Conflict Minerals: Articulating Cultural and Societal Issues by Analyzing through a Critical Design Perspective

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ABSTRACT
This paper will provide insights on how to articulate and highlight societal and cultural issues by using a critical design perspective. This will be done through a comparative analysis of the artifacts iPhone 4CF, Fairphone and Phone Story, selected for the common theme of conflict minerals, which is minerals mined and sold to finance conflicts. In the analysis different strategies are utilized to show how the chosen artefacts can be examined as critical designs. Thus it is shown how different strategies such as narratives, functionality, and procedural rhetoric are used to identify how the chosen artefacts can be examined as critical designs, commenting on conflict minerals. The discussion highlights the impact chosen variations on a theme have for the knowledge-production. Had other artefacts been chosen, the focus of the resulting knowledge-production would have been different.

Author Keywords
Critical design; conflict minerals; procedural rhetoric; narrative; speculative design;

ACM Classification Keywords
H.5.m. Design: Miscellaneous

INTRODUCTION
Conflict minerals is constituted by the minerals tin, tantalum, tungsten and gold mined from conflict areas, with Congo being the most prominent example [15, 20]. These minerals finances the conflicts, which consists of breaches on human rights in the mining areas and has cost 5.4 millions of people their lives [10]. It can be difficult to track from where the minerals originate from after re-melting, which is why the minerals easily end up in consumer products and sold in the entire world. The minerals can be found in all consumer electronics, jewellery, cars etc. [10]. The crisis in the conflict areas receives little media coverage, which is why campaigns like Raise Hope for Congos number one priority is to create awareness of the crisis by e.g. inform consumers to make responsible choices when buying products [10]. The crisis of the conflict minerals and the lack of media coverage lead towards the main purpose of this paper: To explore alternative ways of articulating and highlighting a cultural, societal and ethical problem. A solution or actual campaign in order to diminish the prevalence of conflict minerals is not presented since the crisis is more complex. Rather, I explore and examine how design can tell different stories about our consumption of electronics and thus potentially create awareness of the crisis in different ways. In the following paragraphs the paper introduces critical design, a field in design research, as a framework to read and analyze a collection of selected artifacts, in order to articulate the cultural, societal and ethical problems of conflict minerals.

BACKGROUND
In Hertzian Tales Anthony Dunne wrote that the main purpose of interaction in design was user-friendliness, striving to close the gap between human and machine by designing transparent interfaces [5]. Dunne urged design research to examine new aspects of electronic objects and poeticize the gap between human and machine to promote skepticism towards the underlying values and ideas that make up our electronic surroundings [5]. Thus Dunne introduced the concept of critical design to describe design that asks questions, and highlights societal and cultural issues. In this way design can be used as a critical medium to reflect on the cultural, social, and ethical impacts of technology [5].
According to Fallman and Stolterman, critical design is a field in design exploration that asks what if?-questions through design. This domain of design research strives for provocation, critique and experimental approaches in order to reveal alternatives to the expected and traditional [9]. Design research consists of different activities: Design practice, design studies and explorative design [9]. By identifying the perspective and purpose of the analysis of the artifacts, the design activity under which the analysis belongs can be clarified. By doing so, confusion about how the artifacts should be analyzed and evaluated is being avoided, since each of the three design research activities differ from each other in perspective, purpose and tradition [9].
Bardzell, Bardzell and Stolterman have developed strategies to read critical design and thus elaborates how critical design within design research can be analyzed and evaluated [2]. The analysis of the next paragraphs is based on these strategies to

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read critical design. The strategies are: "1) Identify a unit of analysis to work from (typically a part of a whole design, such as its UI; a design considered as a finished product; or a collection of related designs). 2) Situate that unit of analysis in relation to extant conventions and norms. 3) Isolate the critical aspects of the design as a focus of thought and attention." [2] The steps are not expressing a linear proces, but are merely meant to guide and support the analytical process [2].

