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ON THE IMPORTANCE AND IMPLICATIONS OF STUDYING TECHNOLOGY NON-USE

Authors:
Eric Baumer, Jenna Burrell, Morgan Ames, Jed Brubaker, Paul Dourish

Quit Facebook Day. Paraguayan children indifferent to their OLPC XO laptop. Digitally disconnected residents of Sub-Saharan Africa. Facebook pages of the deceased.

Each of these in some way draws attention to technology non-use. While researchers have explored questions around non-use for some time [1,2], the dominant discourse in HCI still focuses primarily on technology users. However, non-use and other forms of technological relationships not only are becoming increasingly common but in fact also pervade numerous areas of work in HCI. So what do deceased Facebook users have in common with children in Paraguay who could care less about their XO laptops?

Insights

→ Non-use goes beyond the absence of technology.

→ Use and non-use are not binary opposites but represent different configurations of sociotechnical practice.

→ Studying these sociotechnical configurations opens up central questions around "the user" in HCI.

To explore this question, we convened a workshop at ACM's CHI 2014 conference. The participants included 22 individuals from departments and schools of information, communication, computer science, media studies, and other areas.

Here, the workshop organizers reflect on key topics, themes, and questions raised by participants, discussing how they might provide feedback to the broader HCI community. Thus, rather than being a strict summary or report of the workshop, this article serves two purposes. First, it provides a sense for the scope and variety of research being conducted related to non-use, drawing in part on examples from workshop participants. Second, it draws inspiration from discussions that occurred during the workshop to suggest some possible broader implications of, as well as important future directions for, work in this area.

The Definition(s) of Technology Non-Use

What actually constitutes technology non-use can become a deceptively complex question. Non-use could be understood as the absence of action and, as such, may not be amenable to study through methods traditionally used to study participants' actions. For example, drawing on ideas from ethnomethodology, Jeffrey Treem [3] argues that technology non-use is not observable-reportable in the same way that use is. As a result, he suggests, we need novel, fundamentally different approaches to study non-use.

In contrast, Jonathan Lukens's study of visual artists who avoid using tools such as Photoshop for specific portions of their work demonstrates how non-use can require as much, if not more, conscious, deliberate, effortful action as technology use does. In this

way, while non-use is often understood as the absence of a phenomenon or practice, something else likely exists in place of use, and it is *that* something we should be studying.

In practice, though, non-use is often not as absolute as the term may suggest. Rarely does there exist a binary or dichotomous distinction between use and non-use—after all, both Sally Wyatt's seminal work on the topic [2] and Christine Satchell and Paul Dourish [1] describe different types of non-use. Lindsay Ems's research highlights that even individuals or groups famous for non-use, such as the Amish, do not avoid information and communication technologies entirely, but rather selectively take them up, mediated by cultural norms and religious values.

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In this vein, non-use could be understood not as an identity, where a given individual is either a user or a non-user, but rather as a continually negotiated practice. For example, Alex Leavitt's work studying situational non-use of Google Glass points to the moment-to-moment negotiations, often around privacy, between the Glass wearer and others about when and how the technology should (and should not) be used. Thus, a given individual is neither a user nor a non-user, but rather constantly (re) negotiates dis/engagement with the technology. Here, non-use (the verb) is more apt than non-user.

A practice-based approach allows us to broaden the scope of what may fall under the analytical purview of non-use. At different times, the non-used thing may be a technology, a service, an application, a platform, a communication medium, a set of practices, a set of value commitments, or some combination thereof. For example, Courtney Loder describes how individuals concerned about surveillance of electronic communication but unwilling to forgo such media entirely use encryption and obfuscation strategies to negotiate their use of technologies such as email. This negotiated use—opting out of surveillance by adopting additional technologies—highlights the complicated and contingent nature that non-use may take on.

These discussions suggest that there may be a better term than *non-use* that could provide a more nuanced conceptual vocabulary for grappling with these issues. Instead of clear typologies, might we develop accounts of varied technological engagement that are less categorical and more fluid in nature? Questions around the definition and scope of *non-use* also pointed to the ways in which it is often defined vis-à-vis *use*, that users and non-users mutually constitute one another. In this and other ways, discussions of non-users often draw to the fore questions about users.

Users, Agency, and Control

Only two professions refer to their clients as users: designers and drug dealers. It is perhaps not surprising, then, that some of the language used to describe technology (non)use draws on that of substance abuse, indulgence, and addiction. In an examination of Twitter, for instance, Sarita Yardi Schoenebeck points out that from 2009 to 2011, Twitter and Facebook edged out chocolate and alcohol as the two things most often given up during the Christian period of Lent.

