

Collaborative Fashion Consumption
A Viable Innovative Concept of Sustainable Fashion Consumption?

vorgelegt von
MBA-International Marketing

Samira Iran
geb. in Ahvaz, Iran

von der Fakultät I - Geistes- und Bildungswissenschaften
der Technischen Universität Berlin
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Gutachter: Prof. Dr. Ulf Schrader

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List of publications

- (i) Iran, S. (2018), "Sustainable fashion – from production to alternative consumption", in Schneider, A.M. and Jastram, S. (Eds.), *Sustainable Fashion: Governance and New Management Approaches*, Springer, pp. 139–159 (Abbreviation: SF).
- (ii) Iran, S. and Schrader, U. (2017), "Collaborative fashion consumption and its environmental effects", *Journal of Fashion Marketing and Management: An International Journal*, Vol. 21 No. 4, pp. 468–482 (Abbreviation: JFMM1). [postprint]
- (iii) Becker-Leifhold, C. and Iran, S. (2018), "Collaborative fashion consumption drivers, barriers and future pathways", *Journal of Fashion Marketing and Management: An International Journal*, Vol. 22 No. 2, pp. 189–208 (Abbreviation: JFMM2). [postprint]
- (iv) Iran, S. and Geiger, S.M. (2018), "To wear or to own? Influences of values on the attitudes toward and the engagement in collaborative fashion consumption", in Heuer, M. and Becker-Leifhold, C. (Eds.), *Eco Friendly and Fair: Fast Fashion and Consumer Behavior*, Routledge, New York, USA, pp. 153–162 (Abbreviation: EFaF).
- (v) Iran, S., Geiger, S.M., and Schrader, U. (submitted), "Collaborative fashion consumption – a cross-cultural study between Tehran and Berlin", *Journal of Cleaner Production* (Abbreviation: IJCS).

Framework

1 Introduction

Clothing consumption has shifted beyond meeting a basic human need, and it is now, instead, used to satisfy desires. Today, fashion consumption significantly impacts natural and human resources (Quantis and ClimateWorks, 2018). Overconsumption of clothing is among the main issues of this industry: On average, each person consumes about 11.4kg of clothing a year and this consumption results in the production of 442kg CO₂-eq emissions per capita, which equals the emission produced by driving a car 1,500mi (Quantis and ClimateWorks, 2018). It has been emphasized that the reduction of disposed textiles is the greatest economic and environmental opportunity regarding clothing and textiles (Bartlett *et al.*, 2013).

Alternative or Collaborative Fashion Consumption (CFC), as an innovative concept could help to reduce material overconsumption in the current fashion industry. CFC is defined as a consumption trend “in which consumers, instead of buying new fashion products, have access to already existing garments either through alternative opportunities to acquire individual ownership (gifting, swapping, or secondhand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing)” (Iran and Schrader, 2017, p. 472). This definition is similar to the one proposed by Joyner Armstrong and Park (2017) except that they emphasize only on online peer sharing practices.

CFC is not a new concept; It has traditionally been practiced along with other forms of sharing, such as tool sharing. Clothing has been a part of secondhand markets, and costume renting has been a form of business for decades. What makes CFC nowadays an interesting topic of research mainly is that the technological advancements have decreased transaction costs and facilitated sharing practices via digital platforms (Barnes and Mattsson, 2016). People can share a broad range of products and services with strangers who are living in another neighborhood, city or even country. When it comes to sharing, geographical distances, today, are not as important as they were in the past. Nonetheless, clothing is so inexpensive, especially in developed countries, that it is no longer convenient for consumers to use secondhand clothing. Besides, hygiene and health concerns, lack of trust, information and ownership, and consumption habits present barriers to CFC (Becker-Leifhold and Iran, 2018).

Research on CFC is still in its initial phase. This dissertation is dedicated to shedding some light on this topic of research. In this regard, the concept of collaborative and alternative fashion is theoretically and practically studied from the viewpoint of consumers and consumption. The main objectives of this research consist of:

- Exploring, defining and positioning the CFC concept: What makes CFC an interesting topic of research, and how could it contribute to sustainable fashion?
- Finding the drivers and barriers of acceptance or rejection of the CFC: Why are consumers or businesses open to adopting the CFC concept (or not)?
- Exploring the effect of values on acceptance or rejection of the CFC: How can different values (biospheric, altruistic, hedonist, egoistic) influence the attitudes toward and the engagement with CFC?
- Exploring the CFC in a cross-cultural context: How do consumers from different cultures differ in acceptance of CFC and their behavioral drivers regarding CFC?

In the following sections, a brief overview of the conceptual research design and existing research gaps is initially presented. Then, all five papers of this cumulative thesis are summarily introduced. This is followed by a discussion of the methods and the findings of the papers. Then, suggestions and recommendations are briefly elaborated in the sixth section. The framework is finally finished by an outlook and a summary section. In the following text, publications' abbreviations (SF, JFMM1, JFMM2, EFaF, IJCS) are used to distinguish the papers of this cumulative thesis from other references. The citation style of these five papers accordingly differs from other references in the text. The original publications can be found at the end of this document.

2 Conceptual research design and research gaps

From the conceptual perspective, in this dissertation, the domain of alternative consumption is studied in the context of the fashion industry. In this section, why studying the topic of CFC is important for fostering sustainability and why the CFC concept has been chosen as the research topic of this dissertation are elaborated upon.

2.1 Alternative consumption

The concept of “sustainable consumption” is initially mentioned in the main policy output of the UN Earth Summit in 1992. This concept is later defined as: “individual acts of satisfying needs in different areas of life by acquiring, using and disposing goods and services that do not compromise the ecological and socio-economic conditions of all people (currently living or in the future) to satisfy their own needs” (Geiger *et al.*, 2018, p. 20).

There have been many efforts in developing a sustainable alternative for the current linear system of “make, take, and dispose”. The current linear system is based on the assumption that not only are unlimited resources available, but also, that they are easy to source, as well as cheap to extract and dispose of (Mont *et al.*, 2017). Although more resource efficient products

are now available, linear economic systems and overconsumption have led to increasing environmental degradation (Mont *et al.*, 2017). Against this background, the circular economy is aimed at decreasing “throughput of resources by closing material loops and designing material goods for durability, reuse, upgrade and repair” (Mont *et al.*, 2017, p. 8; Boulding, 1966).

It is currently clear that technological solutions alone are unlikely to fully overcome the ecological impacts of consumer society (Brown and Vergragt, 2016). There is a need to shift to a less consumerist lifestyle, and the already dominant “throw away” culture must be altered. Several alternative consumption models have been proposed to decrease resource usage (Mont and Heiskanen, 2015). Examples include secondhand products usage and access-based consumption, which emphasize product usage instead of ownership (Mont, 2008). Generally speaking, buying new products should not be the first option for consumers. Inspired by Maslow’s hierarchy of needs, a hierarchy is developed for purchasing behavior. This so-called “Buyrarchy” respectively proposes, “use what you have”, “borrow”, “swap”, “thrift”, “make” options before “buy” options (Lazarovic, 2015).

Product service systems, collaborative consumption, sharing, and sharing economy are among other terms that have been applied to promote the idea of using instead of owning. These concepts have a lot in common, however sometimes they emphasize specific actors or specific forms. For instance, product service systems are more focused on the businesses offering services instead of products, while collaborative consumption emphasizes the reduction of resource consumption in the product usage phase by sharing, exchanging, swapping and bartering (Botsman and Rogers, 2010). For the purposes of this research, in which the reusing of the products and consumers are in focus, the term “collaborative consumption” is chosen to be applied here.

2.2 Fashion/clothing

“Fashion (in particular garment fashion) and clothing are two different concepts” (SF, 2018, p. 139). While clothing should meet basic human needs, fashion should satisfy desires (e.g. desire for variety, individuality, power, uniqueness, status) (SF, 2018). However, it seems that this nuance is no longer the case in most contemporary societies (SF, 2018). Therefore, in this dissertation, the two terms fashion and clothing are used interchangeably.

In 2013 a commercial building in Bangladesh named Rana Plaza collapsed and more than 1100 textile-industry workers died (BBC, 2013). Only after that accident more attention has been given to the working conditions of the garment workers (ILO, 2018). Organizations such as the International Labor Organization (ILO) or the Fair Wear Foundation (FWF) work to improve conditions for workers in this industry. However, due to the complexity of the supply chain of the

fashion industry, monitoring the whole process from production of the material to sewing the garments is not an easy task.

In addition to the social problems of the textile industry, there are many environmental issues related to this sector. Eileen Fischer, a high-end retailer, claims: “the fashion industry is the world's second most polluting industry, after oil” (Szokan, 2016). The way clothing is produced and consumed has had a significant impact on environmental and social resources (Quantis and ClimateWorks, 2018). For example, the textile industry is not only highly water intensive (Restiani and Khandelwal, 2016), but also water pollutant. Clothes and textiles are the main source of primary micro plastics in the oceans; this accounts for about 35% of total amount of such micro plastics (Boucher and Friot, 2017).

The current dominant market trend in the clothing industry is called fast fashion, which is built on inexpensive ready-to-wear clothing with fast-replacement cycles. A global citizen consumes about 11.4kg of clothing per year (MFR, 2018). In Australia, every 10 minutes, 6000 Kg of clothing ends up in a landfill (Liu, 2017). In Germany, it has been revealed that almost half of the shirts, trousers, and shoes are sorted out after only three years (Greenpeace, 2015). Increasing the lifetime of clothes could result in a significant carbon, water, waste, and resource cost-savings (WRAP, 2012). The fact is that not only do we waste a lot of fashion products, but we also use a lot to produce the clothes that we buy each year. As it is emphasized in SF book chapter (2018), we need to have sustainable production, legislation, as well as consumption in the fashion industry.

“Fashion” is defined as “a style that is popular at a particular time, especially in clothes, hair, make-up, etc.” (Cambridge Online Dictionary, 1999). However, sustainability needs durability, prolonging the usage phase as well as using the maximum existing capacity of the already existing products. According to these perspectives, “sustainable fashion” is paradoxical. But what if clothes could be used for a shorter time by different/more users? This way each consumer could enjoy variety of fashion items without producing more waste. The capacity of the fashion items could be used more intensively and/or for a longer time.

