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Indistinguishable from Magic

Smartwatches: Digital Handcuffs or Magic Bracelets?

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Some regard the smartwatch as little more than an extra phone screen, but it can be a powerful tool that reduces the time we spend using other devices, enabling us to better manage our digital lives without missing out on important information.

According to BI Intelligence, global smartwatch shipments are expected to reach 70 million by 2021.[1] These devices offer users the benefits of an activity tracker together with quick and easy access to smartphone functionalities such as viewing and responding to messages and remote access to music controls. Because smartwatches are worn, they enable people to receive notifications in situations where phones are out of reach in pockets and bags. These wearables therefore offer the promise of instantaneous delivery of timely information straight to the wrist while the user is on the move, reducing fear of missing out (FOMO) on important information.

To avoid FOMO, we risk information overload as unprecedented amounts of content are delivered to our devices throughout the day, resulting in a constant barrage of interruptions. The challenges of shifting and dividing our attention across a range of devices were discussed in a previous article of this column.[2] But maintaining focus and concentration are not the only difficulties we face. The negative implications of being "always online" are frequently recounted in the media as people find it increasingly difficult to disconnect from work and focus on other parts of their life when work-related content is so readily available. In addition, it seems possible—and perhaps even likely—that smartwatches might increase our expectations of being both reachable and responsive, and subsequently also increase the feeling of being tethered to our smartphone.

Research shows that users attend to more than 60 smartphone notifications per day, often within minutes.[3] Other work highlights the addictive nature of checking smartphones for messages,[4] even while on the toilet.[5] There are therefore concerns that by increasing access to notifications, smartwatches might exacerbate this behavior, especially if they're considered as an extra phone screen.[6] Indeed, recent research suggests that users are just as likely to interact frequently with their smartwatches as they are with their smartphones.[7]

Is there any evidence that smartwatches have these negative impacts on users? Do they really exacerbate expectations of being online? Or are they a useful tool to keep us connected with what's important and, by obviating the need to extract and unlock our phone for every notification, actually create a sense of distance from the phone?

At University College London Interaction Centre (UCLIC), we've investigated the use of smartwatches for communications—including email notifications, social media, and text messaging—across different studies[8,9] to understand whether users perceive them to be more like digital handcuffs that increase information overload and aggravate the work–life challenge or magic bracelets that help ward off distractions from other devices.

Smartwatches as Digital Handcuffs

A common assumption among nonusers is that smartwatches make the wearer more readily available. For example, a colleague sent a message to one of our study participants while they were both in a meeting with a client reminding him to mention something, thus capitalizing on the participant's ability to receive the notification in a subtle way.

This assumption can have negative consequences when there's a mismatch between users' and nonusers' mental models of how a smartwatch is used. In another example from one of our studies, a nonuser expected a prompt reply to a trivial message ("I know you have this watch and you see my message!") without even considering whether the wearer had enabled notifications from that channel or was even wearing the watch at the time. This instance suggests that mental models associated with smartphones are transferred to the smartwatch, despite being different devices with only some functionalities in common.

The degree to which one is tethered to smartwatch technology therefore depends on other people as well as the user. Even with careful management of device availability—for example, by not wearing it or disabling certain notifications—there's always the risk of it being a source of distraction if the user succumbs to nonusers' expectations.

Smartwatches can distract not only the wearer but also others in the vicinity. When receiving notifications, study participants were occasionally asked by friends or colleagues what was happening. Some silenced or hid their device in response to curious glances from bystanders who noticed a notification, and one participant even stopped wearing a smartwatch at work precisely because he didn't want others to read his messages.

These reactions could be a novelty effect that wears off in time as smartwatches become more popular. However, in an environment already permeated with digital distractions, their continuous presence on the wrist combined with societal expectations of ready availability and responsiveness could leave users feeling handcuffed by the technology (see Figure 1a).

Figure 1. Contrasting conceptions of the impact of smartwatch usage. Smartwatches can make us feel handcuffed to our phone through their continuous physical presence and societal expectations of ready availability and responsiveness (left), but they can also serve as "magic bracelets" that deflect information bombarding us from the online world (right).

