

HCI and the Community of Non-Users

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Abstract. HCI's success as a discipline is based on its ability of dealing with the problems, desires and requirements of technology users. Through its turn to user experience, the community was able to create products whose use is pleasant and exciting. There are, however, design contexts where the corresponding focus on fostering use might be in need of a complementing perspective.

During the last couple of years, the topic of technology *non-use* has appeared within the scope of HCI. Within this text, we will explore how these recent conceptualisations and analyses can be employed in order to turn non-use into a design resource. We do so by discussing them in the context of a concrete development project aimed at creating interactive technology for exhibition contexts.

Keywords: Non-Use, HCI, prototyping, interdisciplinarity, cultural informatics, critical technical practice

1 Introduction

Recently, phenomena of non-use have received an increasing amount of attention from the HCI community [1–3]. These approaches typically focus on analysing, describing and problematising phenomena involving technology eschewal. Non-use is seen as a novel concept within the intellectual landscape of HCI, traditionally preoccupied with describing and designing for contexts of use. Consequently, existing approaches try to elucidate the complexity of reasons and behavioural dynamics underlying observed or anticipated patterns of non-use [4].

1.1 Designing for Non-Use

Building on and extending these frameworks, we provide a discussion of how to employ non-use as a *design resource*. Our approach wants to build on the realisation that the implicit focus on technology use is not adequate in every design context. As an example, when creating an interactive museum guide, apart from creating a pleasant user experience, it also is of paramount importance to create a device that users are willing to put away when engaging with actual

exhibits. Otherwise, the rich experiential structure of the museum environment is eclipsed by attention consuming technological elements.

Our discussion bases itself on material semiotics as formulated by Bruno Latour. As explicated by Fuchsberger et al. [3], Latour's Actor-Network theory can be employed in order to provide concise descriptions of phenomena of non-use.

2 Conceptual Apparatus

2.1 Programs and Antiprograms

Latour's theory provides an elegant mode of description through the concept of an *antiprogram* [5]. The notion of programs and antiprograms as discussed by Fuchsberger et al. [3] provides the key element for conceptualising non-use as design goal. The framework is applied in order to pursue the following goal: Creating an ensemble of programs and antiprograms that engender use when desired and non-use otherwise. The strategy of individual technological elements is that of ultimately replacing itself with a non-technological node. This entails presence of adequate antiprograms targeted at prolonged technology use.

It has to be stressed how the simple juxtaposition of program and antiprogram provides for a relatively simple instance of translation. The 'fight' between two programs marks the simplest conceivable form of translation in the presence of multiple programs. In the future experiments with 'higher dimensional' program translation diagrams are planned.

3 (Non-)Use and HCI

Within the discussed conceptual frame, dynamic interplay between programs and antiprograms constitutes a consistent phenomenon. An analysis of a familiar scenario using the concepts outlined might thus serve to elucidate the approach.

3.1 Smartphones / Laptops

Smartphones accompany most of their users every day, intermittently being used and put away. Within the conceptual frame outlined, this dynamic has to be framed within the language of programs and antiprograms. The question thus becomes: How do smart-phones do it? How do they allow us to put them away? The environment supplies the antiprograms. An antiprogram might be supplied by a leather case, designed to accommodate the phone.

We thus are left with two conflicting programs, the touchscreen's program of binding fingers as well as the case's program of containing the phone breaking the connection between touchscreen and skin. Both cannot be active at the same time.

An analogous case is that of a laptop computer and an accompanying bag.