2.3 Alternative and collaborative fashion consumption

The integration of the concept of the sharing economy into the sustainable fashion consumption model defines CFC (JFMM1, 2017). Like many other sharing practices, CFC has claimed that it can contribute to the sustainability of the fashion industry, however there is still a lack of holistic academic research to see whether CFC can make the fashion industry environmentally and socially more sustainable (JFMM1, 2017).

The sharing economy can be practiced in different phases of design, production, usage, and post-usage of the fashion industry. There are initiatives that are looking for innovative solutions to overcome the environmental issues of the fashion industry in all phases. “Blue Ben” for example is a recently established start-up company that found a fiber production mechanism, which can be grown locally (in Europe) and uses very little water. The main goal of the company is to save as much water as it can in the production phase of the material: the aim is to produce a compostable sweater that has 90% less water-usage than a conventional cotton sweater. One of the company’s promises is to make the knowledge they have developed available for all the producers for free. By providing this open-access source of information for the production phase, “Blue Ben” provides skill sharing within the fashion industry.

In the production phase, one can refer to the co-working spaces that local and small designers sometimes use. These forms of space sharing will help them to reduce their production costs, as well as give them the opportunity to share tools, machinery, etc. One example of such co-working places for fashion designers is the so-called “Studio Herzberg” in Berlin, where 9-10 designers are using a store to produce and sell their products. Another example of sharing in the production phase could be presumption. Consumers can become active in designing, making, or upcycling their own garments. Sennett discusses the feeling of empowerment that can come through crafting skills (Sennett, 2008). However, consumers should not necessarily be working as a craftsman, but they could have the ability to understand the quality of products and production in order to make more informed purchasing decisions (Sennett, 2008). There is a growing number of sewing cafés in cities, where consumers can learn how to make or upcycle clothes for a small donation amount or, often times, for free. These spaces are suitable places for skill, knowledge, pattern, and time-sharing. Moreover, there are online platforms such as “allfreesewing”, where consumers can share clothing patterns for free.

In the usage phase, apart from sharing the clothes, consumers can practice collaborative consumption in maintaining and repairing their garments. For instance, by using community laundry services, consumers can avoid owning their own washing machines. This way, washing machines can be intensively used: instead of having a washing machine to use once a week, they can be used more often during the day. Repairing is a practice that is no longer attractive (at least as one of daily household-practices). In a representative study in Germany, only one seventh of people have recently repaired a piece of clothing, and about 50% of them have never used a repairing service for their garments (Greenpeace, 2015). Besides the traditional clothing alteration services, nowadays one has the possibility of using newly founded repair-café in cities. Repair cafés offer the machines, tools and skills, and consumers can use such

places to learn how to repair their clothes themselves. Skill sharing is a form of collaborative consumption that can be seen in these shops.

Last but not the least, in the post-usage phase, consumers can practice CFC by selling and buying secondhand clothing. All forms of CFC could be used in order to prolong the life of already existing clothing. Studying all forms of sharing practices in the fashion industry is out of the scope of this dissertation. As such, in this research, CFC is mainly defined (as in JFMM1, 2017) as sharing, acquiring, and using secondhand clothing. Other forms of sharing, such as skill or time-sharing are not studied here.

The above-mentioned initiatives provide consumers with the opportunity to share products, knowledge, skill, time, etc. Moreover, these platforms aim to offer an atmosphere in which people build social connections, learn from each other and thus become active consumers. Such practices have the potential to move consumers from passive recipients to active participants in satisfying their needs with alternative forms of consumption.

Some businesses also realized the potential of CFC and have already integrated this concept in their business models. However, only a few lines of academic research have followed up on the CFC topic. Knowing this, this dissertation is dedicated to addressing this research gap and providing fundamental academic knowledge on the CFC concept (e.g. its forms, prevalence, related business concepts), as well as to study the reasons consumer accept or reject this innovative idea.

3 Summary of the papers

In this section, a brief summary of each publication is presented. Main topics and questions of each paper are explained and contributions of authors in each paper are pointed.

SF book chapter – As it has been mentioned, the concept of CFC had not been widely and academically studied by the beginning of this doctoral research. It was essential to study the textile industry and define CFC as a first step for this PhD-thesis. Therefore, the first paper (SF, 2018) is focused on reviewing and illustrating the concept of sustainable fashion. Specifically, it focuses on sustainable fashion consumption and positioning alternative or collaborative fashion in a more general model of sustainable fashion consumption. The fundamental questions that are answered in this review paper are: what does sustainable fashion mean, and what are its elements? Who are the actors in this industry? How important is the consumption phase of sustainable fashion? And, what are alternative fashion consumption models?

In this paper, firstly, the concept of sustainable fashion is reviewed and elaborated upon based on the three categories of governance, production, and consumption. In addition, the key drivers

and actors of each phase are discussed. Secondly, innovative and alternative fashion consumption possibilities are introduced and described by the term CFC. This paper is published as a single authored chapter in the book, "Sustainable Fashion: Governance and New Management Approaches".

JFMM1 paper – The second paper (JFMM1, 2017) offers a conceptual basis of CFC as a possible path toward less unsustainable clothing. A definition and a typology of CFC are introduced in this paper, and possible environmental effects of CFC are structured and discussed. According to the results of this paper, CFC basically focuses on "fashion consumption in which consumers, instead of buying new fashion products, have access to already existing garments" (JFMM1, 2017, p. 472). Later, a typology of different CFC-forms is developed in this paper. CFC practices are categorized into peer-to-peer (P2P) and Business-to-Consumer (B2C) types. In addition, different sub-types are categorized according to organizer and compensation. The possible environmental influence of CFC is also discussed in this paper.

The outline of this article has been sketched by both authors, and then a first draft of it is prepared by Samira Iran. The main ideas of the definition and typology are proposed by Samira Iran and further developed by both authors. The discussion on the environmental effects of CFC is mainly contributed by Prof. Dr. Ulf Schrader. This paper is published in the "Journal of Fashion Marketing and Management: An International Journal".

JFMM2 paper – The JFMM2 paper (2018) is dedicated to a systematic literature review that explores the existing literature on CFC together with its relative concepts and discusses the current state of knowledge in the field of alternative apparel consumption. The concept of CFC is studied from both the business and consumer perspective. Therefore, drivers, barriers, and future pathways of CFC are discussed using a holistic approach. The results of this paper facilitate a better understanding of what enables or prevents CFC from becoming a mainstream consumption approach. Similar to the JFMM1 paper (2017), this research also conducts a brief discussion on the sustainability aspects of CFC, discussing both the positive environmental benefits and its negative impacts.

The main idea of conducting a systematic literature review on CFC is proposed by Samira Iran. Both authors, Carolin Becker-Leifhold and Samira Iran are equally involved in the process of developing search-keywords, searching in the databanks, as along with reviewing, coding, and analyzing the papers. The first three sections of the article are mainly written by Samira Iran, and the findings and discussion parts are developed and drafted by Carolin Becker-Leifhold. In the process of writing and editing the paper, the authors have collaboratively discussed and

rewritten each other's texts. This article is also published in the "Journal of Fashion Marketing and Management: An International Journal".

EFaF book chapter – Using a mixed-method approach, the fourth publication (EFaF book chapter, 2018) examines the influence of different values (biospheric, altruistic, hedonist, egoistic) on the attitudes towards and the engagement with CFC. The main objectives of this research are to find: How familiar are the participants with the concept of CFC? How widespread are the actual CFC practices? Whether participants find these practices interesting? And, what are the reasons for acceptance or rejection of CFC (here the focus is on the influence of different basic human values on CFC)?

The qualitative research is conducted by Samira Iran and the quantitative research by Dr. Sonja M. Geiger. The main idea of writing this article can be credited to both authors. They respectively contribute the results of their studies to this joint-paper. This article is published in the "Eco-Friendly and Fair: Fast Fashion and Consumer Behaviour" book.

IJCS paper – The last paper (IJCS, submitted) is written based on a comparative survey, which is conducted in Tehran and Berlin. Whether CFC is accepted to a varied extent in different cultures is the main question of this study. In addition, the theory of planned behavior (TPB) is tested in the case of CFC in order to find the predictors of intention towards CFC, as well as the actual behavior regarding CFC in both cultures. Finding such predictors could shed light on more effective strategies to promote CFC in different cultures. Hofstede's national cultural factors are employed to explain the behavioral differences of the two samples. Moreover, the preferences of the participants regarding the former owners and the location of acquiring secondhand clothing are studied.

The IJCS paper (submitted) is the main article of this doctoral thesis. The idea of this paper is initially introduced in my PhD proposal. Samira Iran has the main responsibility of this paper, from developing the questionnaire of the survey, to data collection and later, analysis of the collected data and writing the paper. In the process of conducting the survey, data analysis, and writing the paper, Dr. Sonja M. Geiger and Prof. Dr. Ulf Schrader have supported and improved the research with their expertise, feedback and comments.

In sum, the publications of this dissertation build upon each other. CFC is a relatively new topic of research in academia. Therefore, the first three publications are dedicated to theoretical definitions and a discussion of the concept of CFC. The main questions that are answered in these papers are: How should the sharing economy be integrated into a sustainable fashion model? How can CFC be defined? What types of CFC are now available? Why is CFC an important topic of research? What is the state of the art? Who are important actors in making

CFC a successful and sustainable practice? What is the role of consumers and businesses in this regard?

Building on this fundamental academic knowledge about CFC, the last two empirical studies are conducted to determine important factors that influence CFC and impact relevant behavioral patterns. The main questions of these studies are: How much do consumers know about the CFC practices? Do they like these initiatives? What factors are influencing the acceptance and rejection of CFC? Do consumers from different cultures exhibit the same behavior regarding CFC? Do national cultural factors influence the acceptance of CFC?

4 Discussion of the methods

Lines of conceptual, qualitative and quantitative studies have been conducted for the purpose of this research. In the following section, methods and tools used for each paper are described.

4.1 Applied research methods

Due to the lack of existing academic literature on the topic of CFC, conceptual and theoretical research is initially conducted to define and explore this concept. Conceptual papers are mostly focusing around a specific issue and make connections among theories from different fields of research to provide a new perspective about one topic (Gilson and Goldberg, 2015). Both the SF (2018) and JFMM1 (2017) papers are conceptual in nature. Using limited available academic literature on CFC, together with the available alternative clothing practices in the market, SF (2018) and JFMM1 (2017) publications provide a research base for further empirical studies on the concept of CFC.

