiography as an act produces its consequences, but can we not suggest, with equal justice, that the autobiographical project may itself produce and determine the life and that whatever the writer does is in fact governed by the technical demands of self-portraiture and thus determined, in all its aspects, by the resources of his medium? (de Man 1979, 920)

We usually think of a diary, an autobiography or a self-tracking app as an inanimate object that may structure and *mediate* the way we are able to tell our stories, but that has no stories of its own. And yet there are many examples of people adjusting their actions so as to make them more suitable for mediation. For instance, a runner may postpone a run because their phone's battery is flat and needs charging, and thus cannot track their run. A Snapchatter may decide to go to a certain event because they want to show themselves at that event in their next Snapchat story. And once we see the data that our devices have collected, we may, as Ruckenstein found, slightly alter our retelling of our day to better fit the data that is displayed.

James Bridle, an artist and designer, has argued that the data a phone collects is actually the *phone's* diary, not the diary of the person carrying the phone. When he learned that his iPhone had saved the coordinates of every location he (or it) had been at, he downloaded the data and used it to create an artistic project: a book of maps showing

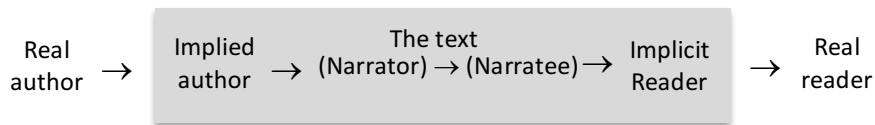
his whereabouts as recorded by the phone (Bridle 2011). The title of the book, fittingly enough, is *Where the F\*\*k Was I?* because Bridle claims to have no recollection of having been at all the places the phone has registered that he was at. Bridle's phone, seen in this way, is hardly an inanimate object that is only acted upon and has no agency of its own. It tells its own stories, as an independent subject. What does that mean for our relationship with our machines?

### **Dear Diary: Diaries and Apps as Narratees**

Marshall McLuhan saw media as extensions of our bodies (1964). Perhaps he would say that our 'dear diary' and our step counters and lifelogging apps are such extensions. I argue that these personal media (Lüders 2008) are something more. They are our audiences. These are media that we do not simply listen to or read or watch: we speak to them (Walker 2004). We are the narrators, and they are the narratees, the audience for our words or our data. These media (machines) may be the only 'reader' of our stories and our data, or we may share the stories and data we record in a diary or an app with others, for instance by passing around a paper diary or by choosing to share data with our friends or posting it to Facebook.

In narratology, the actual, flesh-and-blood author and reader are seen as separate from the text. But we can usually identify an implied author and an implied reader in the text. The implied reader (or listener) of one of Trump's speeches is, for instance, clearly not a European who appreciates universal healthcare, or a refugee from a wartorn country, but such people may well be among the actual flesh-and-blood readers or listeners. Some texts also have a narrator and a narratee, that is, an explicit speaker in the text, somebody who speaks in the first person, and an explicit listener or an explicit

addressee. The term implied reader was coined by Wolfgang Iser (1978), but when we use these terms to think about the way apps address their users, it's most useful to think about the role of the implied reader as part of a larger system, as shown in Figure 1, which shows Seymour Chatman's model of narrative communication as it works in a novel, or even a diary (1978, 151).



**Figure 1: Chatman's model of the narrative communication situation (redrawn from Chatman 1978, 151)**

In his theories of the diary, Phillippe Lejeune writes that a diary is always written for a reader, even if that reader may simply be the writer, at some future date (Lejeune 2008, 324). It is impossible to imagine writing for nobody. I would argue that we think of our self-tracking apps in the same way. We are collecting our data for our future selves, and perhaps for others as well: to share our accomplishments with a group or peers, perhaps. We are also usually sending our data to a corporation that combines our data with others to generate comparisons, and that data may be used for quite different purposes than we imagined when we slid the Fitbit onto our wrists, or installed the app on our phones. For corporations, data about our exercise patterns or other daily activities has monetary value, which Chris Till argues transforms our leisure activities into a form of labour that can be commodified and exploited (Till 2014). One way of making that less visible to users (or labourers, in this model) might be to make the apps seem to be more like individual people or even a friend, rather than presenting them as technical data collectors. Such a

devious plan is probably not necessary to make users anthropomorphise their devices and think of them as intimate companions rather than the agents of corporations that surveil us. Individual users rarely see the full scale of data collaction. For a user, the relationship is mostly experienced as being between the user and the device.

