

# Brainwash

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**E**ver since my childhood, I love to play and create music. The chords in which I "think" came from interacting with both my parents' piano, and my first guitar. These chords now live a life of their own, as sounds and harmonies with which I can express myself in both improvising or composing. Of course I'm not alone, millions of others do the same! We all express ourselves through language, which we have learned to write with pens and keyboards. Word pictures 'came alive' in our brain-keyboard-pen interactions as fully automated situated knowledge with which we communicate while we type or write ...

Last week in my column I wrote about cognition philosopher Andy Clark and the concept of the extended mind, in which mind doesn't stem entirely from our brain. Our minds arise and develop through interaction with, for example, devices such as tablets and smartphones (smart technology), instruments (pianos, microscopes, etc.) and tools (cars, tools, etc.). Mankind outsources functions to technology. For example, we outsource our heat regulation and body protection to our homes and clothing, and we outsource our digestion to our cooking so that we can digest food that could not otherwise be consumed. We are truly technological organisms.

In situated knowledge, our (smart) devices become part of our mind - our brain functionality - and become part of our extended minds. Changing ("updating") the device may result in changing our mind. One example. Until the 2018 update, the virtual keys on the iPad screen showed two keys to switch between letters and numbers: both left and right immediately next to the space bar. In the 2018 update, the right switch key was split into two keys: "undo" (left) and switch back to letters (right). For years I like to work with the very simple editor Notes (without redo and history functions). However, since this update I have constantly lost whole blocks of text after typing in numbers, because I press the undo button when I want to switch back to letters. Extremely irritating. I mentioned this during a lecture, and to my surprise I received a lot of recognition from the audience. In fact, such an update is more than changing a device I bought and appreciated because it affects my extended mind. With that, such update is "tweaking" me, which turns out to be a kind of brainwash.

## Digital technology

In digital technology this happens repeatedly. With each and every update, new functionalities arise and old ones are lost. If a pianist receives a completely different organized keyboard, (s)he would have to learn to play again. In digital technology this happens continuously. However, software companies show little or no awareness of this inadvertently "tweaking" users, and this is because we do not understand enough that we are much more than just our brain. We are our extended minds and our extended bodies.

Architects take this into account in their designs, they build for our extended bodies, but strangely enough in digital technology there is really insufficient understanding here. As a result, people tend to become the weakest link in the brain-device interactions and thus the extended brain and the devices have to compensate for this. This naturally creates a purpose for artificial intelligence, however.

At second thoughts this isn't quite new. Since the scaling-up in communications technology a century ago, radio broadcasts and a little later television began to 'update' consumers every night by serving news and entertainment. And this continues in the Spotify's and Netflixes of this world. Directed from listening to artist albums to playlists within a genre, these services are still in charge of what we hear and see. Our extended minds make us powerful and at the same time sensitive to ... brainwash! Wrong key, I just deleted my conclusion.