JFMM2 (2018) is written based on a systematic literature review, which explores the existing literature on CFC, together with its related concepts such as traditional secondhand clothing, and discusses the current state of knowledge in the field of alternative apparel consumption. Drivers, barriers, and future pathways of CFC, from both the business and consumer perspective, are extracted, summarized, and discussed. The search keywords used in JFMM2 (2018) are extracted from the results of SF (2018) and JFMM1 (2017) papers.

EFaF (2018) employs a mixed-method approach; qualitative and quantitative research has been conducted to study the influence of different values (biospheric, altruistic, hedonist, egoistic) on the attitudes toward and the engagement with CFC. For the purpose of this study, 20 semi-structured interviews are conducted in Ulm, a city in the south of Germany. In this so-called wardrobe study, participants are asked about their secondhand and alternative clothing consumption. Moreover, the quantitative data used in this paper stems from a large survey directed at all inhabitants of a small town in the South of Germany ($n_{\text{final}} = 1014$).

The main paper of this dissertation (IJCS, submitted) is based on a quantitative comparative study between Tehran, the capital city of Iran ($n_{\text{final}}= 297$) and Berlin, the capital city of Germany ($n_{\text{final}}= 322$). To this end, a questionnaire is developed and later distributed among university students in Tehran and Berlin. The questionnaires of these surveys can be found as appendices of this document. Besides being asked about their national cultural factors, the participants are asked about their attitude, intention towards CFC, their social norms and perceived behavioral control of CFC, as well as their actual engagement in the CFC practices. These questions are followed by two questions regarding the previous owners and the location of attaining secondhand clothing, along with the demographic characteristics of the participants.

4.2 Applied analytical tools

In the data analysis process, different tools are applied in this dissertation. In the following section, different qualitative and quantitative analytical tools that are used in this dissertation are introduced and explained.

Atlas.ti – The qualitative data analysis and research software

Atlas.ti software can assist researchers in systematic analysis of unstructured qualitative data such as text. This program provides tools that enable researchers to systematically code and analyze data, as well as weigh the importance of the codes and visualize the correlations existing between them. This tool is used for the purpose of the JFMM2 paper (2018) and EFaF book chapter (2018). Using Atlas.ti, researchers could more easily work in a team, as they could simultaneously access the papers and codes. Moreover, using Atlas.ti, researchers could always have an overview on the process of coding in a long period of reviewing and analyzing the papers (For JFMM2 (2018), the process of reviewing and analyzing the extracted papers took almost a year).

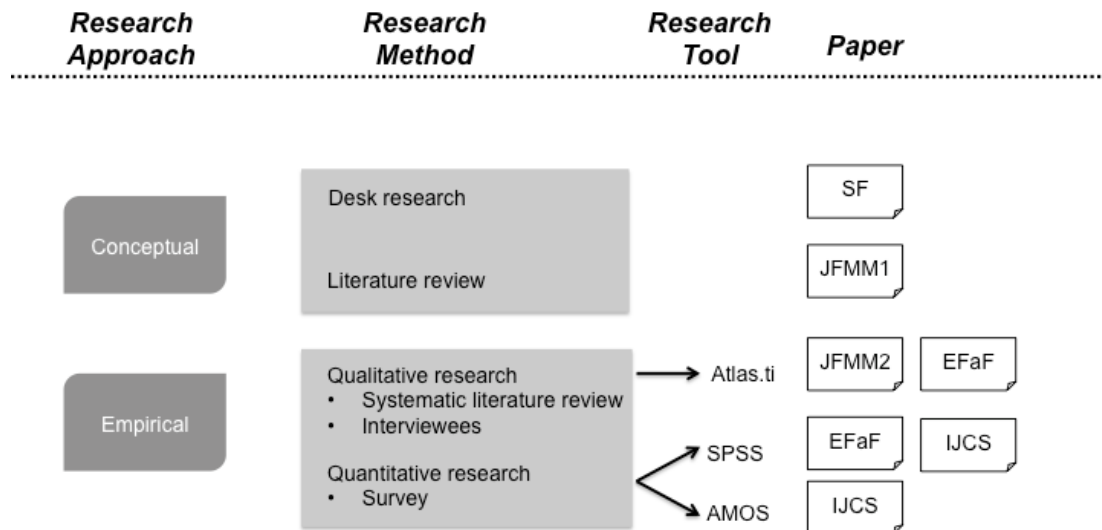
IBM SPSS – Statistical package for the social sciences

IBM SPSS is a software package that is applied for statistical analysis in social science. This software can be used for editing and analyzing all sorts of quantitative data. This software is used for the purpose of preparing and analyzing the data extracted from questionnaires in the EFaF book chapter (2018), as well as in the IJCS paper (submitted). Statistical analyses, such as descriptive analyses, regressions, variance analyses, and multivariate analyses of variance tests are done using this software.

AMOS – Analysis of a Moment Structures, is an added SPSS module. AMOS is a suitable visual program for structural equation modeling and path analysis. This software is utilized for the path analysis (parceling method), which is used in IJCS paper (submitted).

In sum, a spectrum of research methods and tools are applied for the papers of this dissertation. Therefore, the concept of CFC is evaluated using different qualitative and quantitative research perspectives. A summary of all methods and tools used in this research are presented in the Figure 1.

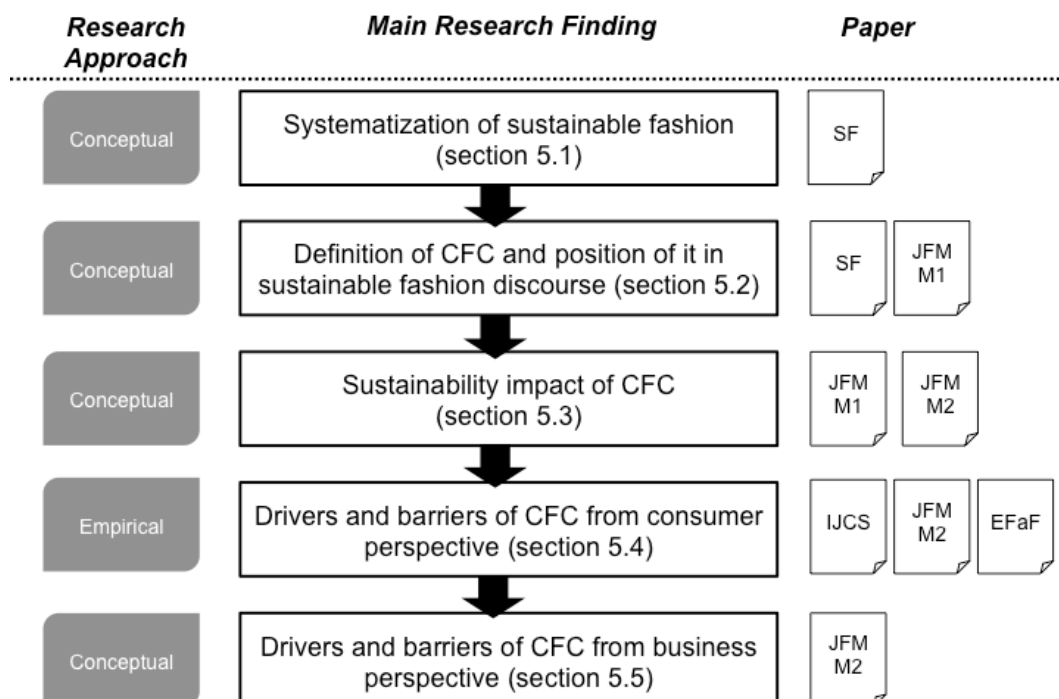
Figure 1 Overview of research methods and tools



5 Discussion of the findings

The main findings of this research are summarized and discussed in the following section. A visual structure of the findings can be seen in the Figure 2.

Figure 2 Overview of research findings



5.1 Sustainable fashion

The main contribution of SF book chapter (2018) is to give an overview of sustainable fashion. Here main topics and classification are summarized as findings of this publication. Sustainability in the fashion industry should be promoted in different phases of production, legislation, and consumption (SF, 2018). In the production phase of this industry, more sustainability should be reached in material, intellectual, and human resource allocation and consumption (SF, 2018). Considering the fact that the current textile industry has a complex and multinational supply chain, monitoring the implications of sustainability drivers in all steps and all countries is a rather complicated, time consuming, and expensive task. However, as mentioned, disasters such as the Rana Plaza tragedy triggered the industry and governments to find ways to prevent such problems in the textile industry. A majority of German consumers believe that governments should make sure that “only” sustainably produced clothing items are available in the market (Kleinhückelkotten *et al.*, 2017). Therefore, it seems that governmental agencies should put more effort to establish more sustainable regulations for clothing retailers. Labor governance in the global textile industry is now moving towards a more collective regulatory arrangement, which includes unions. The potentials of transnational union networks (Helfen and Fichter, 2013) continually could be used for more effective controlling and implementation (Alexander *et al.*, 2017).

The consumption phase of the garment industry is claimed to be important (e.g. Piontek and Müller, 2018) and is the primary focus of this research. Sustainable fashion consumption involves pre-purchase, purchase, and post-purchase components (SF, 2018). Consumers are increasingly considering the ethical attributes of clothing (Dickson, 2001). In response to this, there are a growing number of companies and designers, who produce and offer sustainable clothing. There is a spectrum of different sustainable fashion items available to buy from local and small designers such as “Farah Floyd” in Berlin (local design and production), to bigger companies such as “Flomax” in Germany (sustainable material, local design and production). Each of these companies considers one or more efficiency strategies (regarding material, intellectual, and human resources) in their production line. For instance, “Freitag” produces bags made from recycled materials from used truck tarps and car seat belts. These products are unique items that are designed, cut by hand, and packaged in Zurich. “Patagonia” is another example of a sustainable fashion company that emphasized sufficiency in its advertisement and also has a repair campaign running in several different countries. Consumers could make sustainable decisions by purchasing from such fashion companies.

In addition, acquiring and using secondhand clothing is a sustainable alternative in the purchasing phase (SF, 2018). There are different forms of secondhand clothing that are now

available. Some of these forms have traditionally existed (probably) since humans started using clothing to protect their bodies. Other forms have developed in current societies using technological innovations.