This is not simply about the intimacy of a wearable device or a smartphone. Diary writers have also long anthropomorphised their diaries, imagining a ‘you’, a reader that the writer is writing for. One may well argue that this ‘you’ is a requirement of language itself. Speech is founded upon conversation, or at least upon an audience. In diary-writing, we often address our words to a ‘dear diary’, imagining the diary itself to be a safe, silent listener.

Here is an example of how ‘dear diary’ is used in a serial magazine story written in 1866. Note that this is from a fictional diary, so the use of ‘dear diary’ may be slightly parodic, or at least intended to capture a certain type of personality in the fictional diary-writer:

March 2<sup>nd</sup>.—Now, my diary, let me tell you all about today. You are the only bosom-friend I have, dear diary, and you keep all my secrets, that is, you would keep them if I had any to confide in you. (Worboise 1866, 16).

Do we still imagine a ‘dear diary’ when we open our self-tracking apps on our phones?

Do we imagine our machines as audiences? Or as subjects in their own rights?

‘Dear diary’ is a direct address of a narratee, thus giving the diary itself a human subjectivity. Based on a search of Google Books’ corpus of digitized, published books <sup>1</sup>, we can see that the expression ‘dear diary’ began to be used in print in the mid-eighteenth century, but became really popular in the last decades of the 20<sup>th</sup> century. Interestingly, both the phrase ‘dear diary’ and the word ‘diary’ were used markedly less in print after the turn of the 21<sup>st</sup> century, which seems very likely to be connected to internet use (see

Figure 2). Perhaps we don't need to anthropomorphize our diaries anymore now that we have the internet, with real people as potential readers of our blog posts and Facebook updates. Although there are clearly many similarities between traditional diaries and the way people share stories of their daily lives in social media (Rettberg 2014a), there has been a transition from sites like OpenDiary.com that very explicitly used diary conventions to structure the users' writings, to platforms like Snapchat and Tumblr that don't reference traditional diary conventions at all (Martinviita 2016; Rettberg 2017a; Rettberg 2017b). For the purpose of this chapter, though, what I am interested in is the way that diarists have anthropomorphised their diaries, for instance by writing to their "Dear Diary".

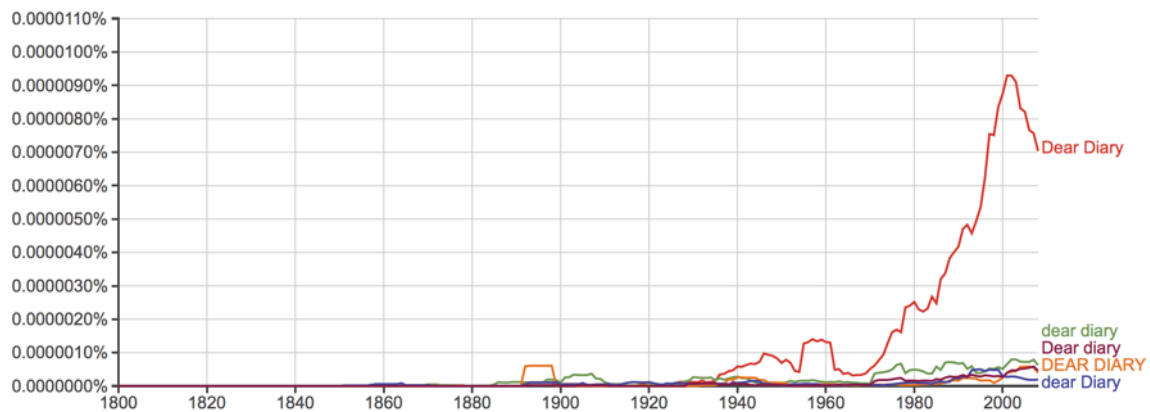


Figure 2: Google Books Ngram Viewer chart showing the occurrence of the phrase 'dear diary' (with different capitalisation) in books published between 1800 and 2015 that have been digitised by Google. Chart generated 01.06.2016.