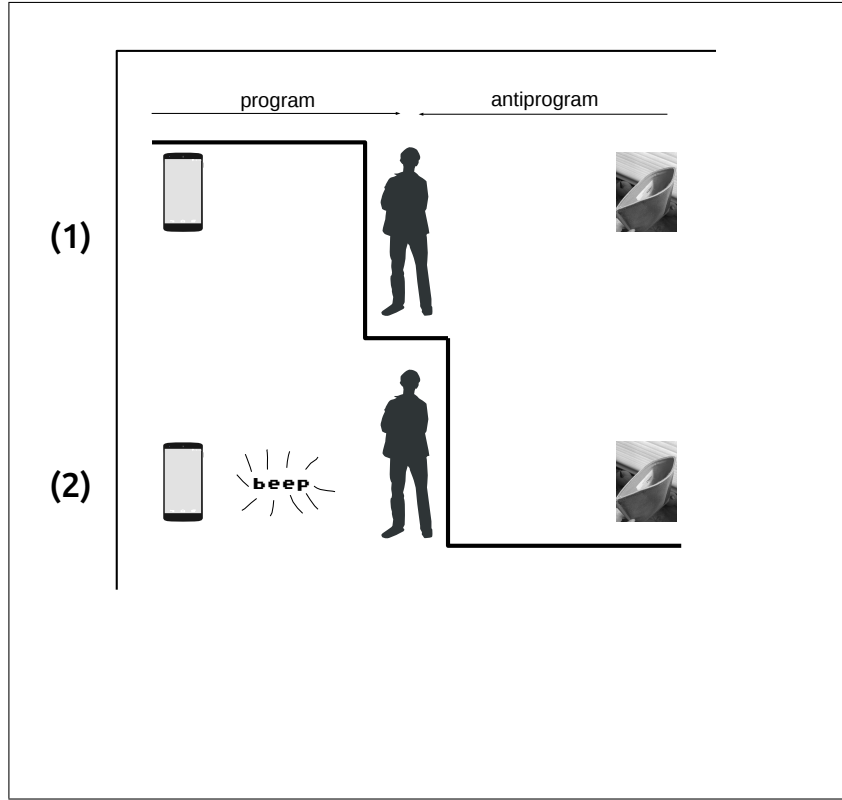


Fig. 1. Smartphone and smartphone-case - programs and antiprograms

The resulting dynamic is depicted in figure 3.1. Following Fuchsberger et. al.'s approach, Latour's original mode of visual presentation [5] is adapted. The analysis deals with a single user and the possible patterns of use and non use. In situation (1) the smartphone remains within its case, the antiprogram being more successful than the program. Adding an auditive signal to the smartphone's statement strengthens the program in a manner prompting the power dynamics within the controversy to shift (2). The dividing line consequently crosses the human body, turning the previous non-user into user.

In practice, this set of programs is rendered meaningful in the context of another program such as writing an article, sending a message to a physically distant person, reading the news.

Hence, what demands analysis is the interplay of programs and antiprograms within concrete situations of (non-)use. Within the examples provided, designed artefacts purposefully provided this dynamic, thus forming a system of artefact-bound programs.

3.2 Systematicity

The problem of systematicity is by no means new to the design discourse [6, 7]. Integrative design, modularity [8, 9] all point towards the importance of systemic approaches.

Foldable colanders, scabbards, collapsible batons all attest to the necessity of non-use. Within the realm of digital artefacts however, the discussion appears to remain in a nascent stage. Here the problem poses itself differently - achieving a problem that draws the attention from users through the space, causing them to disengage from digital devices.

3.3 Interactive Installation

Following discussion of introductory scenarios, a more complex example is analysed. The interactive installation PRMD was developed in order to explore the relationship between interactive narrative, user-generated content and biographical content [10]. It was developed using a blend of design and social research methodologies [11, 12], gradually becoming part of a system of interactive objects aimed at exhibition spaces [13]. The wider project context provides inspiration in the form of artefact designs [14] as well as design knowledge [15, 16].

The installation consists of a projection screen, situated next to an interactive zone tracked via motion sensors. The interaction area is marked by red carpets, thereby directing users' movements. Interaction dynamics proved to be based on the interplay between active users of the artefact and what was perceived as an audience, watching users perform on the stage. Hence, in order to sustain its mode of operation, the artefact has to produce performers as well as bystanders. An analysis of the artefact is outlined in (figure 3.3).

The analysis demonstrates a crucial aspect: Design of interactive artefacts is not solely about strengthening their programs. While shiny, 'irresistible' artefacts will unquestionably bind people's attention, they might fail at fitting into the envisaged situational assembly.

Of course a mere analysis according to Latour's AND dimension will prove to be inadequate. It is not a mere linear sequence of symbols that substantiates the program. Their relative position also matters, that what might be called grammar.

More importantly, program and antiprogram have to relate in a specific way in order to produce the desired effects. The artefact has to partition the set of human bodies within the exhibition space into a pair of users, an audience and a set of non-users. Failing to do so causes the artefacts interaction logic to fail.

Additionally, non-use does not constitute a uniform phenomenon. While selective strengthening of antiprograms is also an important design goal, this must not occur indiscriminately. For the artefact to act like a stage, it has to produce an audience.

In any case, Latour's original analysis followed a specific strategic-epistemological goal. Thus, in various respects our analysis has left the frame of the original analysis. This might indeed be congruent with the basic tenets of Latour's position:

Energy has to be spent while translating the theory into a new context of application. This translation remains only partially faithful to the theory, losing some aspects, while adding others.