Sustainable maintenance of garments can decrease the harmful impact of these products on the environment. For instance, alternative laundering practices can have an impact on energy usage (e.g. water temperature, or machine vs. hand washing) (Anderson, 2016). In 2017, Retamel and Schandl found that hand washing requires less water and energy in comparison to using washing machines or laundry services, however it uses large quantities of detergents. In the case of services, using dryers increases the energy usage in comparison to machine washing (Retamel and Schandl, 2017). However, other researchers compared four different washing options ranging from individual machine use to coin laundries and laundry services, and they found that sharing washing machines could reduce the environmental impact of the washing practice (Komoto *et al.*, 2005).

In addition, extending the usage phase of the clothing could have environmental benefits (WRAP, 2012). This can be done by simply extending the duration of the usage of the garments or by sharing secondhand clothes.

In the post-usage phase, an important decision to make is where to discard the clothing in order to have the least harmful environmental and social impact (SF, 2018). Redesigning, upcycling, and recycling the garments should be considered to decrease the amount of waste (SF, 2018). However, most of the people in developed countries have a large amount of clothing, and most of these garments are disposed of after being used only for a few times (Birtwistle and Moore, 2006). These are the garments that could be directly reused by other consumers. Reusing the clothing is thoroughly studied in this research under the term CFC. In the first two publications, CFC is defined and positioned in the general sustainable fashion consumption model.

5.2 Collaborative fashion consumption

After the publication of the book “What’s mine is yours” by Botsman and Rogers, collaborative consumption attracted more attention in academia. Collaborative consumption is later defined specifically for the clothing sector (in paper JFMM1, 2017). Usage of already existing clothing through different forms (gifting, swapping, sharing, lending, renting, leasing, or buying secondhand) is the definition of CFC, which is used here for further research on this topic.

On the one hand, consumers mostly have a positive attitude towards CFC (EFaF, 2018). On the other hand, a growing number of businesses include CFC in their activities. Despite of the facts that now more companies and consumers are interested in engaging in the CFC, this concept is still far away from being mainstream and cannot compete with the inexpensive fast-cycled fast

fashion items that are available all the time (in shops or online). Having more research on CFC, one should distinguish between those CFC types that are organized by peers, and those organized by companies, though the P2P model can also be facilitated by companies (JFMM1, 2017). Each of these categories has its own set of sub-groups. The classification in JFMM1 (2017) shows how diverse this field of study is. This diversity makes it very complex to evaluate and generalize the environmental and social impact of CFC.

As mentioned, most of the forms of CFC have previously existed; due to the Internet and new technologies, they have now expanded to a scale never before possible (JFMM1, 2017). The majority of people are aware of offline and online platforms, where they can buy secondhand clothing (more traditional way of CFC); while most of them do not know where to find clothing libraries or swapping parties (CFC-forms that are mostly expanding because of the new technologies) (EFaF, 2018).

In evaluating previous academic endeavors regarding CFC, the older concepts such as secondhand clothing are also studied in JFMM2 (2018). According to the results of the literature review (JFMM2, 2018), the keywords “secondhand”, “sharing”, and “product service systems” are mostly found in searches for alternative clothing consumptions. However, all in all, not more than 33 papers found in the JFMM2 (2018) addressed the concept of CFC (even when considering older research on secondhand clothing).

5.3 Sustainability of CFC

It is claimed that shared access to goods or services is less resource intensive compared to other individual consumption options (Heiskanen and Jalas, 2003). Both JFMM1 (2017) and JFMM2 (2018) theoretically discuss the sustainability aspects of CFC. In the JFMM1 (2017) paper, the environmental impact of CFC is systematically reviewed in three categories: efficiency, sufficiency, and rebound effects; whereas the JFMM2 paper (2018) generally discusses the sustainability issues that are mentioned in the 33 reviewed papers.

Eco-efficiency strategies are based on the use-intensification or prolongation of the usage-time of the fashion items. CFC results in use intensification of garments: when idling clothes are used by other consumers, a higher number of uses during the product's lifetime will be reached. The high number of unused clothing in the wardrobes (which is especially the case for consumers in the developed countries) (e.g. WRAP, 2012) can be reused through CFC practices. The result of the wardrobe study (EFaF, 2018) shows that consumers underestimate their clothing consumption by at least 35%. Interviewees might only remember and count items that they readily brought to mind, and they forgot to consider clothing they rarely or never wear (EFaF, 2018). A known general bias of self-reported data could be a reason that the participants

underestimated the true, probably much higher, potential of idling capacity of unused clothes (EFaF, 2018). Considering the high number of existing clothing in their closets, one might say that a noticeable number of clothing items could have been restored and not used in the closets (EFaF, 2018).

“CFC offers the chance to exploit the full use-potential of clothes, before they are disposed” (JFMM1, 2017, p.475). Reuse ensures significant energy savings compared to the production of new garments (Bras-Klapwijk and Knot, 2001). It benefits the environment by avoiding new garment production (Hu *et al.*, 2014). Additionally, CFC can extend the lifetime of garments. An unused fashion item can be used by other consumers instead of being stored in the wardrobes for some time before it goes to the landfill (JFMM1, 2017).

CFC can satisfy the needs and desires of consumers for more clothes, but with fewer total products. Some lifecycle assessment studies claim a positive environmental impact of substituting new clothing purchasing with secondhand garment acquiring (e.g. Woolridge *et al.*, 2006).

CFC could also contribute to more sufficiency in usage of resources. It is argued that if consumers have to pay per usage instead of paying for owning the product, they would reconsider their wish to use (JFMM1, 2017). For instance, if a consumer needs to rent an expensive garment for a special occasion, he/she might stick to the already owned garments or ask friends to share or borrow clothes. Moreover, the indirect socio-cultural effects that might occur in a swapping party could bring more thinking about the influence of fast fashion consumption. This thoughtfulness could, in the long term, result in less, but more conscious, clothing consumption. One motivating aspect of sewing or repair cafés for participants could be the social interactions they can experience during the workshops or events.

Despite of the above-mentioned positive environmental impact of CFC, alternative fashion consumption forms could contribute to an increased number of fashion items used (rebound effect). Due to the less expensive and sometimes free offers of CFC, one could consider the acquired secondhand clothing as additional to those he/she buys. Additionally, CFC can result in a faster cycle of buying and disposing of the products (JFMM1, 2017). Moreover, the transportation needed for delivering the secondhand clothing to the consumers could cause more CO₂-emission (JFMM1, 2017).

The articles considered in the literature review paper (JFMM2, 2018) only focus on the environmental benefits of CFC; the drawbacks of such a consumption pattern are neglected in these publications. Some researchers (e.g. Liedtke *et al.*, 2015; Ozanne and Ballantine, 2010)

argue for the necessity of lifecycle assessments to study the real environmental influence of CFC.

In sum, the environmental, along with the social impact of CFC still needs to be studied. There are strong indications that CFC has the potential to positively contribute to the sustainability of the garment industry. However, to achieve this, one should consciously decide about why and how to use different CFC forms. Otherwise, it is not feasible that CFC could compete with the ever-inexpensive fast fashion system that is currently offering almost disposable clothes at an affordable price.

5.4 Drivers influencing consumer acceptance of CFC

Although most of the consumers are aware of CFC forms, especially traditional secondhand clothing, in reality, CFC is not widely practiced (e.g. IJCS, submitted). According to the results presented in the EFaF (2018), most of the interviewees have not experienced B2C-CFC (acquiring used clothes from businesses); instead, they have experiences with P2P-CFC (receiving, borrowing or swapping clothes from/with their family members, relatives, or friends). The drivers influencing the acceptance of CFC is studied in this thesis.

Biospheric, altruistic, hedonic, egoistic values

From a consumer's perspective, three groups, including hedonic motives, utilitarian needs, and biospheric values, are often cited in previous research as drivers of CFC (JFMM2, 2018): According to the results of the JFMM2 (2018), on the one hand, motives such as fun, satisfaction, and hunting for bargains (as examples for hedonic motives); prices, frugality, and smarter purchasing (as examples for utilitarian needs); and biospheric values are mentioned to be drivers to motivate consumers towards engagement in CFC; On the other hand, hygiene and health concerns, lack of trust and information, lack of ownership, and consumption habits are mentioned as the main problems consumers have that drive them against the concept of CFC.

In EFaF book chapter (2018) the influence of different values (biospheric, altruistic, hedonist, egoistic) on the attitudes toward and the engagement in CFC is studied. It is revealed that egoistic values strongly influence attitudes towards CFC: aligned with the results of the JFMM2 (2018), lack of ownership, lack of financial benefits, and hygiene are mentioned in the EFaF book chapter (2018) as barriers of CFC. Positive ecological impacts (biospheric motives) of CFC have been mentioned only by a few participants in a qualitative research study as a driver of CFC (EFaF, 2018). In a representative survey, such positive impacts of environmental conservation motives did not have any influence on the attitudes toward CFC (EFaF, 2018). The lack of variety and time pressure (hedonic motives) are mentioned as barriers of CFC, while altruistic values are found to be positive drivers of attitude towards CFC (EFaF, 2018).

Attitude, social norms, perceived behavioral control

To predict the actual CFC, the TPB is applied in the IJCS paper (submitted). The results show that attitude, social norms, and perceived behavioral control can significantly predict more than 65% of the variance in intention towards CFC (IJCS, submitted). Moreover, the intention positively influences CFC while there is a non-significant influence of perceived behavioral control on CFC (IJCS, submitted).

It is found that attitudes toward CFC are either positive or neutral (e.g. in EFaF, 2018). Results of the IJCS paper (submitted) also show that there is a rather positive attitude towards CFC in both Iranian and German culture. If a favorable condition exists, attitude is known as the most important predictor of the actual behavior (Ajzen and Fishbein, 2005). This statement has been confirmed in the IJCS paper (submitted) regarding the pooled-data. However, when looking at the cross-cultural results of the IJCS paper (submitted), one can see that attitude is not always the most important predictor of the intention towards CFC. In Berlin, perceived behavioral control is found to be the most important factor influencing the intention towards CFC (IJCS, submitted). In the paper, it is argued that this is the case, as in German culture using secondhand clothing might not be considered as negative as in Iranian one (IJCS, submitted). Similar to the previous studies (e.g. Armitage and Conner, 2001), social norms has rather a weak influence on intention towards CFC in both samples (IJCS, submitted).

