Engaging with and reflecting on the materiality of digital media technologies: Repair and fair production

Sigrid Kannengießer
University of Bremen, Germany

Abstract
How do people think about and engage with the materiality of digital media technologies and thereby try to transform the devices and society? The article discusses this question by presenting the results of two qualitative studies in which people reflect on and engage with the materiality of media technologies. In the first case, the repairing of media devices in Repair Cafés was analyzed, in the second, the focus was on the production and appropriation of the Fairphone, a smartphone which should be produced under fair working conditions. In both initiatives people reflect on the materiality of media technologies, criticize the production and disposal of the devices, and engage with the materiality of the apparatuses in order to change not only the technologies but also society as a whole by contributing to sustainability and the “good life.” The article adds to the field dealing with materiality and digital media technologies.

Keywords
Digital media technologies, engagement, fair media technologies, good life, materiality, participation, repair, sustainability

Introduction
After the “material turn” (Bennett and Joyce, 2010), the scholars in media and communication studies started to emphasize the materiality of media technologies (again) (e.g. Allen-Robertson, 2015; Bruno, 2014; Gillespie et al., 2014; Goddard, 2014). But the
materiality of media in communication and media studies is still an “unfinished project” (Lievrouw, 2014), and many open questions remain. This article deals with one of the unanswered questions in the field dealing with materiality in media and communication studies: how do people engage with the materiality of digital media technologies and thereby try to transform the devices and society?

The article will discuss results of two empirical studies in which people reflect on and engage with the materiality of digital media technologies: the repairing of (digital) media technologies in Repair Cafés and the Fairphone. Repair Cafés are public events in which people repair together their broken objects of everyday life—media technologies being among those goods which are brought most often to these events. The Fairphone is a Dutch company that developed and produces a smartphone (also called Fairphone) which should be produced under fair conditions using sustainable resources. The comparison of these two cases is original. It is insightful as it reveals commonalities and differences in practices with which actors try to contribute to a sustainable society and “the good life” by reflecting on and engaging with the materiality of media technologies. In both initiatives, people criticize current processes of production and disposal of digital media technologies and engage with the devices because they want to develop alternatives. However, the cases chosen differ in their starting points as the repairing of media technologies tries to prolong the life-span of exiting media technologies while the Fairphone wants to improve the production processes of new media devices.

Discussing the empirical results of the two case studies, I will argue that we have to take into account what people do with media technologies to understand how people engage politically with and comment critically on the material dimension of digital media technologies. As the case studies show, the digital character of media technologies is an important issue for people engaging with and thinking about the materiality of media technologies.

The article is structured as follows. First, I will sketch out the relevant research literature on the materiality of media technology, with a specific focus on repair and fair media technologies. Second, I introduce the two case studies and my empirical methods. Third, I discuss the findings from my research by introducing four dimensions with which the practices and motives of people engaging with digital media technologies to contribute to sustainability and the “good life” can be grasped: criticism, alternatives, understanding, and education. In the final section, I reflect on the two initiatives’ practices and aims and point to constraints and ambivalences. Ending the article, I explain the article’s contribution to the ongoing debate on media and materiality.

Materiality of media technologies in media and communication studies

Materiality of media technologies is not a new topic in media and communication studies. Back in the 1950s and 1960s, Innis (1951) and McLuhan (1964) prompted reassessment of the material aspects of media, shifting the focus from media content to their form. But while materiality of media were only of “peripheral interest” (Quandt and von Pape, 2010: 330) for a long time, with the “material turn” (Bennett and Joyce, 2010) many scholars in media and communication studies nowadays examine the materiality of
media (e.g. Allen-Robertson, 2015; Berry, 2012; Bruno, 2014; Geiger, 2014; Gillespie et al., 2014; Goddard, 2014). Still, how people engage with the materiality of media technologies and thereby try to transform the devices and society has not yet been sufficiently answered. Only a few studies have focused on the political meanings of materiality (e.g. Lodato and DiSalvo, 2016; Marres and Lezaun, 2011). In-line with the actor-network-theory approach, Marres (2012) introduces the concept “material participation,” emphasizing the role of objects in political engagement. She takes a “device-centered perspective” (Marres, 2012: 27, 133), arguing that material participation is “a specific mode of engagement, which can be distinguished by the fact that it deliberately deploys its surroundings,” (Marres, 2012: 2).