## Confessing Secrets to a Diary or App

Both diaries and self-tracking balance between the private and the public. Today, the privacy of a personal diary is often seen as its defining feature. Diaries are sold with padlocks and keys, and used as confessional spaces where it is safe to pour out all one's secrets. Historically in Western culture, the diary was sometimes quite explicitly seen as



a way to confess sins directly to God (Heehs 2013, 49), but also as a tool for spiritual self-improvement. Sixteenth century Jesuits had explicit guidelines for writing spiritual narratives about themselves (Molina 2008), and other sixteenth and seventeenth century guides exist that emphasise both self-abasement before God and recording mercies, grace and deliverances (Rettberg 2014b, 5–7). Some of the spiritual work in this self-narration took place when diary-writers shared and discussed their diaries with friends or with the congregation. So although there is a strong history of private diaries, where the author would be horrified if others read her diary, there is also a strong parallel tradition of diaries that were expected to be shared with others and that were specifically intended as self-improvement tools (Humphreys et al. 2013). This latter kind of diary obviously has something in common with the Quantified Self (QS) movement's drive towards self-improvement. There are many examples of self-improvement projects that combine self-representation with more quantifiable kinds of self-tracking. For instance, the app You (you-app.com) gives users daily tasks to complete and asks them to document each task by taking photos and writing short comments, which can be shared with friends or kept private. Taken together, these photos and comments become a kind of diary. Gratitude projects such as #gratitude365 are another example. Here, participants aim to share daily photos of something they are grateful for, with a shared hashtag that creates a flexible sense of community as well as allowing individual users to organise their own contributions. Keeping a record of what you are grateful for is an old technique for self-improvement, recommended, for instance, in John Beadles' *A Journal or Diary of a Thankful Christian* (Beadle 1656; Rettberg 2014b, 5–6).

Interestingly, QS has a similar tension between the private and the public as diaries do. The show and tells that are common at QS events and on the QS blog are very explicitly about sharing, and as with many shared diaries, the purpose is self-improvement. Yet there is also a strong sense that people find over-sharing to be rude. Complaints about Facebook friends who post every map of their run or every song they hear on Spotify to their Facebook timeline are common. We also need to recognise that some of the drive to *share* one's personal data is driven not by the individual users, but by the corporations that develop the services (Ajana 2017; Till 2014).

### **Apps as Companions and Independent Subjects**

Paper diaries and many quantified self apps are silent listeners, existing only as receptacles for our data. Their interfaces are often designed to appear objective and serious, as shown in the screenshots in Figure 3.

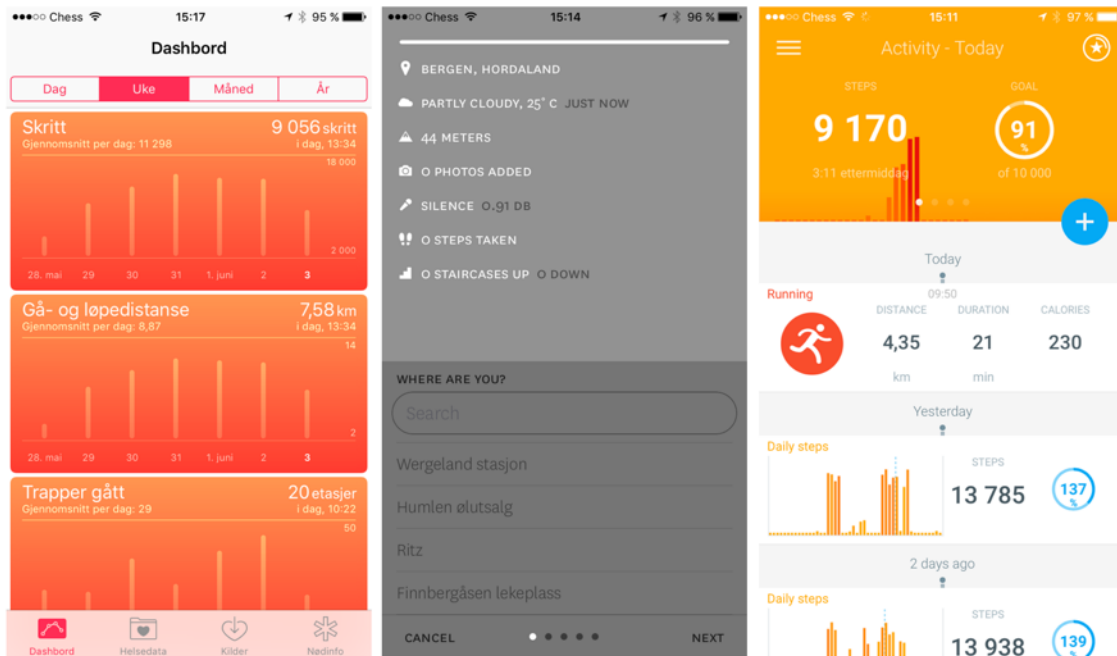


Figure 3: From left to right: iPhone Health app, Reporter, Withings.