Attitude/intention-behavior gap

However, attitude and intention are claimed to be important behavioral drivers, a gap between attitude or intention and the real behavior has been mostly found by previous researchers (e.g. Carrington *et al.*, 2014). According to the results of EFaF (2018) and IJCS (submitted), most of the consumers have a positive attitude towards CFC, though a corresponding actual behavior cannot be observed. In the EFaF book chapter (2018), it is reported that 75,9% of respondents of the survey have never bought a single secondhand piece, and 70,5% have never swapped or borrowed a piece. In IJCS (submitted), it is found that more than half of the participants of survey have never used CFC.

Similarly, the attitude and intention towards CFC are found to be positive in both sample of Iranian and German students and intention is found to be the most important predictor of the actual CFC in both samples. Still, the gap between intention and behavior could be seen looking at the results of the IJCS paper (submitted). Considering the whole, as well each of the student samples of Tehran and Berlin, one could see that positive intention does not necessarily result in an actual engagement with CFC (IJCS, submitted).

The influence of intention of the CFC is higher in Berlin in compare to Tehran (IJCS, submitted). This might be due to the cultural differences that exist between the samples. In the IJCS paper (submitted), it is argued that in a more individualistic culture, where people have the buying power (Berlin), it is more likely that a positive intention results in an actual CFC.

Cross-cultural factors

Cultural factors could also influence the acceptance or rejection of CFC. In the IJCS paper (submitted), the cultural drivers of Hofstede's model are tested to compare the Iranian and German samples. The results show that there are significant differences between cultural drivers. Berlin has a more feminine, individualistic culture, with lower uncertainty avoidance and lower power distance in comparison to Tehran.

The results of IJCS paper (submitted) show similarities and differences of CFC between two samples of German and Iranian students. For instance, it is interesting that drivers of intention toward CFC follow different patterns in different cultures or that intention towards CFC differently influence the actual behavior (IJCS, submitted). However, it seems that CFC in both cultures depends on more factors than a positive intention and perceived behavioral control (IJCS, submitted). It is also found that consumers from different cultures (Iranian and German cultures) have similar preferences when it comes to the location of acquiring secondhand clothing and previous owners of such clothing (more detail can be found in the following section).

Locations and previous owners

The location of acquisition and the previous owner of clothing also influences the willingness of consumers to engage in CFC. Consumers prefer to exchange fashion items with people they know or to borrow from or lend these products to their friends or families (EFaF, 2018). Similar findings are seen in the IJCS paper (submitted).

Most of the participants in the interviews prefer buying secondhand clothing from shops and not online (EFaF, 2018). This result is confirmed in the IJCS paper (submitted), where consumers show a preference for receiving secondhand clothing from shops or from direct exchanges at the swapping parties.

Demographic factors

Age negatively influences CFC (EFaF, 2018). Older consumers do not seem to be as interested in swapping, borrowing or buying secondhand clothing. Except for age, no other demographic characteristic (e.g. gender, income, marital status) is found in this research to have a significant influence on the CFC.

5.5 Drivers and barriers of CFC from business perspective

Only in the JFMM2 (2018) are the reasons for and against accepting CFC studied from the perspective of businesses. From the business perspective, the main concerns are identified as consumer avoidance of CFC, lack of communication of a clear value proposition (Reim *et al.*, 2015; Rexfelt and Ornäs, 2009), as well as organizational barriers and requirements for implementing CFC schemes (Hu *et al.*, 2014; Kant Hvass, 2015). In addition, CFC does not seem to be an adequate alternative for providers of everyday clothing, but rather, it is of interest to those selling high-quality expensive garments.

As mentioned in JFMM2 (2018), despite these barriers, CFC could offer business opportunities to companies. As an example, CFC could benefit businesses by attracting new customer groups, improving their relationships with current customers, generating extra financial profits, and enabling them to develop more sustainable business models (Armstrong *et al.*, 2015; Kant Hvass, 2015).

On the one hand, reports indicate that consumers are willing to engage in CFC (Niinimäki, 2011). On the other hand, the number of start-ups and companies that are adapting this alternative concept is increasing. This is not only the case for small, start-up companies, but also bigger retailers. Knowing the barriers and drivers of CFC and the interplay of barriers for CFC between industry and consumers could be useful in generating strategies to promote CFC. Examining these barriers and the drivers of all stakeholders is necessary to derive viable solutions and future pathways.

6 Suggestions and recommendations

Based on the results of research conducted for this dissertation, some suggestions and recommendations are proposed here in the two categories of “transformative strategies for enabling CFC” and “sustaining strategies for CFC businesses”. In order to achieve the potentials of CFC, it is initially vital to develop transformation strategies at the governance level. The goal here is to identify the most important areas where different actors could intervene and interact to foster and facilitate the concept of CFC, among the consumers per sé. In the second category of suggestions, the focus is on business strategies, which can support the long-term economic sustainability of B2C-CFC.

6.1 Transformative strategies for enabling CFC

Different actors such as governmental agencies, NGOs, and independent media should continuously interact with each other and develop necessary cooperation to foster and facilitate CFC. Some transformative strategies are proposed in the following section.

Awareness rising

Consumers are now, more than ever, aware of the problems of the fashion industry and the consequences of their clothing consumption (Geiger *et al.*, 2017). For years, buying sustainable fashion items has been offered as a solution to consumers. Still most consumers do not know how they can trust a fashion item to be sustainable and they wish to have e.g. an officially recognized logo for sustainable fashion products (Kleinhückelkotten *et al.*, 2017). Therefore, it seems that it is now time for governmental agencies to offer a united certification or logo for sustainably produced fashion items so that consumers can easier trust the brands and make sustainable decisions. They should also educate consumers about the existence of this certification.

Apart from that, consumers have the possibility of CFC with all its ecological and social potentials. However, they are not even aware of the quantity of clothing items they possess (EFaF, 2018). Achieving sustainability potentials of CFC requires consumers to look at it as a substitution of fast fashion consumption and not as some extra means of acquiring clothes besides the conventional purchasing of clothing. Raising consumer awareness about the idling capacities existing in their closets and educating them about CFC could be a starting point in supporting alternative clothing consumption. As an example, Akademie Mode und Design, together with a non-profit organization called FEMNET, has developed eco-fair buying-guides named “BUY GOOD STUFF” for different German cities such as Cologne and Düsseldorf. They educate consumers about the necessity of consuming fashion sustainably, and they offer them suggestions on where to acquire sustainable and alternative clothing.

Empowering consumers by supporting P2P-CFC

It is claimed that the social impact of a product in its production phase is increasingly becoming important for consumers and that they require more information in this regard (Shao *et al.*, 2017). NGOs could play an important role in empowering informed consumers to become active. A popular example of this type of NGO activity is the “Fashion Revolution”, which aims to trigger a global movement toward more sustainable production and consumption of fashion items. For instance, “Who made my clothes” is now a slogan that they use in their yearly movement in April for transparency in the fashion industry. Greenpeace is another example of such an NGO. Among other activities, they are promoting and supporting clothing swapping parties. In Germany, they are organizing or collaborating in organizing these parties all around the country. These NGOs could play an important role in educating, informing and activating consumers.

The IJCS paper (submitted) shows that consumers from different cultures prefer to receive clothing from friends and families and those they know over those they do not know. Besides,

historical studies claim that clothing exchanges have traditionally existed, especially among families (e.g. Strasser, 2013). Nowadays, clothing-swapping parties among group of friends (who mostly have same taste of fashion) is happening. Due to the influence of the Internet and social media, such grassroots initiatives are more easily promoted among other consumers. There are several online tutorials and guidelines (e.g. for how to organize a successful clothing swapping party) available to consumers who are interested in getting involved in such movements. Such grassroots movements could be seen as agents of change for a sustainability transition (Feola and Butt, 2017) and need to be promoted. Providing locations and facilities for organizing exchange or gift giving events could make the entering step easier for the consumers.

Motivating businesses by supporting B2C-CFC

It is claimed that there is still a need to study the environmental benefits and resource efficiency aspect of CFC (Barnes and Mattsson, 2016). If the benefits of CFC be academically confirmed, businesses and consumers could become more motivated in engaging in the CFC. Therefore, by supporting further research in this field of study, governments and other institutions could provide consumers and businesses with more evidence of benefits regarding engaging in the CFC.

A broad range of small and medium-sized businesses are named in all five papers (SF, 2018; JFMM1, 2017; JFMM2, 2018; EFaF, 2018; IJCS, submitted) of this research that focus on B2C-CFC forms. Nevertheless, looking at most of them, one could recognize that it is not an easy task for them to keep up with big fast fashion retailers. An example is mentioned in the EFaF book chapter (2018), where some interviewees found clothing libraries to be expensive and because of the price, they would avoid renting clothing from them. One can argue that consumers should have other motivations (e.g. to save the environment) to be convinced of using B2C-CFC; however, I would not neglect the fact that in many studies, price is found to be of utter importance in purchasing decisions for consumers (e.g. Geiger *et al.*, 2017). As it is discussed in the SF book chapter (2018), a proper legislative system is required to promote and control the sustainability of the fashion industry. There is still a need for developing special legislation for alternative economies. For instance, governments could support such B2C-CFC initiatives with subsidies and promotion of their businesses so that they can offer (even if still a bit higher) a comparable price (to the conventional market) for their services.

6.2 Sustaining strategies for CFC businesses

Not only new small-scale firms have recently developed business ideas regarding sustainable fashion, but also, some of the big retailers such as “H&M” or “Boss” have sustainability

departments nowadays. Whether they are stepping towards more sustainability in this industry or this is just a nice gesture for green washing can be questioned. Nevertheless, such initiatives could show that businesses have realized an urge to be responsive and to take the requirements of the consumers into account. CFC, as an innovative element of sustainable clothing, has attracted some attention in the business world. “Tchibo” is a German chain of coffee retailer that has later sold other products such as clothing. It recently introduced its baby clothing rental system. Another example could be the Swedish company “Flippa K”, which is currently one of Sweden’s leading fashion brands. Beside its fashion production lines, it has its own secondhand clothing shop, where used Flippa K items are sold. It also has a rental and take back system. In addition, there are many other small start-up companies that have developed business ideas based on one or more forms of CFC. Examples of such start-ups are mentioned in all of the papers: among others in Germany are: “Kleiderlei” (a fashion library), “Kleiderrausch” (a platform for secondhand clothing), and “Lüttelleihen” (a clothing leasing business for baby clothing).