4 Epistemological Relations

Latour's theory has undergone quite a few epistemological shifts during its development [17, 18]. Within Fuchsberger et. al.'s text, these are juxtaposed, possibly implying that they remain inconsequential to discussion within HCI. However, Latour's shifts might not be limited to a mere substitution of terminology. In any case, when employing his theories as a communicative device within interdisciplinary contexts, discussion of epistemological and theoretical foundations seems inevitable. The proposed method of appropriation is a reflective one. While it might be most productive to allow for gracious glossing over [16] of captious terminological distinctions, scholars should remain aware of underlying epistemological contradictions.

Within the cases discussed the project context demanded a certain amount of reflexivity. As social researchers were well versed in Latour's theories, the ingenuous modes of theorising employed by computer professionals had to be amended. Especially valuable for the discussion process were the perspectives of Mayring and Metcalfe.

Metcalfe argues for the possibility of what he calls the 'Ironist View' [19]. The belief that conflicting perspectives can be valid at the same time.

Mayring on the other hand, argues for the need of establishing syntheses[20].

Within both positions, acknowledging the respective implications and limitations of knowledge claims is key.

In effect, a more reflective claim might be more appropriate. Possibly the positions outlined constitute a 'productive misreading' or a disloyal appropriation of Latour's positions. This need not lead to fatal problems as long as researchers remain aware of the phenomenon. Consequently, future claims might be framed in a way designating them as theory-methods packages inspired by (among others) Latour's theories.

In a similar vein, the notion of the *boundary object* might be employed [21]. However, the scope of the concept of boundary objects might itself have its limits [22]. Any negotiation of the status of boundary objects has to decide if it wants to extend or limit the concept of boundary object in relation to the phenomena at hand.

5 Related Work

A large quantity of non-use discourse deals with the topic of social media. Exemplary analyses explore the reasons for not using platforms such as Facebook [23, 24]. The disappearance of technology has been a central topic within the project of 'Ubiquitous Computing' [25, 26]. Here the focus is not on non-use as such,

instead the degree of attention consumed by technology is lowered. Technology eventually becomes an invisible, tacit aspect of human life.

6 Discussion

Scenario Writing The implicit focus on use translates itself into everyday design activities such as scenario writing. Usually, stories focus on use of a specific artefact. The aspect how individuals start their non-use of a designed thing receives a far more modest amount of attention.

When dealing with culturally complex design projects this focus might prove to be thoroughly unhelpful. If only a fraction of people actually use a specific product, telling the story from the perspective of the community of non-users becomes essential.

Conflicts of interest certainly can arise. Putting non-users at a disadvantage can further adoption of a particular product or service. In a case like that the non-users perspective gains even more importance: Developers try to render it as miserable as possible.

Design for Non-Use in Complex Environments Within the museum a multitude of artefacts is present at once, providing for a countless array of programs and antiprograms. Few dedicated 'sheaths' are available, non-use of one artefact blends in with use of another.

Usually, a designer does only control a small fraction of the environment. Consequently, she must be careful to take existing programs into account when designing those parts she *has* control over. In effect, a system of artefacts acts as facilitator and filter, increasing the likelihood of certain patterns, lowering that of others.

The janiform role of complexity in interaction has been acknowledged in the design community [27]. As is so often the case with design problems, their nature prohibits specification of ready-made solutions or uniform methodologies.

Limitations The perspective remains inherently artefact centric. Derthik [28] points to this problematic in her analysis of facebook non-users. The text discusses how their analysis as non-users prohibits an adequate description of their motivations.

Implications for User-Experience User Experience also extends into the realm of non-use. This has long been acknowledged on the level of design, by creating artefacts that continue to provide value while not being used. E.g. a notebook that looks beautiful while sitting in a shelf.

Following Fuchsberger et. al., one could refer to the *Non-User-Experience* as essential design concern. In a similar vein, the programme of slow-technology [29] is geared towards unobtrusive artefacts. Drawing on these positions one can envision an environment where artefacts do not compete for potential user's attention, instead lending themselves to programmes such as aesthetic education.

After providing the analysis of non-use as a design resource, we proceed by discussing some of the wider implications of the phenomenon of non-use.

Interdisciplinarity The perspective of non-use carries implications for the development context of digital artefacts as well. Colleagues from other disciplines can be construed as non-users of disciplinary artefacts: The social scientist as IDE non-user, the programmer as ethnography non-user. The dimension of non-use at work in these cases are more likely to be categorised as deliberate long term non-use.