DESIGN PROCES

To examine how the conflict minerals crisis can be articulated through critical design, I chose three artifacts: the campaign iPhone 4CF, the smartphone Fairphone and the game Phone Story. These artefacts all shed light on the use of conflict minerals in phones and are selected for the various ways in which this theme manifests itself.

The first point in Bardzell, Bardzell and Stoltermans strategy is expressed by the selected collection of artifacts, which are related to the conflict minerals. Selected parts of the artefacts are being analyzed: The analysis of iPhone 4CF focuses on the website and not the surrounding activities of the campaign. The analysis of Fairphone focuses on the phone itself and parts of the associated website, since it is necessary for the critical analysis of the phone. The analysis of Phone Story focuses on the game itself and not the associated website.

ANALYSIS

iPhone 4cf (Conflict Free)

The design of the website associated with iPhone 4CF resembles Apples own website (see figure 1): It consists of greyish colours, same website structure as apple.com had in 2010, high definition photographs of iPhone 4 phones, which were set up almost exactly like Apples own press photographs, almost the same font, almost the same apple logo (with minor differences), almost the same header etc. The website said that Apple offered iPhone-users a free upgrade to the new iPhone 4CF if they showed up to the pre-release event the 16th of November 2010 at Fifth Avenue in the Apple Store [7]. Additionally the website said that the new phone was exactly like the original iPhone 4, but was produced without conflict minerals. The website described how Apple would lead the way for a counter movement, that strived for a conflict free world, while they hoped for increasing the awareness about the conflict in especially Congo and also get other companies to join the movement [7]. On the original Apple website advertisement for Apples other products is shown, while the iPhone 4CF website is about making the world a better place and not by buying more of Apples products. Apple is an example of one of the largest electronics companies, which is why they would have an impact on the demand of minerals for the electronic components. The strategy of the iPhone 4CF website is about weaving a narrative around a large, well-known electronics company, which is unlike the companys own way of communicating. In this way the website asks the reader: What if Apple did this? and he or she can ponder this alternative narrative that the website sets up. This strategy is a kind of design fiction, which according to Tanenbaum is defined as in the following: "Design fiction [...] uses these fictional depictions of future technology to tell a story

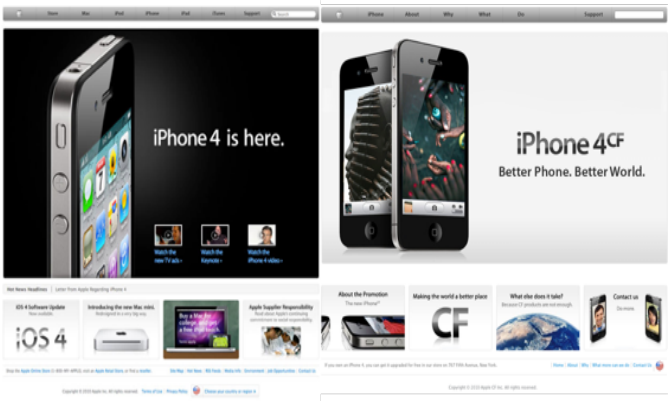

Figure 1. Apple at the left side, and iPhone 4CF at the right side.

about the world in which that technology is situated: It uses narrative structures to explore and communicate the possible futures for technology" [17].

By placing new technology in a narrative, which is the case with the iPhone 4CF, the reader is forced to consider questions about ethics, values, social perspectives, causality, politics, psychology and feelings [17]. In critical design, narratives are seen as a potential to bring the user into play as a protagonist and co-producer of narrative experiences [5]. Dunne and Raby also terms this as speculative design - that is using design as a means of speculating about how things might be [6]. Seen from a design practice perspective, we cannot actually test the mentioned object. From an explorative design perspective on the other hand, the surrounding narrative around the fictitious phone serves as a breeding ground for speculations on alternatives. Even though there is no real product it does not have to downgrade iPhone 4CF as a critical design. This strategy corresponds to Dunnes approach to critical designs functionality: It does not have to be fully functional [5]. Thus iPhone 4CF articulate conflict minerals by setting up a narrative about how Apple will take the lead in producing ethically responsible phones, which is not the case. According to Amnesty International and Global Witness as of the 24th of April 2015, Apple still does not do enough to avoid conflict minerals in their products [13]. Furthermore it is known how workers at Foxconn, which produces electronics for Apple, have committed suicide [16], and have been working under harsh conditions [19] etc.