All of these companies, large or small, could benefit from B2C forms of CFC. For instance, they could strengthen their brand image by taking environmental and social benefits into consideration. Some helpful strategies for these firms could be:

Knowing consumers’ concerns regarding B2C-CFC

Consumers could be more encouraged to participate in CFC if they could trust the company, be sure of issues such as hygiene and quality of fashion items, and be informed about how to use the service (e.g. older consumers could have problems with using online platforms) (JFMM2, 2018). Companies should assure consumers that they are aware of such concerns, that they will provide their consumers with the needed knowledge and infrastructures, and that they are trustworthy.

Redefining organizational priorities and providing the infrastructure

Selling fashion products differs from renting or leasing these products, and as such, B2C-CFC companies should develop a reverse logistics and a closed-loop supply chain. This requires further infrastructure such as laundry service and repairing the garments. Furthermore, companies should be aware that alternative fashion consumers might have other expectations and requirements. For instance, these consumers might not expect twelve collections per year but better quality of products. Being aware of such priorities could assist companies in developing cost-effective strategies for their B2C-CFC.

Promoting and communicating the initiatives

In the EFaF (2018), it is claimed that consumers are still not familiar with the new forms of CFC such as clothing libraries, however more than half of them could imagine using such CFC forms under specific conditions (e.g. trustful cleaning, high quality of clothing). As mentioned, price is an important element for decision making, when consumers want to choose between buying and renting (Armstrong *et al.*, 2016). Considering that B2C-CFC is still in its initial phase, companies should consider targeting and positioning themselves in the market and clearly communicate the benefit-for-cost service proposition to attract the right group of consumers (JFMM2, 2018). In promoting their services, they should consider triggering different values (e.g. egoistic, altruistic) of their consumers. It is claimed that triggering egoistic motives positively influence sustainable consumption (Kibbe *et al.*, 2014). Similar results are found in a study about clothing consumption in Germany (Hübner and Woznica, 2018). Moreover, fashion is mostly about being unique. The uniqueness of the items could be a powerful marketing driver for such B2C-CFC.

Considering cross-cultural cooperation

According to the results of the IJCS paper (submitted), similar behavioral pattern can be seen in different cultural contexts regarding the location and previous owners of CFC. Businesses could use this finding in building international partnerships with CFC pioneers and follow the successful paths. International business cooperation could save time and cost, especially for newly established-businesses. However, regarding the drivers of intention and actual CFC, different behavioral patterns are found (IJCS, submitted). Knowing about such differences could also assist businesses to generate specific marketing strategies for entering each market. For instance, Nordic countries could be considered as pioneers of fashion libraries. Their know-how and experiences could be used and implemented in other Western Europe countries such as Germany. But such strategies could not be directly implemented in a Middle Eastern country.

7 Summary and outlook

Besides the sustainability issues of the garment industry, the amount of existing, idling capacities in the consumers' wardrobe has motivated some users, companies, and researchers to take a closer look at the concept of CFC. It seems that under specific considerations, CFC could have some environmental and social benefits for societies (JFMM1, 2017; JFMM2, 2018). The most important challenge might be to enjoy the eco-efficiency, while at the same time enjoying the eco-sufficiency potential of CFC. If CFC led consumers to other forms of consumption (that sometimes are even more environmentally or socially harmful than clothing consumption), then the rebound effect could eliminate all the contributions of CFC. To

understand whether and how CFC can contribute to the sustainability of fashion industry, a complex evaluation is necessary. Besides, P2P relationships in alternative consumptions is claimed to be by far the most unique aspect of such practices (Joyner Armstrong and Park, 2017). Therefore, beside the environmental benefits, social innovations of alternative consumption practices are important future research topic (Chou *et al.*, 2015).

CFC is claimed to have the potential to decrease the environmental problems of the current textile industry, yet a small group of consumers are currently participating in one or more CFC forms (EFaF, 2018; IJCS, submitted). In search of reasons for accepting CFC, different values, cultural, social and situational factors, attitude, intention, as well as demographic characteristics of consumers are studied in this research.

In order to extend the CFC concept and to encourage consumers to engage in such alternative clothing consumption, businesses, together with other actors, should take responsibility for making adequate pre-conditions available for users. Hence, they need to adapt some new or complimentary strategies.

This research aims at exploring a relatively new field of study and to provide a basis for future studies on the concept of alternative clothing consumption. Here, consumers and their role in fostering sustainability in the fashion industry is the main focus. However, in order to reach the sustainable development goals, all the actors should engage and collaborate together. More research is required on the concept of CFC. Most importantly, lifecycle assessment research is vital to test the actual ecological and social benefits of CFC. Besides, one could have a closer look at the innovative and technological tools that could make sustainable fashion and CFC more interesting for users. For instance, gamification could be applied as an innovative and interesting tool for raising awareness (Ozanne and Ballantine, 2010).

In sum, this dissertation is not aimed at introducing CFC as a unique idea for solving all the problems regarding fashion consumption. In fact, there is no such thing as a single golden idea to save the earth and its societies. Efficient usage of sustainably produced fashion items could lead humankind to deal with pressing ecological and social problems, only if the concept of sufficiency is well understood and practiced by all citizens.

All the papers of this cumulative dissertation are presented at the end of this document in chronological order based on the time when they were written, and not based on their publication time. Consistent formatting of paragraphs, font, size, numbering, and references is applied to all the papers (even for the published ones). In a few places, formalities are corrected in the papers.

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Sustainable fashion – from production to alternative consumption

Iran, S. (2018), in Jastram, S. and Schneider, M. (Eds.), Sustainable Fashion: Governance and New Management Approaches, Springer, pp. 139–159.

1 Introduction

New garment sales have increased by 60% in a period of 10 years in the UK (NIRI, 2006). Meanwhile, textile waste in the UK is recognized as the fastest growing fraction of household waste (DEFRA, 2008) and the global textile industry has serious negative environmental effects within its supply chains (BSR, 2009). The unsustainable characteristic of the fashion industry and the significant effect of fashion and clothing on global sustainability development (Allwood *et al.*, 2006) have stressed the need for fashion consumption sustainability and an increased demand for eco-friendly clothing (Williams *et al.*, 2005) has started to influence the fashion industry (Nagurney and Yu, 2012). Consequently, the focus of sustainability research has been shifted towards the consumption phase of the fashion supply chain (e.g. Fineman, 2001; Birtwistle and Moore, 2007; Carter and Rogers, 2008; Niinimäki, 2010; Armstrong *et al.*, 2015).

Against this background, the aim of this chapter is to illustrate the concept of sustainable fashion and to answer several fundamental questions regarding sustainable fashion: What does sustainable fashion mean and what are its elements? Who are the actors in this industry? How important is the consumption phase of sustainable fashion? What are alternative fashion consumption models?

In this paper, firstly, the concept of sustainable fashion is defined and elaborated in the context of the three categories of governance, production, and consumption and key drivers and actors of each phase are discussed. Due to the importance of the consumers' role, the consumption phase is specifically emphasized. Secondly, innovative and alternative fashion consumption possibilities are introduced, described by the term “collaborative fashion consumption” (CFC).

2 Sustainability in fashion

Fashion (in particular garment fashion) and clothing are two different concepts. While clothing is regarded as one of the basic needs of humankind, fashion is based on desire instead of need. But it seems that this nuance is not apparent in most contemporary societies, where the majority of the population have more clothes than they really need or could ever possibly wear (Black, 2008). Therefore, in this chapter the terms fashion and clothing will be applied interchangeably.

The fashion industry is faced with manifold environmental, social, and economic issues because of the existing fast-paced fashion trends. Water and air pollution caused by dyeing processes, pesticides that are used to grow the raw materials, artificial materials that are used in the production of clothes, and CO₂ emissions caused by lengthy transportation routes are only some examples of the environmental problems caused by the unsustainable fashion industry. For instance, conventionally grown cotton, as one of the most popular clothing fibers, is one of the most water- and pesticide- dependent crops (Claudio, 2007).

Moreover, as published in the media, workers in developing countries are suffering from working conditions that fast fashion companies put them through (e.g. Donaldson, 2016). As an example, one can refer to the collapse of Rana Plaza in 2013, in which thousands of workers died or were injured. Additionally, child labor (e.g. Moulds), low wages (e.g. ILO, 2014), and the lack of insurance could be listed as few social complications that have been seen in the unsustainable fashion industry. Considering the manifold problems that have arisen in the last decades, the concept of sustainable fashion consumption has been recently surveyed by various researchers (e.g. Fletcher, 2008; Black and Anderson, 2010; Schultz, 2010; Armstrong *et al.*, 2015).

3 Sustainable fashion discourse: definition and the developments

After the “Hippie” revolution in the mid-1970s, a second phase of fashion evolution evolved in the 1990s with a focus on sustainability issues (Black, 2008). Esprit presented its first Ecollection in 1994. In 2007, the first environmental strategy was written for Marks and Spencer, which helped the agenda for others to follow (Black, 2008). Hamnett in collaboration with the United Nations, developed the first certificate for sustainable clothing (Black, 2008).

Joergens (2006) describes ethical fashion as fashion clothing that is manufactured considering fairtrade principles and environmental standards of the production process. However, there is a fundamental debate on the paradoxical nature of sustainable fashion. On the one hand, production efficiency has increased affordable fashion availability (Eder-Hansen *et al.*, 2012). On the other hand, sustainability demands durability and the practice of recycling (Morgan and Birtwistle, 2009).

There are trade-offs to be made in all phases of clothing production and consumption considering available materials, costs, and time constraints. Each of these decisions has an impact on the next phase/s. For example, the chosen fiber will impact the whole product lifecycle- from cultivation, production, manufacturing, distribution, consumer laundering, to reuse and final disposal (Fletcher, 2008).