Although the empirical findings of the case studies presented in this article stress the relevance of the materiality of media technologies when people engage with their devices, the article nevertheless follows a “non-media-centric” approach (Morley, 2009) by focusing on the people and their practices and not the devices themselves. Thereby, the case studies analyzed allow me to explore engagement with the materiality of media technologies, whereby the engagement aims at transforming society. Before describing the methods used and discussing the results of the studies comparatively, I will sketch out how materiality is acknowledged in the research fields on repair, Repair Cafés, and fair media technologies.

**Repairing and Repair Cafés**

Repair Cafés are new event formats that have spread all over Western Europe and North America within recent years, in which people meet to repair their everyday objects. Repair is defined as “the process of sustaining, managing, and repurposing technology in order to cope with attrition and regressive change” (Rosner and Turner, 2015: 59). While repairing is not a new praxis, as Stöger (2015) shows when analyzing processes of repair in pre-modern societies in Europe between the 17th and early 19th centuries, it is currently gaining new relevance in (post-)modern societies due to economic and climate crisis. Jackson (2014) introduces the concept of “broken world thinking,” demanding a shift in perspective from novelty, growth, and progress to erosion, breakdown, and decay, stressing that social change is not only caused by technological innovation but “that breakdown, dissolution, and change […] are the key themes and problems facing new media and technology scholarship today.” (Jackson, 2014: 222).

Repair and public sites of repair are mainly analyzed in technology and design studies (see, for example, articles in Houston et al., 2017). Repairing and examples of public sites of repair have been analyzed in different cultural contexts, for example, in the United States (e.g. Rosner and Turner, 2015), Paraguay (Rosner and Ames, 2014), Uganda (Houston, 2014), Namibia (Jackson et al., 2012), and Bangladesh (Ahmed et al., 2015). These studies take repairing and public sites of repair into account from different theoretical angles, stressing different aspects of the processes and phenomena perceived. Repair Cafés have also been analyzed from a figurational perspective (Kannengießer, 2018).

Acknowledging the political dimension of repair, Rosner and Ames (2014: 326) show that the initiatives of repair they analyze in California and Paraguay follow the idea of technical empowerment. In their analysis of public sites of repair in California, Rosner
and Turner (2015: 63) found out that people “try to transform the products of a mass-industrial production system into tools for personal and collective transformation”. Therefore, they describe repair as “a mode of political action” (Rosner and Turner, 2015: 64–65). Although the authors are not dealing with the materiality of media technologies, it is at this point that its relevance becomes obvious for repairing. Repairing is also discussed as an act of unconventional political participation as it is not institutionalized but aims at shaping and changing society at large (Kannengießer, 2016; 2017).

Besides these political implications of repair, its relevance for learning and education is stressed. Ahmed et al. (2015) found out in their analysis of repair markets in Bangladesh that different types of knowledge and learning take place: from explicit and tacit knowledge about repair and the objects of repair, to social knowledge about the customers. The authors (Ahmed et al., 2015: 1) argue that repair is “an underappreciated site of third-world technical practice and expertise.” Also Houston (2014) stresses the relevance of repair in developing contexts, analyzing mobile phone repair practices in Uganda.

Moreover, repair is perceived as “care of things” (Denis and Pontille, 2015) or “care for matter” (Callén and Sánchez Criado, 2015) dealing with the material fragility (Denis and Pontille, 2015: 338) or vulnerability (Callén and Sánchez Criado, 2015: 17) of objects.

In a quantitative study, Charter and Keiller (2014) found out that people’s reasons for getting involved in Repair Cafés mainly are: to encourage others to live more sustainably, to provide a valuable service to the community, and to be a part of the movement to improve product reparability and longevity (Charter and Keiller, 2014: 5). But neither is the materiality of media technologies (or other goods) acknowledged here nor is the repairing discussed as political engagement. This is where my research interest lay: I focused on people repairing (digital) media technologies in Repair Cafés, the way they engage with their devices, and the reasons for their actions. By putting the focus on people repairing media technologies and analyzing the data from the angle of materiality, this article contributes to the research field of repair and public sites of repair and examines the specific role of the materiality of media technologies in the practices and the attitudes of the actors involved. Therefore, the article also contributes to media and communication studies in general and the discourse about materiality within this field, in particular, as it underlines the political relevance of (public) repairing of media devices.