Responsibility / Conclusion Whatever we are designing, the concerns of non-users will almost always outweigh those of users. This is especially true in the context of sustainability. When creating genetically modified plants, the implications for non-users might be much more complex and much more severe than for product developers and users. As Fuchsberger et. al. point out[3], the phenomenon of involuntary non-use deserves attention in its own right.

Against this backdrop, the question of transforming non-use into a positive design resource gains a new level of importance. The described practice of program/antiprogram diagramming might provide a first step into this direction. It thus seeks to align itself with future efforts of makers and scholars seeking to tap into the long neglected resources of non-use.

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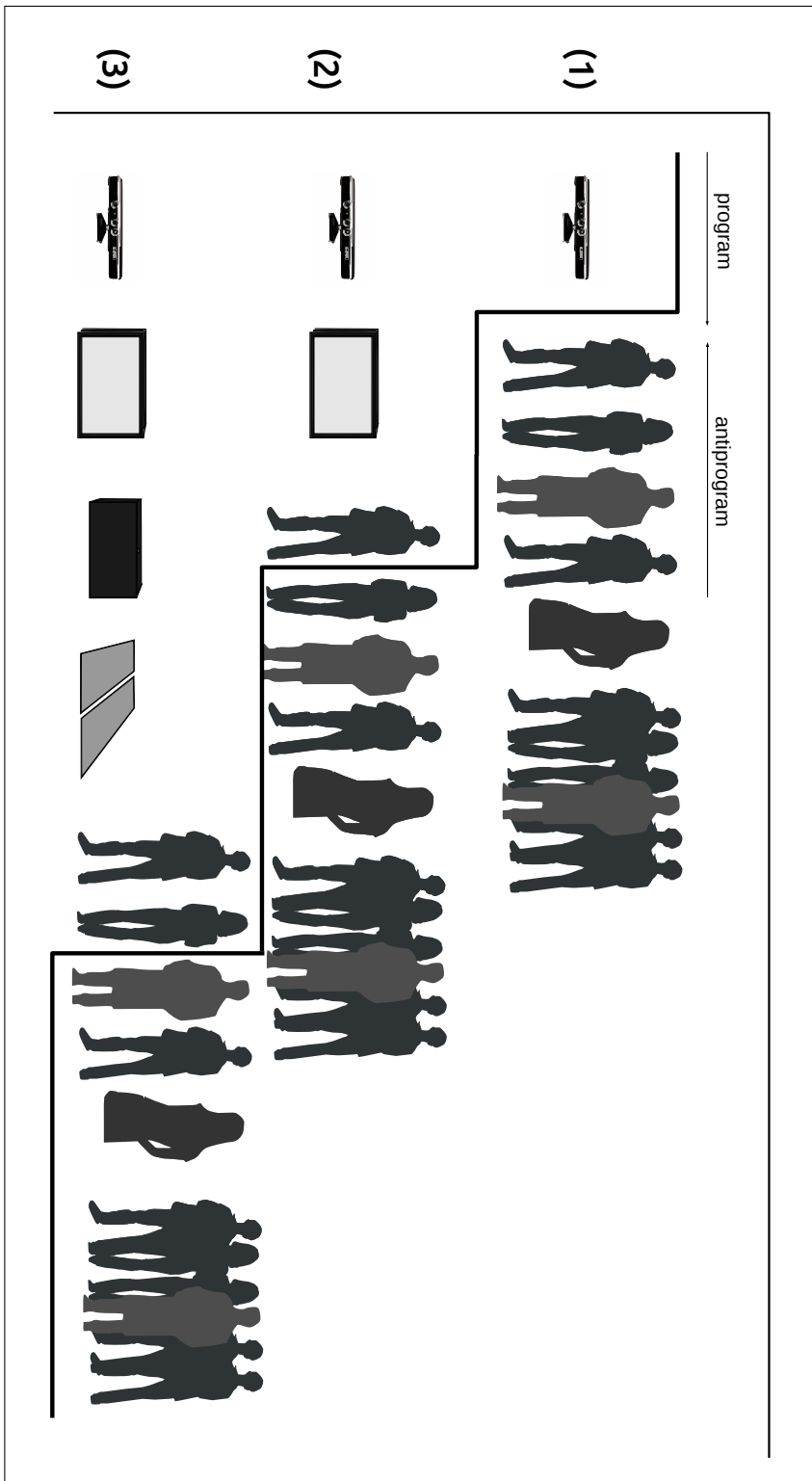


Fig. 2. Interactive installation - programs and antiprograms