The possibility of addiction, or at least of limited self-control, brings up questions of agency in (non)use. In addition to whether non-use represents activity or inactivity, we may question whether forms of non-use represent the exercise of agency or the giving up of agency. Erin Brady et al. discuss a similar structural limitation where non-use of assistive technologies designed for the visually impaired arose in part from a lack of information but also in part from a lack of access. Such individuals have not chosen to forgo use of a particular technology but never had (the agency to make) the choice in the first place. In a related vein, Ethan Plaut described the Freedom application, which deactivates a computer's Internet connection for set periods of time to encourage productivity. At some times, the app was seen as enabling freedom from the temptations of social media, but at other times, it was seen as hindering one's freedom to use the Internet.

Questions of agency and control also emerged in discussions of (the controversy around) the mobile application Girls Around Me (http://girlsaround.me/), which fuses data from Foursquare and Facebook to show the user information (full name, relationship status, photos, etc.) about women and, optionally, men who are currently nearby. Should the people whose information is displayed in the application be seen as users or non-users? Similar questions arise elsewhere. Could the deceased be considered users of their social media accounts? Should they? Mel Gregg raised the example of machines used to milk cows on industrial dairy farms. Would we or could we ever see the cows as users? Just as we recognize that non-use may be non-volitional, we must also consider the possibility of non-volitional use.

Rethinking the User

Cases like these point to opportunities for studies of technology non-use in its various forms to serve as a useful analytic lever for unpacking and deconstructing the notion of user. Early HCI work, Padma Chirumamilla points out, originally crafted the user as a way of describing a wished-for, but as of then nonexistent, audience. If we recognize the user as aspirational but incomplete, how might we conceptualize the various forms of non-user? And if our practice-based approach renders the terms *user* and *non-user* equally unsatisfying, what alternatives might we consider?

Our discussions suggested that *user* often masks one or more other potentially more descriptive terms, such as *fan, player, client, audience, patient, customer, employee, hacker, prosumer, conscript, administrator*, and so on. Not only does each of these terms provide an opportunity to rethink the specificities of the user, it also allows for considering more fully what we mean by non-use in different contexts. For some of these terms, though, the *non* prefix seems ill-suited. *Non-hackers*? *Non-players*? Perhaps, despite its issues, the term *user* does retain at least some utility in certain contexts.

Similarly, one might ask: When does non-use even become a question? Sociologically speaking, non-use obtains visibility or salience when the diffusion of a technology crosses some threshold of ubiquity, at which point non-use becomes the exception and thus notably conspicuous. For example, Claude Fischer describes both when and how a

telephone, or a lack thereof, became an indicator of household poverty [4]. Gregg compares this threshold to Adrienne Rich's notion of compulsory heterosexuality [5] in considering ramifications of the default assumption of technology use and users.

This leads us to question when and why non-use becomes interesting to us as researchers. One aspect deals with the complexity of the technology and the forms of literacy necessary to operate it. General-purpose technologies intended for non-specialists may give rise to more interesting cases of non-use than technologies that are used as part of a professional trade and require specialist knowledge. For example, would you find it more interesting to discover that a colleague was a hammer non-user or a Zamboni non-user? In general, why in the case of certain technologies does it make less sense to talk about non-use?

Beyond Individuals

Such questions move us beyond discussions of non-user as an individual (identity or practice) to exploring the sociality of non-use. Indeed, communitarian approaches can sometimes help upend traditional assumptions about certain groups' technology use. For example, Rachel Magee et al. describe how many people assume a "digital natives" narrative about teen technology use. In contrast, their work takes an ecological approach to show how teens' non/use does not hinge on individual technologies but rather is often positioned in relation to a complex array of devices and systems. Conversely, Ems's work shows how the Amish do not eschew all technology but rather negotiate as a community how the non/use of various technologies intersects with their religious values and cultural norms.

In many ways, the terms *user* and *non-user* imply a rational, coherent, and firmly bounded self that may not align well with these sociocultural considerations. It was noted that most of the workshop participants pursued a standard pattern of actor-centric study, for example, by conducting interviews with, or surveys of, non-users. Plaut offered another way of approaching the methodological challenges of studying a non-phenomenon by tracing the many manifestations of a particular technology of non-use, such as the Swear Jar.

This move to transcend analysis of individuals also draws attention to some broader concerns. For example, when asked to list the technologies in their home, very few (first world) householders will mention electricity, despite its pervasiveness. As a point of contrast, Jenna Burrell notes that in her fieldwork in Ghana, informants would routinely point to any device plugged into an electrical outlet, from televisions and stereos to refrigerators and kitchen blenders, as instances of technology. Would it be possible, then, to be a non-user of electricity? It might be technically feasible to live "off the grid" and not rely on municipal sources of electricity, but being a complete non-user of any item that required electricity in manufacture, transportation, or even use seems quite difficult. A similar line of reasoning was raised about the possibility or feasibility of being a non-user of the economy. Such questions move beyond thinking about the non-user as an individual and instead take into account a larger sociotechnical milieu.