Analyzing different Repair Cafés in Germany, the study presented explores whether differences in the settings of the events and the background of the people organizing the events matter for the events themselves, the people participating, or their practices and motives. In addition, by comparing the findings of the case study involving the repairing of media technologies in Repair Cafés with production of the Fairphone, it is possible to point to similarities and differences in various practices through which people engage with and reflect on the materiality of (digital) media technologies.3

**Fair media technologies and the Fairphone**

Fairphone is a Dutch company based in Amsterdam, Netherlands, which developed a smartphone, also called Fairphone, designed to be produced under fair working conditions. The production and appropriation of fair media technologies is a research field in
which the Fairphone is the most prominent research object. It is analyzed in different disciplines. Design studies, for example, discuss the Fairphone from a “participatory design” (van der Velden, 2014) perspective and as a “critical design alternative for sustainability” (Joshi and Pargman, 2015). It is argued that the Fairphone is an example of design as political and democratic practice (van der Velden, 2014: 1), and the production of the Fairphone is described as political participation (Kannengießer, 2016).

Materials research studies the actual materiality of the Fairphone. The research emphasizes although that only few resources can actually be labeled fair, judging the smartphone as fair or not would make sense (Dießenbacher and Reller, 2016: 287). Here, the scholars of materials research point to the symbolic relevance of the Fairphone, which I will discuss below.

From an economic perspective, the Fairphone company itself is defined as a “social entrepreneur” which does not only contribute to a sustainable society but also puts media technology companies under pressure to deal with sustainability (Akemü et al., 2016; Lin-Hi and Blumberg, 2015). From a legal perspective, the Fairphone company is discussed as an example of how enterprises can act against violations of human rights in the mobile phone market (Hagemann, 2017: 67).

While these studies focus on the smartphone itself and the company, there are also studies in psychology which analyze the appropriation of the Fairphone. In an automated analysis of the online forum on the website of the company, Meier and Mäschig (2016) study the attitudes of Fairphone users. The authors point to the shortcomings of their method as they admit that a reconstruction of the perspective of the users was actually not possible in this study. My research focused on reconstructing the perspective of both the users of the Fairphone and of the company, thereby contributing to the research field by asking about the aims and motives of those actors developing and using fair media technologies and by analyzing the actual practices critically.

Sketching the research dealing with Repair Cafés and the Fairphone, it becomes apparent that the actors’ engagement with media technologies has not yet been sufficiently analyzed empirically when it comes to materiality and political engagement. Before discussing the results of my study, I will give a brief overview of the two case studies and my methodology.

**Case studies and methods**

Repair Cafés are rather new initiatives where people meet to repair their everyday objects—media technologies being the goods which are brought most often to these gatherings. While some people offer help in the repairing process without charge, others seek help in repairing their things. Repair Cafés have spread all over Western Europe and North America within the last years.4

The Fairphone is a smartphone that claims to have been produced under fair working conditions using sustainable resources. I underline that the Fairphone is supposed to be produced using sustainable resources as only four resources can actually be produced fairly and sustainably (I will come back to this).

The first generation of Fairphones came onto the market in 2013, the second one in 2015. The Fairphone is sold through a crowd-funding process: before the
smartphones are actually produced, a certain number has to be sold. The company rents production sites in Asia for the production processes. The company also produces spare parts as the Fairphone is a modular phone and is designed to be repaired. My research interest touches on both production and the appropriation of the Fairphone. I was not only interested in why the company produces the Fairphone but also why people buy and use it.

The initiatives chosen allow a rather old practice (repairing) which is experiencing new meanings and popularity to be compared with a new practice, that is, producing and appropriating fair media technologies. My primary research interest is in the practices and motives of the people involved focusing on the material dimension of media technologies.

The data presented in this article are based on qualitative methods and follows a Grounded Theory approach that makes it possible to deal with the object of study openly, and to reconstruct the actors’ perspectives (Corbin and Strauss, 2008). In the case of the Repair Cafés, participant observations took place in three different locations in Germany in 2014 and 2015.

I chose three different Repair Cafés in Germany which vary regarding their actual setting and the background of the organizers: one Repair Café was organized by university employees in a pub in Oldenburg, a small city in the North of Germany; the second one was organized by an artist in her studio in Berlin; and the third one was organized by a retired teacher in a community center in Garbsen, a small town in the North of Germany. Choosing Repair Cafés in different locations which are organized by actors from different backgrounds made it possible to show the spectrum of repair initiatives, on one hand, while enabling me to explore whether different settings and different actors influence the way Repair Cafés take place, the composition of the group of people participating, and their practices and motives for repairing.