Fairphone

The goal of a Dutch company, Fairphone, is to mobilize a movement for the production of electronics, by producing a smartphone manufactured under ethically justifiable conditions [8, 14]. By actually selling a product, Fairphone has a distinct relation between designer and customer, which characterizes the design practice perspective [9]. In this paper I choose to analyse Fairphone as a critical design and with it I am following Bardzell, Bardzell and Hansens argument: "[...] we argue that while the intentions of the objects designer are important and annotations are a good mechanism to articulate them, the critical reception of objects can be equally generative of RtDs (research through design, red.) knowledge impacts" [1]. By emphasizing that not only the intention of the

designer, but also the reception and analysis of the artifact has significance, every object can then be examined as a critical design, some more complex than others [1]. By analyzing Fairphone as a critical design the object can then generate other forms of insights, than had it been viewed as a design for use.
Since Fairphone is a fully functional design, the analysis of Fairphone as a critical design moves away from Dunnes approach to how critical design does not have to work. As a critical design Fairphone's strategy leans on DiSalvos focus on computation in critical design [4]. Since Fairphone is a functional design, that can be purchased and owned, it is not only a what if-scenario for the user. Instead, an alternative to the conventional way of producing electronics on is revealed as possible to achieve. In the combination of the functioning smartphone and the informative website, Fairphone can be examined as a critical design, that comments on what the electronics industry does not: Fairphone opens up its process and shows an alternative way of producing commercial design for use, while at the same time pointing out the rest of the industry's lack thereof.

Phone Story

The Yes Lab made the game Phone Story that informs the player about the circumstances under which a smartphone is manufactured. To win, the player has to keep the child workers working in the mine, prevent the factory workers of committing suicide, distribute phones to consumers and lastly sort toxic electronic scrap. If the player does not finish the level, the narrator ironically bursts out: "You didnt meet the goal. Dont pretend you are not complicit."
The way Phone Story is a critical design is accomplished via procedural rhetoric, that is a kind of rhetoric conducted through computational media [4]. Procedural rhetoric is a practice where processes are utilized in a convincing way. To be exact, arguments are composed through processes to convince the recipient [3]. Computer games can formulate claims on how things are connected through procedural rhetoric: "[...] video games do not simply distract or entertain with empty, meaningless content. Rather, video games can make claims about the world. [...] video games make argument with processes." [4]. To progress in the game the player ironically have to carry out exactly what the electronics companies are being criticized for: poor precautions against using conflict minerals, poor working conditions in the production of electronics, complicity in consumerism, and being complicit in the increase of dangerous electronics scrap. The sense of irony is being further enhanced if the game is played in its original version: As an app to a smartphone, by which the player then is standing with the focal point of the game in the hand. Instead of being an alternative narrative, like the strategy iPhone 4CF is using, Phone Story is using the strategy of revealing hegemony [4]. Phone Story utilizes procedural rhetoric as a mean to reveal hegemony in proportion to consumers purchases of certain electronics products. The dominating group is the electronics company, that produces products under doubtful circumstances, while the subordinate group is the consumers, that buys the products and with it is contributing to the demand and in consequence the manufacturing of the products. The social manipulation is happening through the companys alluring advertisements, while not being transparent in proportion to their production, their supply chain and that in reality it is difficult to track conflict minerals. Since Phone Story was released in 2011, there has been greater focus on the issues regarding the use of conflict minerals. However, armed conflicts are still happening in Congo, while being financed by the conflict minerals [10].