In a related vein, non-use can also provide new ways to account for the rhetoric of technological development. Some in the workshop pointed to the framing, common in many Silicon Valley narratives, of (information and communication) technology as a panacea that can solve virtually any problem and improve quality of life for virtually any person. Non-use could provide a counter-narrative to that technological panacea—that there are times when not using a technology may in fact be desirable. Some recent commentary has drawn attention to this point, arguing that voluntary technological disconnection often is done largely in the service of "recharging" to enable more effective subsequent reconnection [6].

In many ways, the differences between these two narratives are reminiscent of the "digital imperative" [7] that technological adoption and proliferation is not only desirable but unavoidable. Studying non-use can problematize this imperative, calling into question the fundamental premise of both the value and the unavoidability of such technologies. In some ways, this critique may also apply to the narrative of the digital divide, that unequal distribution of technology creates haves and have-nots, and that the best way of ameliorating such inequalities is greater technological saturation and penetration. What if, however, those who do not use a technology do so not from a lack of opportunity but rather from a lack of desire? What if certain individuals or groups prefer to stay on the far side of the digital divide?

These tensions bring us back to the matter of agency in non-use. In line with much current research, the workshop papers and discussion tended to emphasize contexts where technology use represented a path of least resistance that non-users consciously and intentionally negotiated. Involuntary non-use was much less present but is just as important: As Wyatt exclaimed, "There is still a digital divide, people!" Perhaps placing these rich accounts of negotiated and considered non-use, often as a response to a state of too much connectivity, in conversation with forms of involuntary exclusion from technology use can help to progress and evolve the conversation beyond current ways of framing or understanding digital divides.

Finally, what is the symptomatology of non-use? That is, of what underlying condition is non-use symptomatic? This question might be approached in (at least) two ways. First, we can ask why various forms of non-use occur as social practices. Here, one might argue that cycles of non-use and overuse [8] are symptomatic of a broader lack of ability to control the information flows in which one is involved. Second, we might ask of what underlying academic condition is our scholarly interest in non-use symptomatic? In some

ways, this is a question about why this workshop was held and its implications for the field more broadly.

Conclusion

Ultimately, a number of workshop participants wondered aloud whether we were discussing the same phenomenon under the banner of non-use or rather a collection of disparate phenomena. Are these different cases of non-use so far-flung that they should be treated independently, or can they be seen as separate instances of a broader category of sociotechnical practice?

On the one hand, meditating Buddhists, the visually impaired, the digitally excluded, the Amish, and disconnecting teens may each have (perhaps drastically) disparate motivations for and practices of non-use. On the other hand, we suggest that the analytic concepts described above—communitarian aspects, rhetorical analyses, ecological approaches, and so on—suggest that work in each of these areas can benefit from mutual engagement. Such work may find common ground in developing a critical language that problematizes use, users, and the inevitability of technology spread. Furthermore, the questions raised earlier—about agency, the digital imperative, the constitution of "the user," and others—suggest paths for future contributions. Studying non-use in its various forms can help us reconsider foundational questions about what we mean when we talk about use and users in studying human-computer interaction and sociotechnical systems.

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Authors

Eric P. S. Baumer is a research associate at Cornell University. His research involves designing technologies to foster critical and reflective thinking, as well as leveraging the interplay among use(rs) and non-use(rs) to expose normative beliefs around the roles technology does and should play in society. ericpsb@cornell.edu

Jenna Burrell is a professor in the School of Information at UC Berkeley. Her interests include theories of materiality, user agency, transnationalism, post-colonial relations, digital representation, and especially the appropriation of ICTs by individuals and groups on the African continent. jenna@ischool.berkeley.edu

Morgan G. Ames is a postdoctoral scholar at UC Irvine. She has examined the cultural history and the on-the-ground "use" (and non-use) of the One Laptop Per Child project. She has also explored non-use and techno-resistant identities among families of diverse socioeconomic levels and among college students. morganya@stanford.edu

Jed R. Brubaker is a Ph.D. candidate at UC Irvine. He has studied non-use resulting from technology abandonment as well as the death of social media users, and is researching the relationships between individuals and systems in the co-performance of "use." jed.brubaker@uci.edu

Paul Dourish is a member of the CHI Academy and professor of Informatics at UC Irvine, with courtesy appointments in computer science and anthropology. His research focuses on understanding information technology as a site of social and cultural production. jpd@ics.uci.edu

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