Moreover, observations took place during a network meeting of repair initiatives in Germany organized by Anstiftung & Ertomis in Berlin. In total, 40 face-to-face interviews were conducted with organizers of Repair Cafés, individuals offering their help in repairing media technologies, and people seeking help in fixing their devices as well as with employees of the non-governmental organization (NGO) Anstiftung & Ertomis. Regarding the sample, I interviewed men as well as women from all age groups and different educational backgrounds and social classes. Interestingly, there were very few participants with a migrant background in the Repair Cafés I visited.

To analyze the production and appropriation side of the Fairphone, I conducted a qualitative content analysis of the company’s website and on social networking sites the company produces, and of six interviews which the founder of the Fairphone company, Bas van Abel, gave to German newspapers. Moreover, I conducted qualitative interviews with 12 people who own and use the Fairphone. For the sample of interviewees, I searched for people from different educational backgrounds and social classes, but mainly found academics who owned the Fairphone. While this may be an outcome of the way I looked for interview partners, I assume that the Fairphone is indeed a product that mainly academics consume (there are no surveys from the company to support or disprove this assumption). Nevertheless, the Fairphone users I interviewed were of different ages and income groups.
Also here, I did not find anybody with a migrant background. Still, both initiatives, the Repair Cafés as well as the Fairphone, are international phenomena found in many different countries (even if both are mainly Western European and North American phenomena—highly industrialized consumer societies). After collecting the data of both cases studies, I analyzed it using the three-step coding process of the Grounded Theory (Corbin and Strauss, 2008).

I will continue with my argumentation, discussing the results of the qualitative studies along four dimensions (criticism, alternatives, understanding, and education) that demonstrate how the two initiatives focused on the materiality of media technologies. The four dimensions do not occupy the same level, and yet they are a very helpful way to grasp the way civil society actors engage with the material dimension of media technologies, and try to transform the devices and society.

**Dimensions of repair and fair production regarding the materiality of media technologies**

In the context of the two case studies, the engagement with the materiality of media technologies, the practices and the motives, can be divided into four main dimensions: (1) criticism, (2) alternatives, (3) understanding, and (4) education.

Not all of the dimensions apply to both case studies in the same quality, as some are more relevant for either one of the initiatives. Furthermore, the four dimensions are not situated on the same level since some dimensions are more of a reflexive thinking process and others are concrete practices. Besides these four dimensions, there are more aspects, for example, personal attachment to the devices, saving money, which play a minor role in the data collected within the case studies, and are therefore excluded in the presentation of the results. This exclusion also makes sense because these other aspects have a minor relevance for the focus of this article, which deals with thoughts about and engagement with the materiality of media technologies.

Nevertheless, how and why people engage with the materiality of media technologies and through these practices try to transform society can be grasped through these four dimensions.

**Criticism**

In both case studies, the actors involved problematize contemporary forms of production, appropriation and disposal of media technologies, and develop alternatives to dominant media practices related to the materiality of media technologies.

Many people involved in Repair Cafés criticize the excessive consumption of media technologies and try to avoid buying new devices by prolonging the lifespan of the apparatuses they own by repairing them. The participants show a great awareness of the harmful production processes of media technologies, in which people and the environment are exploited. Many participants of Repair Cafés point to the finiteness of resources which are needed for the production of media technologies, and the exploitation of nature. Acknowledging the lack of recycling options and the need for more and more resources, one participant expresses his motivation for repairing his radio apparatus as
follows: “I think it’s a pity and a waste of resources to throw these devices away, because they then only become scrap. The material will not even be recycled.” In addition, participants refer to the disastrous working conditions under which coltan (a metallic ore needed for digital media technologies) is extracted: “I think especially the repairing of computers is important as they contain resources, because of which people in other countries die. And we should not throw these [technologies] away and buy a new iphone,” says one of the organizers of a Repair Café.

A second feature regarding the criticism of consumption is waste prevention. Many people involved in Repair Cafés try to avoid producing e-waste by repairing their devices. They oppose the circumstances on waste dumps in Ghana, for example, where people burn the broken media technologies to extract reusable resources thus damaging their health and the environment as poisonous substances end up in the soil and groundwater: “That’s the bad thing, that old media technologies are brought to disposal sites in Africa and that people there search for noble metal and this shit. That makes me sick,” voiced a 50-year-old man offering help in repairing media technologies.