Smartwatches as Magic Bracelets

Our study participants also found many benefits in using a smartwatch. Smartphones often bombard us with notifications from communication and social media apps, general software updates, and games. Much like Wonder Woman's bullet-deflecting magic bracelets, the smartwatch can serve as a microboundary device[10] that shields us from this bombardment and therefore gives us a greater feeling of control over our digital lives (see Figure 1b).

A major advantage of smart wearables is that they keep us up to date with messages with minimal disruption to our current task. In an instant we can see who a message is from and the gist of that message, and decide whether to respond. This enables us to stay meaningfully connected to others without being

trapped in the online world.

Smartwatches extend this ability by ensuring swift notification of only priority messages from smartphones—whether from a particular app (for example, WhatsApp if only used for communicating with family members) or specific people regardless of channel. In our studies, we observed that participants either relied on automated settings to enable and disable notifications (such as muting the smartwatch at night) or manually enforced rules to receive more contextualized notifications (such as turning alerts off when dining out with friends).

Rather than exacerbating responsiveness, we found that smartwatch use elicits slower responses to nonurgent notifications because the burden of pulling out the phone and unlocking it isn't justified. This selective responsiveness across devices helps users align their behavior to their values (for example, not being constantly available), such as delaying a reply to a more appropriate time. Our findings are supported by a quantitative study of smartwatch use, which found that wearers had fewer unprompted interactions than with smartphones.[7]

Some study participants also valued the opportunity to read messages on their smartwatches, without sending the other person awareness cues[11] such as read receipts or notices showing when they were last online. Apps like WhatsApp or Facebook Messenger automatically enable these cues to create the illusion of having real-time conversations, but from the user's perspective, noted one participant, they can serve as "added pressure." "If you don't reply to [messages from other users], that's a bad thing to do socially," he added. By escaping these features—but still making the user aware of incoming messages—smartwatches mitigate the compulsion to reply straight away and thus help avoid potential social faux pas. As one participant put it, "so (laughing) you can read the message without them seeing that you've seen it so then they don't feel offended that you are ignoring them. [So I can reply] when it's convenient for me, rather than [feeling pressured]."

For some users, the smartwatch's physical form affords a way to quickly and easily disconnect from all the devices that keep them online—simply take them off. For example, one study participant who had notifications enabled on his smartwatch for all work and personal emails welcomed the distractions throughout the day. Asked whether he minded having his wrist buzz constantly, he replied, "I was a bit worried, as was my wife, that it might be more of a distractor—but actually I think it's less." He explained that the moment he stepped foot at home in the evening, he took off his Moto360, turned off the Bluetooth connection, and started charging the phone. "The minute I come in the door I'm done with it," he said. Physically removing the device appears to have been an important part of mentally disconnecting from work for the evening.

More Pros Than Cons

Digital technology is often criticized for creating an always-online culture that distracts us from meaningful face-to-face interactions and further blurs work–life boundaries. Yet the sheer popularity of mobile devices suggests that, on balance, users perceive more pros than cons to their use. Despite misgivings popularized by the media, our research has found that, although smartwatches bring some new challenges, overall the negatives are outweighed by the benefits they bring in terms of helping people to manage their availability and responsiveness.

It's important to move beyond thinking of the smartwatch as only an extra phone screen and recognize that it can be a powerful tool to reduce the time we spend on other devices while minimizing FOMO. Our findings suggest that smartwatches let people feel more in control of their digital lives, and might even help curb mobile addiction by creating some distance between users and their phone. Smartwatch notifications are minimally disruptive, enabling users engaged in a conversation or task to determine with a quick glance at their wrist whether something is worthy of their immediate attention without having to dig their phone out of their pocket or a bag.

To answer our original question, we argue that smartwatches are more like magic bracelets than digital handcuffs—or at least they can be, if developers appreciate their potential to keep us in touch with what really matters to us and less distracted by trivia.

Looking ahead, smartwatches are likely going to become standalone input and output devices that connect to ever-growing ecologies of devices[12]—what Gregory Abowd calls "shrouds."[13] They'll serve as an

extension not only to our phone, but to any device we own or control, including Internet of Things devices in our homes and workspaces.

To avoid becoming digital handcuffs, smartwatches must be more than just wrist phones. They must be flexible enough to adapt in form and function to various needs and desires. Modular smartwatches, such as BLOCKS (www.chooseblocks.com), are already being developed, and it's easy to foresee next-generation smartwatches with many interchangeable components to accommodate different user lifestyles and requirements.

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