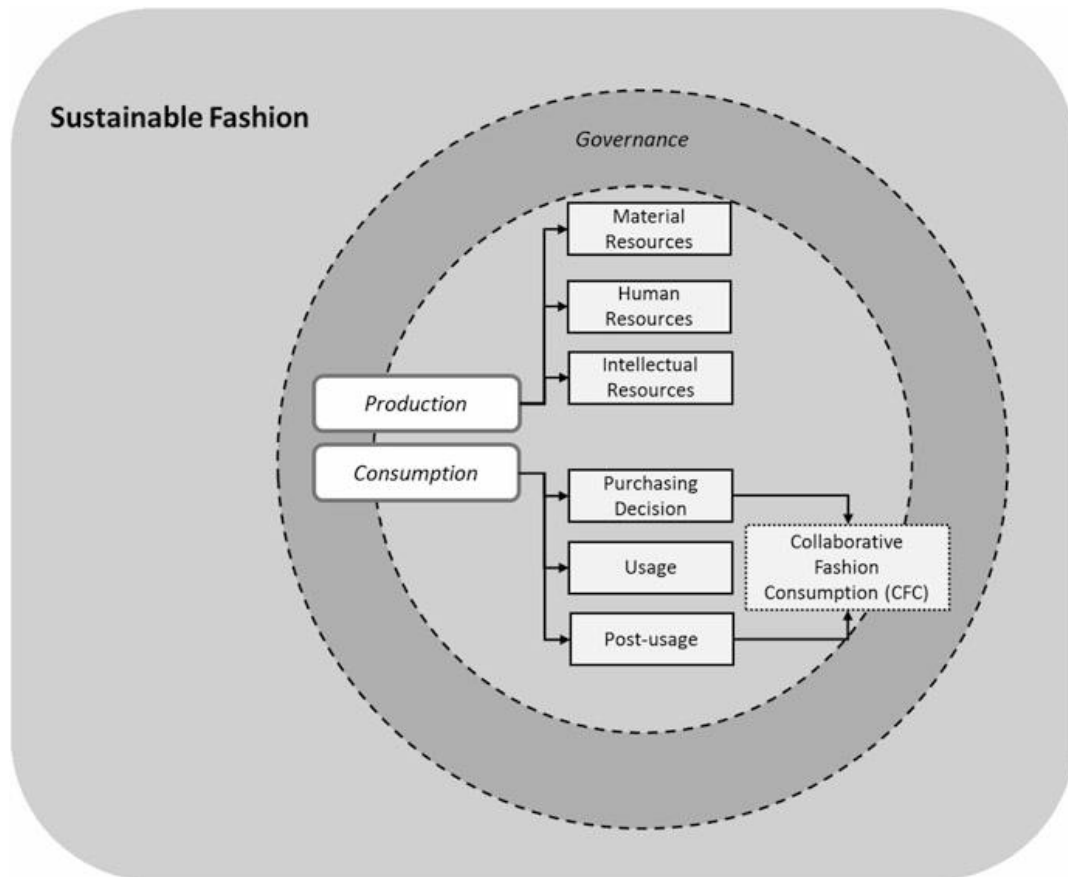
Therefore, in our more comprehensive definition, we refer to sustainable fashion as:

“Clothing that is designed, produced, (re-)used and disposed in a way that is aligned with the concept of sustainable development. Thus, we consider not only the sustainability of the production of the garments but also the sustainability of their usage and post-usage phase. The goal of sustainable fashion is thus to reduce environmental and social impacts of the conventional fashion industry, whose production processes are historically amongst the worst polluting, as well as being associated with systematic labor- and human rights law abuses in manufacturing countries. Each step in the complex production and usage cycle of fashion needs to be transformed in order to create sustainable fashion” (Stanszus and Iran, 2015, p. 154).

In sustainable fashion, materials are initially carefully selected among those that have the least possible environmental impact. In the next step, garments are designed in a way to not only minimize the wastes of cutting fiber or yarn but also to make intelligent fashion items that have timeless designs and are long lasting (Stanszus and Iran, 2015). The processing of the garments becomes more sustainable. For instance, natural dyes will be used. Less transportation will be planned and the production moves toward local manufacturing. “In sustainable fashion, networks of trade unions, governmental institutions, and corporations are managing workers’ rights to ensure fair treatment” (Stanszus and Iran, 2015, p. 154). In the consumption phase, consumers will wash their garments less frequently and at a lower temperature, they buy less clothing and as soon as they do not want to continue using the clothes, they will find a way to recycle, reuse or redesign the garments (Allwood *et al.*, 2006). “Sustainable fashion is nothing which is ready for sale; it needs to be created by joint responsibility of companies, consumers, and others” (Stanszus and Iran, 2015, p. 155).

Kate Fletcher considers three phases for innovation in the context of sustainable fashion as driven by legislation, technology-based innovation, and innovation of the consumption phase (Fletcher, 2008). Being inspired by this categorization, drivers of sustainable fashion will be studied here based on the three key categories of governance (e.g. governments, NGOs), production (e.g. manufacturers, suppliers, designers), and consumption (consumers), where governance can influence both production and consumption. However, drivers influencing sustainability of the fashion industry are not limited to the ones presented in Figure 1.

Figure 1 Drivers of sustainable fashion



4 Sustainable fashion governance

“Legislation has had a formative influence on sustainability innovation in the fashion and textile sector to date” (Fletcher, 2008, p. 54). Some standards and regulations are currently generated for production of fashion items in different countries across the world. However, it seems that an effective enforcement mechanism toward sustainable fashion is still missing in the textile sector, as exploitation of workers and environmental problems of the unsustainable fashion industry are still issues to be solved. From a sustainability perspective, it is desirable that fashion items are being produced in a sustainable manner and follow the guidelines of sustainability such as ISO 14000 (Lo *et al.*, 2012). Moreover, fashion companies can apply their positive image in terms of sustainability as an effective marketing strategy (Nagurney and Yu, 2012). Legal boundaries in combination with consumers, NGOs, and media pressure can control production in a market-based economy. One of the areas that governments have globally focused on is waste management, where the policies emphasize restrictions on landfill, treatment, and disposal of hazardous waste, and increase the practice of recycling (Morgan and Birtwistle, 2009). Moreover, tight import/export regulations as well as strict labeling are some of the strategies that

governments could apply in order to promote and control sustainability in the fashion market. With a set of import/export rules, government could support and promote local production and as a result decrease the carbon emission that results from transportation in a global textile supply chain.

Furthermore, there is an emerging trend of alternative fashion initiatives. Common regulations that are used for traditional and conventional fashion businesses cannot directly be applied to the alternative fashion initiatives or are sometimes not as effective as needed. For instance, in the case of clothing swapping, the classic buyer and seller cannot clearly be defined and distinguished or in case of online secondhand buying, the pricing of garments cannot follow the pricing strategies that are used for the new fashion items. In addition, in all of the online alternative fashion consumption models a mutual trust is required (Gata, 2015). Hence, setting specific laws and regulations for the alternative businesses could protect the rights of both the businesses as well as users/consumers.

The important role of NGOs in pushing and forcing companies to respect the rights of workers cannot be neglected. In the 1990s, NGOs exposed the labor abuse in the supply chain of brands, such as Nike or Gap, which resulted in the introduction of codes for minimum levels of worker rights as well as some legislation-driven changes (Fletcher, 2008). One example of NGOs that are focusing on clothing production is the Fair Wear Foundation (FWF). FWF is an independent, non-profit organization working with companies and factories to improve labor conditions for garment workers. Another example is the Clean Clothes Campaign (CCC), whose offices are widely spread around the world. The CCC is dedicated to improving working conditions and supporting the empowerment of workers in the global garment and sportswear industry. Since 1989, this campaign helps to ensure the respect for fundamental workers' rights. Educating and mobilizing consumers, lobbying companies and governments and offering direct solidarity support to workers as they fight for their rights and demand better working conditions are some working areas of this NGO.

Sustainability can be applied as a framework to reach environmental and socially conscious consumers and at the same time to increase the overall brand image of the company in developed countries (Faisal, 2010). Corporate social responsibility (CSR) as a prominent phenomenon in textile and clothing, involves the advancement of internal corporate program and systems, social auditing and certification, as well as the integration of companies in multi-stakeholder initiatives (ILO, 2005). The government can positively increase sustainability of the fashion industry by emphasizing the importance of the CSR activities of companies as well as having control over the performance of the garment industry. The governments have generally played the key role in

altering the conventional fashion industry toward a more sustainable one. Legislation and standards should be considered in all stages of the textile processing chain.

5 Sustainable fashion production

Some researchers have strongly criticized the apparel industry for their unsatisfying efforts to produce an ethical supply chain (Bendell and Kleanthous, 2007). However, increasing demand for eco-friendly apparel has impacted clothing production and forced companies to offer green items by e.g. using sustainable materials to satisfy the green consumers' demand (Sampson, 2009). For instance, H&M is claiming to be one of the leading users of organic cotton in the world. Additionally, in Europe, high street retailers, such as H&M, have launched eco-collections, and in the US, Gap Inc., has focused its efforts on decreasing the environmental impacts of its supply chain (Jegethesan *et al.*, 2012). Beside such attempts, many researchers and experts have investigated the production phase in order to achieve sustainability of fashion products. Hence, some innovative solutions have been generated during the last decades. Endeavors of these production related-innovations have mostly been towards achieving more efficiency in one or more resources. One can categorize their efforts into three sub-groups, based on the kind of resource(s) they focus on: material resources, intellectual resources and human resources.

5.1 Material resources

The kind and the amount of materials that are used in the production process of sustainable fashion items should be carefully decided. As commonly understood, sustainable fashion means using natural materials like cotton in garments instead of using synthetic, oil-based materials like nylon. However, according to the investigations of ecological impact and ethical issues regarding production of both mentioned materials, it is difficult to say which one is the better choice in terms of being eco-friendly. Each of these materials has its own sustainability issues that cannot be neglected. For instance, production of manufactured materials generally consumes less water, however, polyester and acrylic have high emissions to air (Fletcher, 2008). The majority of problems with cotton has occurred in Africa and India, where smallholding farmers in order to increase yields, fulfill the demand and maximize the profit by using pesticides that cause illnesses and death of workers. About 117,000 metric tons of organic cotton were globally produced during the 2013–2014 (OTA, 2015), however, even for these organic cottons a range of chemical substances is applied in the production process, which questions the sustainability of using natural fabrics instead of manufactured fabrics.

Furthermore, more attention is currently given to the recycling of textiles back into fibers. Patagonia is a pioneer in the field when it began selling its “post-consumer recycled” line in 1993. Using plastic bottles to produce garments is now practiced by other companies such as The North

Face. However, the amount of recycled textiles is still inconvenient. For instance, in 2014 the recycled rubber, leather, and textiles were about 9% of all recycled items in the USA (US EPA, 2014).

In Germany, Anke Domaske, the inventor of “QMilch” introduced a fabric made entirely of spoiled milk. However, using such innovative/more sustainable fabrics for garment production on a bigger scale might not yet be possible. In summary, there is a need to extent the amount of organic material and the smart usage of manufactured ones, as well as to develop an efficient technology for recycling material.