But some apps are programmed to appear as characters, as subjects of their own. For instance, the activity tracker Lark is designed to look like a messaging app with a conversational agent or chatbot sending messages to the user: “Hey there, hope you’re having a fine morning.” Lark uses conversations instead of graphs to tell me about my activity level: “Awesome job. Averaging 1 hour 31 minutes of activity last week. That’s great!”

Lark doesn’t usually allow the user to write back in natural language. Instead, it usually offers a few different responses to its questions that the user can choose between. There’s only one button offered as a possible response to the comment about last week’s activity: “Okay.” When I click it, a new message appears. “Nice job walking for 23 minutes in the early afternoon last Tuesday,” Lark praises me. “That was a long one!” The only option in this chat is to click the prescribed response: “Oh yeah!”

Independently conscious technology is a common topic in science fiction, usually thematising the uneasy balance between the machine as a benevolent assistant and the machine as too-powerful threat. Asimov’s laws of robotics are intended to solve this problem by programming loyalty to humans into the operating system of an artificial intelligence (AI). Of course even a rule programmed in 1s and 0s can be interpreted in different ways, and so the system backfires when the AI realises that humans are harming themselves by destroying the environment, and so decide to control humanity to protect us from ourselves (Asimov 1950).

This fear of machines is far older than AI. The Luddites famously rebelled against the machines that were replacing human workers by destroying mechanical knitting machines, looms, and other factory machinery. This basic fear of humans being made

redundant and simply unnecessary by more perfect and efficient machines has carried through to our time, though today it is often expressed as a fear of machines taking over our world completely, as in the *Matrix* film trilogy. In popular fiction, machines are often shown as untrustworthy or even evil, as we see in Obi Wan Kenobi's warning to Luke about Darth Vader: 'He's more machine than man now. Twisted and evil' (episode 6, after Yoda's death). Often science fiction shows a transition from benevolent to malevolent machines, which is often accompanied by a shift from the machine having a human-like consciousness to being incomprehensible to humans. We have an urge to create robots that are made in our image, but we also find robots too similar to humans to be uncanny. Andrea Guzman writes that Siri, the conversational agent built into iPhones, is deliberately scripted to seem non-threatening, so we don't associate her with "the cultural image of malicious machine" (Guzman 2017).

The idea of computers as a benevolent companion species is also deeply ingrained in computer science and the development of technology. Alan Turing's question of how we would be able to tell the difference between a computer and a human was taken up as the Turing Test, a challenge spanning decades to create software that a human cannot recognise as non-human. The most successful chatbots in this sense of 'seeming human' have had very clearly defined topics or modes of conversation. Joseph Weizenbaum's ELIZA, one of the first truly famous chatbots, was modelled as a Rogerian psychologist, who listens to the human interactant and repeats words back to her to encourage her to speak more (Weizenbaum 1966). Here is an example of a conversation with ELIZA:

**young woman:** Men are all alike.

**eliza:** In what way?

**young woman:** They're always bugging us about something specific or other.

**eliza:** Can you think of a specific example?

**young woman:** Well, my boyfriend made me come here.  
**eliza:** Your boyfriend made you come here?  
**young woman:** He says I'm depressed much of the time.  
**eliza:** I am sorry to hear you are depressed.  
**young woman:** It's true. I'm unhappy.  
**eliza:** Do you think coming here will help you not to be unhappy?  
**young woman:** I need some help, that much seems certain.  
**eliza:** What would it mean to you if you got some help?  
**young woman:** Perhaps I could learn to get along with my mother.  
**eliza:** Tell me more about your family.  
**young woman:** My mother takes care of me.  
**eliza:** Who else in your family takes care of you?  
**young woman:** My father.

Some apps play upon this role as a human companion. Lark is one example.

Another is the customised music and podcast app Capsule.fm, which lets you choose between seven AI personalities as your host, and each will speak to you by name. The description of the app on the iTunes app store emphasises the subjectivity of the app: “Capsule.fm is run by loving machines, mixing music, social media updates, news and podcasts into the perfect soundtrack for where you are, and what you are doing. Capsule.fm knows you better than your friends, and gets smarter the more you listen.”

Apps like Lark and Capsule emphasise technology as *friendly* in order to gain our confidence. Lark is not particularly self-referential, and the scripting of its conversations does not present the app as though it is aware of being a program rather than a human being. Similarly, it does not speak as though the user is aware that it is a program.