In the context of Repair Cafés, the prevention of resource and production waste can at least partially be seen as a criticism of capitalism insofar as some of the actors try to break out of the capitalist ideology of consumption and the dominance of global corporations. This criticism is shared among participants throughout the Repair Cafés analyzed, irrespective of their settings and the background of the organizers. Instead, they aim to empower themselves and other people by acting on the materiality of their media technologies (through repairing) and by becoming less dependent on large tech companies.

The Fairphone company developed its fair smartphone to offer a fair alternative on the market of media technologies. On their website and on social networking sites such as Facebook, Twitter, and Instagram the company points to the harmful production and disposal processes of media devices. The company describes one of its key objectives as being to “improve consumer awareness of responsible mining […] and the connections with the electronics industries” (Fairphone, 2016b). With their criticism, the Fairphone company tries to influence the discourse on media technologies and fair consumer goods—bringing the fair trade approach into the market of media technologies.

Moreover, people using the Fairphone know from mass media reporting about the harmful production and disposal processes of media technologies, and criticize them. They are aware that many resources built into digital media technologies are extracted under circumstances which harm people and the environment. By buying a phone which promises to consist (at least partly) of fair resources, the users try to strengthen a market of fair media technologies, as one of the users stresses when explaining her reasons for buying the Fairphone: “I invest in a company which invests in the development of sustainable products and fair trade production.”

Many users, however, are aware that there are only a few actual fair resources integrated into the Fairphone. Nevertheless, people construct this smartphone to support the idea of fair media technologies and want to set a sign, and doing so provoke discussions with others about fair trade and sustainability, as one user describes it: “When I got it [the Fairphone], people asked [about it] because they were skeptical […] and then we started talking about it.”
Reassessment of the resources which are used in media technologies and the way these resources are extracted and the way media technologies are disposed of is the dominant way the materiality of media technologies is perceived by the actors involved in both initiatives. For them, these are the relevant aspects regarding the materiality of media devices—more relevant than, for example, the composition of media apparatuses. These aspects of materiality are not only the reasons for people to engage with media technologies, they also confirm their political engagement.\(^8\)

The engagement of the actors involved in both initiatives does not stop at criticizing dominant production processes of media technologies, but expands toward developing alternatives to the production and appropriation of media technologies that they criticize.

**Alternatives**

On the basis of the criticism of dominant production and disposal processes of media technologies that both initiatives express, the actors develop alternatives regarding the production and appropriation of media technologies. Participants involved in Repair Cafés practice an alternative to the consumption of media technologies by repairing broken devices. They perceive a need for the repairing of technologies because of the above-mentioned criticism of current production and disposal processes. Through prolonging the life span of existing media technologies, people not only try to avoid supporting patterns of today’s consumer society but also want to contribute to a more sustainable society and a “good life.” An organizer of a Repair Café stresses the importance of a cultural change which he perceives as necessary to establish sustainability:

> We need to have a cultural change, through which it becomes cool again and socially acceptable to walk around with technologies which have signs of use and patina, where the display has scratches or fractures and one says: “This is my good old device, I stand by this, this is my trademark.”

In his view, this cultural change can be achieved by changing consumers’ estimation of the materiality of media technologies, not only the new and fancy being valuable but also older and used devices.

In contrast to the repairing of media technologies and to prolonging the life-span of old or existing technologies, the Fairphone company has developed an innovative new media technology. The newness lies not in any new software options or design inspirations but touches on the materiality of the media technology itself, which should contain sustainable resources and enable people who produce the smartphones to work under fair conditions.

The Fairphone (2016a) company reflects on the negative effects the production of digital media technologies causes and tries to develop an alternative: “[We aim at further reducing] our environmental impact with every version of the Fairphone we produce.” The fairness is inscribed into the materiality of the media technology. By producing under fair conditions with sustainable resources extracted in conflict-free areas, the Fairphone company aims at providing an alternative on the media technology market.