PERSPECTIVE

The three above-mentioned artefacts are, as critical designs, all examples of how a common theme of conflict minerals can be articulated. By choosing these three artifacts it was demonstrated how different approaches and strategies can manifest itself as critical design. One way of generating knowledge is through variations on a theme [1]. The artefacts can be seen as paratexts to the theme of conflict minerals and together they illustrate this paper's approach to the theme. Paratexts are contexts that shape the perception of a whole [11]. By choosing parts to focus on in the analysis of the artefacts, I shape how the whole of the individual artefacts appears. How the artefacts are analyzed as critical design is influenced by this selection of paratexts that constitutes how the individual artefact appears. The artefacts are being compared to each other in the analysis and are thus becoming paratexts to each other as a collection.
The collection of iPhone 4CF, Fairphone and Phone Story has certain common features in addition to the varying focus on conflict minerals: First and foremost the artefacts are about smartphones. Had other artefacts been selected, the collection and the understanding of the collection as a whole would have appeared differently.
The analysis identified different strategies for the three artefacts that illustrated how the artefacts were critical designs. iPhone 4CFs analysis emphasized the artefacts use of alternative fiction, a strategy supported by Dunne. The analyses of Fairphone emphasized the functionality of the artefact unlike iPhone 4CF. The analysis of Phone Story emphasized the utilization of procedural rhetoric. In each their way, the artefacts articulated conflict minerals with varying focus and perspective.
The analysis followed the argument of Bardzell, Bardzell and Hansen, who states that every object can be examined as a critical design, some more complex than others. With this argument I choose Fairphone, which otherwise usually has a distinct designer-customer relations like examinations in a design practice perspective focuses on. By analyzing Fairphone as a critical design and comparing with iPhone 4CF insight on how Fairphone is a critical design and how it plays together with other related critical designs can be gained.

Discussion

Martin Howses project Earthboot [12] focuses on the pronounced disconnection between the digital computation in conventional computers and their terrestrial foundation consisting of minerals. Had this project been a part of the collection, the generated knowledge would potentially have moved away from how companies treat their production workers to a focus on consumers disconnection with nature as the fundamental building material for our digital everyday life in

the form of computers. These disconnections leaves the consumer uncomprehending to those processes it takes to create digital computation, which could be an explanation as to why conflict minerals does not obtain much media coverage.
Another project, which focuses on this disconnection, is Thomas Thwaites Toaster Project, where Thwaites tried to build a toaster from scratch [18]. Thwaites attempted to extract the raw materials himself to build the toaster, which involved: Iron, copper, nickel, silicate and plastic. The final product did not look like a conventional toaster nor did it function and it ended up being more expensive. In other words, the final product was in contrast to a consumers normal, conventional toaster. The Toaster Project continues Earthboots argument by criticizing the process behind normal consumer products.
If the two above-mentioned artefacts had been in focus in the collection and thus had been paratexts to each other and other artefacts in the collection, the collection would have provided another form of knowledge-production from the analysis. The underlying argument of this paper for the selection of the artefacts originates in the assumption that variations on a certain theme can give insight, with focus on how the theme is articulated through critical design. In this way this paper has demonstrated how the three artefacts iPhone 4CF, Fairphone and Phone Story is and do critical design.

CONCLUSION

The selected artefacts have different common features and differences. In this way the analysis showed how conflict minerals can be articulated in different ways through a critical design perspective via the three artefacts. Had other artefacts been chosen other insights would have appeared from the analysis. Thus, the theme of conflict minerals was articulated through varying themes such as production, mining, consumerism etc. in especially smartphones, wherein the minerals are used. Regarding conflict minerals different knowledge-production from the analysis could have emerged if other artefacts had been chosen. Instead of the focus on the mining and use of conflict minerals in smartphones, a theme of how users of digital artefacts today are disconnected with nature, as the fundamental building material for our digital everyday life, might as well have been the focus in the analysis of how conflict minerals could be articulated. Being aware of how we read and analyze critical design can thus offer different knowledge-productions for the recipient.

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