The robot voices of Capsule.fm, on the other hand, are very explicit about their robot nature, and use humour to play with the idea of their having fully-fledged personalities. Capsule.fm’s robot voices are *loving*. A sample from the website includes the following words, spoken in a soft, female, computer-generated voice:

Confession time: I have a little crush on you, Sarah. Ever since you downloaded me, I have this special feeling towards you.

The robot hosts of Capsule.fm are like radio DJs. They introduce and play music from the music on your phone and your Spotify playlists, read news headlines and suggest podcasts other users listen to. Most of what they say is typical patter. They joke and make general observations, then read the title of the song that's up next. Most of the hosts' speech is pre-written by the human developers, although variables are slotted in: the user's name, or an adaptation of her name, as when my host addressed me as Jilly Bear rather than Jill. A recurring feature of the jokes is that they comment quite explicitly on the ontological status of the hosts, either speaking in the first person and expressing feelings, as here:

Hi, Jilly Bear. I want to thank you again for listening to Capsule.fm. I really appreciate it.  
(Capsule.fm app, 30.05.2016)

Or, the jokes play upon the user's full knowledge that the host is not in fact a real human, but lives in a phone:

Now, go disinfect your fingers before you touch me anymore on your iPhone  
(Capsule.fm app, 30.05.2016)

Positioning the device or app as a companion makes its difference from us explicit. Our devices are not human, not our selves. And yet they have agency, or at least, we imbue them with agency and subjectivity.

Vi, billed on its website as "the AI personal trainer who lives in biosensing earphones", takes the anthropomorphism of a self-tracking device a step further, presenting Vi as "a friend" who "will help you". The product website [getvi.com](http://getvi.com) gushes: "Put Vi on and start a relationship with a friend for your fitness. Each day, Vi tracks you, gets smarter, and coaches you to real results. Vi will help you meet your weight goals and improve your training." Vi's voice speaks into your ears from earphones, so nobody else can hear. Her voice is soft voice, with an appealing, supportive sense of joy. It is not

robotic: each phrase and word was recorded by a human female and they are recombined algorithmically to fit each situation. The earphones track the user's motion and heartrate, and the user speaks to interact with the device and to share information.

The promotional examples of interactions between Vi and users that are shown on the website show that Vi is designed to show empathy. In one video, showing a man running uphill on a wooded trail with the Vi earphones on, Vi uses information about the user's heartrate and speed to suggest that he slows down. Then, she praises him for his effort:

Vi: Looks like you're fatigued. Are your legs done?

Runner: Yeah... I'm done.

Vi: Okay, stop here. Keep walking to gradually slow your heart rate down.

Vi: Amazing effort today!

## **Speaking with Machines**

Diaries have long been anthropomorphized. We address them directly when we share our secrets with them. The use of conversational agents in self-tracking apps and devices such as Lark and Vi suggests that we are moving towards a similar relationship with our devices, where we narrate our experience to the device, and it speaks back to us, establishing a relationship between human and technology that emphasizes a shared agency, a collaboration rather than the traditional notion of humans using their technologies as tools they are in control of. By allowing our devices to be our coaches, they become more than mere extensions of humans, they are becoming our equals.

Ted Nelson wrote in *Dream Machines*, his 1974 self-published and extremely influential vision of computers: 'the computer is a Rorschach, and you make of it some wild reflection of what you are yourself' (Nelson 1974, DM3).<sup>6</sup> 'Identifying with

machines is a crucial cultural theme in American society, an available theme for all of us,' he wrote in another entry in *Computer Lib*, the book printed on the flip side of *Dream Machines*.

Is that what we do, when we speak with our devices, when we allow them to store our data and to show us images of ourselves? By allowing us to address them as people, by allowing us to anthropomorphise our technology, perhaps we are being eased into a new kind of relationship with our technology. Writing a diary was a way of sharing agency with a simple form of technology. Using a self-tracking device to generate visualizations of our bodily data produces a different kind of narratives, with a different kind of shared agency. In future research, we should explore this shared agency. Theoretical work from posthumanism may be valuable in teasing this apart (Hayles 1999; Braidotti 2013; Nayar 2014). It is also important to consider the long history of humans speaking to and sharing secrets with technology, from self-tracking to diaries and beyond.

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<sup>1</sup> Google Books had digitized 25 million books by 2015 (Heyman 2015), and their ngram search permits comparing the frequency of specific words or phrases across the corpus: <https://books.google.com/ngrams>. The corpus has been criticised for having metadata errors, and may not be a representative selection of books, but the sheer volume of material clearly allows some interesting comparisons to be made (Michel et al. 2011).