Moreover, the Fairphone is produced as a modular phone which can be repaired. Thereby, the company aims at prolonging the life-span of the materiality of the digital
devices to make them more sustainable: “We’re designing the Fairphone to extend its usable lifespan, enable reuse and support safe recycling” (Fairphone, 2015b). Many customers of the Fairphone are aware of the possibility to repair the smartphone and thereby prolong the life-span of the device, and this is one of the reasons for them to buy the Fairphone, as one of the users explains the following: “I heard that there is a repair manual that exists and that one can repair some parts on one’s own. The longevity was definitely something, which made me buy [the Fairphone].”

Offering and practicing these alternatives, actors try to transform society into a sustainable one with the way they engage with the materiality of media technologies.

**Understanding**

Many actors involved in Repair Cafés and users of the Fairphone strive to understand the media technologies that they use. This understanding can, for example, be achieved by engaging with the materiality of media technologies but also by understanding where the devices come from. Actors involved in Repair Cafés, members of the Fairphone company, and users of the Fairphone are “technophile.” In Repair Cafés people—in this case mostly men—are happy to open media apparatuses, screw, glue, and clean the technologies. It is mainly the helpers who engage with the materiality of media technologies, loosening and tightening screws, getting dust out of the apparatuses by cleaning the insides very carefully with special tissues, using contact spray for electronic connections, and gluing parts which have been broken apart. Some helpers have a passion for old media such as (very) old radios or tape recorders, others find a joyful challenge in repairing new digital apparatuses. But many explain the challenges they face trying to repair new digital media technologies: often, there are no screws that can be used to open and close the devices, and no manuals on the WorldWideWeb explaining the structure and composition of apparatuses and how they might be repaired.

People come to Repair Cafés not only because they seek support in the repair process but also because they want to learn how to repair—they want to understand how the devices they use every day actually work, and they want to know the reasons for a specific malfunctioning and how this can be solved. Therefore, they ask the people offering help in Repair Cafés, observe closely what they do, and engage with the materiality of media by dismantling, reassembling and the like. All these practices are part of a learning process and lead to an enhanced understanding of how apparently complex technical devices work.

People using the Fairphone are keen to know where the media technologies they use come from. They appreciate the transparency which the Fairphone company provides regarding the supply chain of the smartphone, as one of the Fairphone users stresses the following: “[I like] the approach of transparency and also the credible communication, that they [the Fairphone company] say: ‘okay, we say what we work on, where our core areas are, what we want to improve’, this is what I liked.” Users know from mass media about the harmful production and disposal processes of media devices and actively inform themselves about these processes. Moreover, they think about their own consumption behavior and are open to alternatives. While some Fairphone users stumbled over the Fairphone as an alternative on the smartphone market, others actively sought alternatives.
Besides their knowledge of the production and disposal processes, Fairphone users are interested in engaging with their smartphones. Many bought the Fairphone because it is built as a modular phone and therefore repairable. This is not only important to the users because they can prolong the life-span of their device by repairing it but also because many are interested and enjoy opening their smartphone and exploring it.

Within the dimension of understanding, a political meaning can be stressed: only when people understand where their media technologies come from and where they go when they are disposed of, can they become politically mature consumers. Therefore, for the actors involved in both initiatives, their media production and appropriation becomes an act of empowerment as they understand the materiality of media technologies and take action.

**Education**

The drive for empowerment, which both initiatives follow, is often related to the dimension of education. A central aim of both initiatives is to share their skills, knowledge, and experience related to the materiality of media devices.

Providing education is a core ambition of the Repair Cafés’ organizers: they want people to engage with their objects, to understand their devices, and to learn how to repair them. Therefore, organizers of Repair Cafés try to build a network among people who have the relevant resources to repair and those seeking help in the repair process. The aim is to share required capacities related to repairing and by doing so to enhance people’s understanding of media technologies. At the same time, it is apparent that the organizers’ educational aim has its limitations. Repairing digital media technologies such as smartphones or notebooks does not only require particular tools but also a high level of expertise, which complicates the knowledge exchange and sometimes makes the repair process even impossible. It is the actual composition of media technologies that becomes relevant when educating people about the materiality of the devices, showing them the screws that can be opened, the electronic connections that can be cleaned, and the effects contact spray can have.

The Fairphone company also seeks to educate people. It does so first by offering a Fairphone, the name of which already provokes reflection. The company also educates using the media content it produces, for example, on its website but also the social networking sites that it uses as it gives precise information about the materiality of the smartphone, the resources which the apparatuses consist of, the production processes, and also the aim of the company. Moreover, the company runs campaigns which educate about all these aspects. Therefore, education can be defined as one of the major ambitions of the Fairphone company.

Some people using the Fairphone try to provoke discussions about fair media technologies. They use the Fairphone as a symbol and say that they are often asked by others about the phone and their motives for using it, as one of the Fairphone users puts it: “I think, that it is a good signal to buy the Fairphone: Especially because I am asked about it. […] That’s why I was able to discuss these issues.” Hence, using the Fairphone provokes discussions about fair technologies and harmful production and disposal processes of media devices in which the Fairphone users spread their knowledge.
Ambivalences and constraints within repair and fair production

When applying a critical perspective of both initiatives, there are several constraints and ambivalences that have to be acknowledged. First of all, both initiatives are situated in a societal niche within the media market. Although the number of Repair Cafés is increasing, at least in European and North American countries (in Germany, there are more than 600 initiatives registered on the website www.reparatur-initiativen.de), only a small number of people actually repair their broken media technologies.

The participants themselves point to the constraints which they face as this citation from a woman, trying to repair her television set, exemplifies: “climate change […] we need to practice what we preach, that’s why I am doing that [repairing the TV set]. This is my contribution, as far as it is possible.”

The Fairphone is also situated in a niche: the Fairphone’s market is tiny compared with the huge smartphone market of “not-fair” smartphones. Moreover, there are ambivalences regarding the aims of the actors involved in both initiatives. As already mentioned, the Fairphone is not really fair. There are only few minerals in the devices that are extracted under fair conditions. Nevertheless, the company is transparent regarding these circumstances and admits that a “100% fair phone is in fact unachievable” (Fairphone, 2015a: 2). Nevertheless, they will try to make their products more fair in future (Fairphone, 2015a: 2).

Regarding the appropriation of the Fairphone and people repairing their media devices in Repair Cafés, more ambivalences can be perceived. People stress that they repair their devices or buy repairable smartphones to contribute to sustainability and a “good life” by prolonging the life-span of their technologies. Yet, at the same time, many of those people who repair their media devices have a big media repertoire (Hasebrink and Domeyer, 2012), meaning that they own a lot of media technologies, and buy innovations frequently—which might conflict with their ambitions regarding sustainability. Not buying any media technologies would be the most sustainable way. These ambiguities also refer to the constraints of the initiatives.

The question of profit or cost is also what made the company stop producing spare parts for the first Fairphone generation in 2017, only 4 years after the first Fairphones were delivered. Therefore, this Fairphone generation is not repairable anymore. After announcing the abandoning of spare part production, the founder of the company, Bas van Abel, claimed in media interviews that durability was not the focus of the company, or the previous smartphone (Tricarico, 2017), although my analyses of the website in 2015 showed that reparability was advertised as one of the key features of the Fairphone.

Acknowledging these constraints and ambivalences, both initiatives can still be described as examples of how people engage with the materiality of media technologies with the idea of transforming society. People do not not use digital media technologies but try to develop alternative practices and technologies by engaging with the devices. Some people try to push their knowledge about the problematic aspects of the materiality of media technologies aside to still use digital media devices: “One mustn’t think about these production processes because if one does, one would not buy electronic devices anymore,” tells one participant of a Repair Café. Still, people try to change the devices and society by reflecting on and engaging with the materiality of digital apparatuses.
Discussion

In this article, Repair Cafés and the Fairphone have been analyzed as two initiatives that act on the materiality of media technologies. In both initiatives, people reflect on the materiality of media technologies, the harmful production and disposal processes of media apparatuses, the resources media devices consist of, and how they are produced and disposed of. Moreover, in both initiatives, people engage with the materiality of media technologies by trying to develop alternatives in media appropriation and production processes, either repairing media technologies or producing fair devices.

Both case studies serve as examples of ways in which people engage with the material dimension of media technologies to transform society into a fairer and sustainable one. Therefore, the empirical studies contribute to the research field on materiality and media technologies—not by focusing on the devices as such (as the perspective of material participation suggests, Marres, 2012) but taking a non-media-centric approach (Morley, 2009), which is to show how people reflect on the materiality of and engage with the technologies. Still, the study presented in this article can be seen as being in line with existing literature (Allen-Robertson, 2015; Berry, 2012; Gillespie et al., 2014), as it stresses the relevance of the materiality of digital media technologies—in particular, underlining its relevance for practices of reflection and engagement.

In both case studies, the materiality of media technologies becomes politicized as the actors try to transform society—into a fairer and sustainable one—with their media production and appropriation. Both initiatives frame their practices as being political; they problematize and politicize the role of media technologies in society. According to Mouffe’s (2005) definition of the political, the practices of the actors involved can be described as being political; they are examples of “sub-political practices” (Beck, 1997: 103) and “life politics” (Giddens, 1991: 215). At the same time, the materiality of media technologies confirms the political engagement of the actors.

The study presented in this article adds to the research field on repair and public sites of repair as well as fair media technologies as it deviates from several assumptions that have already been made by previous studies by focusing on the materiality of media technologies and the practices with which people reflect on and engage with this materiality. The political aspects of repair, which, for example, Rosner and Turner (2015) also stress, are confirmed, although in focusing on the materiality of media technologies—the political relevance of the materiality as such as well as the practices of reflecting on and engaging with the materiality of the apparatuses are stressed. Moreover, the educational relevance of repair (Ahmed et al., 2015) is also confirmed in these examples in the so-called “developed world.” Nevertheless, compared with existing studies, the relevance of the materiality of media technologies is more in the focus here, and so this study reveals the constraints to gaining and sharing knowledge resulting from restrictions to the possibilities of repairing. Materiality, in the sense of the composition of the apparatuses, restricts repair as a “care for matter” (Callén and Sánchez Criado, 2015) as especially the new digital media devices cannot easily be opened or opened at all. The restrictions regarding repair as a practice of caring can also be perceived in the example of the Fairphone as no spare parts are no longer sold for the first generation of the Fairphone. This was explained as one of the ambivalences which can be found between the aims of the initiatives and the practices actually taking place. The study adds to the research
field of fair media technologies by taking a close look at the practices, motives, and aims of these practices, something which had not been done before (Meier and Mäschig, 2016). It is the ambivalences and constraints elaborated on that contribute important aspects to the existing research fields by underlining the fact that phenomena which aim at societal transformation must be analyzed from a critical perspective.

It is unlikely that either of the two initiatives will have a “revolutionary” impact on society. Still, the case studies discussed in this article show that engaging with the materiality of media technologies can have a significant political meaning. Moreover, the findings presented here stress the relevance of taking these political meanings into account when dealing with the material dimension of media technologies.

Conclusion

When comparing the cases of repairing (digital) media technologies in Repair Cafés and the production and appropriation of the Fairphone, a smartphone which was devised to be produced under fair working conditions, this article underlined the relevance of the materiality of (digital) media technologies within practices in which actors act on media to transform society. The article showed how and why people reflect on the materiality of the devices with which they engage for political reasons. Yet, there are several constraints and ambivalences which were revealed by a comparison of the practices and motives of the actors, these lead to the final conclusion that although the examples are attempts to transform society they face restrictions and limits in their own material practices.

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Notes

1. Parts of this article have been presented at the International Communication Association (ICA)-conference (Kannengießer and Kubitschko, 2017).
2. The “good life” is a philosophical concept normatively asking about an ethical way of living also dealt with in communication studies (e.g. Wang, 2015), which must be discussed in relation to sustainability today. Sustainability is here defined according to the definition of sustainable development by the United Nations (United Nations General Assembly, 1987) as “a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs.”
3. Both cases are also analyzed using a media practice perspective (Kannengießer, in press).
4. For a list of Repair Cafés worldwide see https://repaircafe.org/en (accessed 10 August 2018).
5. Anstiftung & Ertomis is a non-governmental organization that supports repair initiatives in Germany and builds a network among them; see http://anstiftung.de/english (accessed 10 November 2018).
6. See, for example, Bleischwitz et al. (2012), Maxwell and Miller, 2012, Chan and Ho (2008) for research on the pollutive production processes of digital media technologies.
7. See for an analysis of the effects of e-waste, for example, Gabrys (2011), Kaitatzi-Whitlock (2015).
8. I would like to thank my reviewers for pointing this two-sided argument to me.
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**Author biography**

Sigrid Kannengießer is postdoctoral researcher at the University of Bremen, Center for Media, Communication and Information Research, Germany. She studied media studies and political sciences at the Universities of Hamburg and Bochum, Germany, and holds a PhD in communication studies from the University of Bremen, Germany. Her research interests are in: materiality of digital media technologies, media practices, digital and political communication, sustainability and media, media activism, and gender media studies.