For many manufacturers, the improvement of production technology is a true way of being innovative. During the production processes (e.g. dyeing, drying, and finishing), chemical products and natural resources are intensively applied and are generating a high environmental impact (Rinaldi and Testa, 2015). Although using eco-friendly technologies in all the clothing-chain helps reduce the negative effects of the garment industry, this is still not a real answer to the problem; since relying on technology to fix all of the problems just decreases the needed consideration for the soft cultural change (Fletcher, 2008).

Due to the globalization process in the last decades, most of local productions are now shifted to different countries where material and labor forces are cheaper. In these countries, CSR is often less prevalent, NGOs are less powerful and consumer’s decision-making is more based on their basic economic needs (Jastram, 2007). Consequently, different countries often located far apart are engaged in the production process of garments. Therefore, massive amounts of energy and resources are consumed merely for transportation of materials and manufactured goods. For instance, in 2001, Fran Abrams and James Athill tracked a pair Lee Cooper jeans sold in a high street store in the UK on its global journey of 40,000 miles by land and sea, from producing the fiber in Benin to manufacturing in Tunisia (Guardian, 2001).

5.2 Intellectual resources

Designers are responsible for the different steps of their decision-making procedure, as their decisions consequently have impacts on environmental and social aspects of the whole product lifecycle and sustainable consumption patterns (Tischner and Charter, 2001). They choose fabrics and use them in their collections considering their design, cost, availability, and time constraints. The main challenges at this level are the selection of natural or manufactured fibers (e.g. Recolution uses organic cotton and GOTS certified materials in its collections), decisions for new or recycled fibers, design or re-design (e.g. Bag To Life works with the concept of upcycling and re-design), using mono or multi fibers (e.g. Patagonia works directly on the fabrics that are used in its collections), design for short or long term (e.g. Uniwearsal claims that they produce

timeless designed apparel), or trust in suppliers or direct control of the material supply chain (e.g. Gossypium produces sportswear in its own workshops to have direct control over the production).

One of the most outstanding responsibilities of designers is to design a charming sustainable item, which satisfies the needs and desire of the consumers (Zafarmand *et al.*, 2003). Often, sustainable consumers have difficulties finding suitable sustainable clothes because green clothes are generally noticed as shapeless, colorless, and overpriced (Meyer, 2001). Hence, the aesthetic values need more consideration when designing sustainable clothes (Fletcher, 2008). The point is that the desire for novelty will not and should not be eliminated, however development of alternatives is needed (Black, 2008). “Eco-chic must aspire to being the norm not the exception” (Black, 2008, p. 18).

Slow fashion and Cradle to Cradle are two recent concepts in the design phase approaching sustainable fashion. Cradle-to-Cradle as a design concept was initiated by William McDonough and Michael Braungart in 2002. This concept stresses the need for increasing the efficiency of production techniques and achieving waste free production. It should be possible to recycle, reuse, or re-consume all materials and to bring them back to a new lifecycle (McDonough and Braungart, 2010; Butler, 2007).

Slow fashion emerged as a reaction to the rapid trends of fashion buying behavior or fast fashion aiming at decelerating the fast pace of fashion. Slow fashion is defined as clothing that starts with careful choices and well-paid individuals and then remains to be used for years (Sayer, 2007). Designers are encouraged to integrate new insights into their patterns to make long lasting designs and thereby slow down the fashion pace. The concept of “everybody designs” presented by Ezio Manzini (2015) is another example of innovative thinking in the fashion industry.

Integrating the end-users into the designing process could increase the usage lifetime of the products. Moreover, some companies have realized the benefits of involving users in the development and diffusion of innovations (Baldwin and von Hippel, 2011; Füller *et al.*, 2012). Concepts like prosumption, in which both production and consumption are involved, integrate consumers’ ideas into the design process (Ritzer and Jurgenson, 2010). Engaging consumers in a participatory design process can also be seen as a way to achieve more sustainability in the fashion industry. Creating social values through meaningful experiences and collaboration can motivate consumers to value their clothes more as well as integrate their tastes into the design and as a result extend the usage phase of the product lifecycle.

5.3 Human resources

“Who should make the clothes and how should these workers be treated” are the main questions, when talking about human resources within the sustainable fashion production chain. Directly

after the garment is designed, the first decision to make is whether local workers are hired to make the products or to outsource the production to other countries e.g. Asian, African, or Indian garment manufacturing corporates. Due to the availability of cheap labor, the garment production has recently been shifted to developing countries. This outsourcing mostly causes long transportations as well as labor conditions that are not aligned with the fairtrade rules. The term “fairtrade” mostly covers the activities and implications of advocating for fair working conditions in manufacturing industries. Some researchers in the field of environmental clothing have paid attention to labor exploitation among other ethical issues (e.g. Dickson, 2001; Rudell, 2006; Shaw *et al.*, 2006).

The FWF is one of the NGOs that aims at developing fairtrade production in the garment and textile industry. The FWF code of labor practices contains eight labor standards that are made up based on the core labor standards of ILO. In FWF labor standard’s code: employment is freely chosen, there is no discrimination in employment, no exploitation of child labor, freedom of association and the right to collective bargaining, payment of a living wage, no excessive working hours, safe and healthy working conditions, and legally-binding employment relationships. These standards should be carefully followed by the manufacturers who are willing to produce sustainable fashion products.

Since the 1990s, the media and public have put pressure on fashion manufacturers to generate legal documents to protect labor rights in garment industries. However, such efforts have not yet completely resolved the problems in the textile industry (see Donaldson, 2016). Selecting the human resource in addition to setting employment rules based on fairtrade standards is a key factor in reducing the social problems of unsustainable fashion production.

6 Sustainable fashion consumption

People are becoming increasingly interested in the environmental and social consequences associated with their consumption patterns (e.g. Auger *et al.*, 2010; Harrison *et al.*, 2005). This development triggers a growing demand for ethically and sustainably manufactured products and services (e.g. Williams *et al.*, 2005). Nevertheless, companies have been criticized for not taking useful strategies into account despite the fact that the emergence of the sustainability concept, the importance considering the role of the consumers, and changing the lifestyle pattern have lately been emphasized (e.g. Schaefer and Crane, 2005; Belz, 2006; Thøgersen and Crompton, 2009). Schrader explained it in two ways: first, by highlighting the impact of consumption on ecological and social lifestyle of people, and second, by marking the consumers’ role as a potential influence on the companies’ behavior (Schrader, 2007). Therefore, the role of

consumers in reaching better sustainability is noticeable, and consumers are now looking for more sustainable solutions.

In a report by the University of Cambridge (Allwood *et al.*, 2006), a cotton T-shirt, a viscose blouse, and a nylon carpet were compared to each other with regard to their environmental, economic, and social data in various scenarios. The results revealed that shifting the production of the T-shirt and the viscose blouse to the UK saves modestly, since the used energy for transportation is relatively small in comparison to the washing of clothes. A change in consumer behavior has a large positive environmental impact (Allwood *et al.*, 2006). It can embrace a large number of reuse, repair, and recycling activities to augment the lifecycle of the clothes (Allwood *et al.*, 2006). In addition to the positive effect of sustainable fashion consumption behavior on the environment, Paulins and Hillery found ethical fashion to fulfill consumers' specifics as well as basic psychological needs (2009).

Kate Fletcher (2008) discusses recent sustainable fashion innovations regarding process, product, and consumer focus. She believes that the biggest benefits come from consumers. But it should not be forgotten that fashion consumers differ from other consumers of other product types with regard to their ethical consumption decisions (Niinimäki, 2010). For instance, regarding food consumption, consumers show more commitment to sustainable consumption as food has a direct impact on their individual health (Joergens, 2006; Ochoa, 2010), however, less commitment has been expressed in the fashion sector due to the wrongly perceived indirect effects of the fashion products on their health (Joergens, 2006).

There is still an attitude-behavior gap in sustainable clothing consumption. Consumers should become aware of the environmental and social impact of their clothing consumption as well as the alternatives to unsustainable fashion consumption. They should be encouraged to practice sustainable fashion consumption in their everyday life. Many lines of research consider the problem of unsustainable fashion consumption (e.g. Niinimäki, 2010; Ochoa, 2010; Lewis and Gertsakis, 2001; Palmer and Clark, 2005). Consumer behavior involves pre-purchase, purchase, and post-purchase components. Some researchers have limited sustainable consumption to sustainable buying behavior (e.g. Balderjahn *et al.*, 2013). However, in this chapter sustainable fashion consumption refers to all three phases of purchasing, usage and post-usage of the garments.

6.1 Purchasing decision

Consumers are increasingly taking the ethical attributes of clothing into account (Kim and Damhorst, 1998; Dickson, 2001). In the purchasing decision step, the significant discussion is to determine the consumer intention towards the fashion products- whether they are willing to buy

new or used products. In this regard, the perceptions and attitudes of the consumer play a significant role in addition to the cultural and social values of the whole society. Moreover, concepts, such as sharing, renting, and swapping, can be effective and applicable to decreasing ecological footprints only when people accept to buy the service instead of the product. It is also crucial that consumers understand and practice the sufficiency concept in the decision-making process and avoid overconsumption of material by following the fast fashion trends. Buying sustainable products will not be a complete solution unless consumers combine it with buying less, using the products longer and more efficiently and eventually bringing them back into the cycle.

6.2 Usage

The usage step in the consumer behavior process describes how consumers use and maintain fashion products in a sustainable manner. Laundering is one of the most water and energy consuming parts of this step. However, there is a lack of studies that focus on cleanliness, hygiene, and the environmental consequences of laundering (Fletcher, 2008). Moreover, ironing and washing temperatures have a significant impact on the energy consumed in the usage phase (Niinimäki, 2009). In 2001, Lewis and Gertsakis estimated the possible impact of consumer care to be about 75-80% (depending on the material used in the shirt) of the total ecological impact of a cotton shirt (Lewis and Gertsakis, 2001).

In the UK, it is estimated that between 0.8 and 1 million tons of apparel are sent to a landfill yearly. Among them, a minimum of 151,300 tons of clothing and footwear could be directly reused (Bartlett *et al.*, 2013). This shows that consumers sometimes sorted their clothes out, although the garments were still usable and before the garments reached their end of lifecycle. These fashion products could be seen as unused potentials and could be used for a longer period of time. Extended usage of the clothes could benefit the environment. It is claimed that if the lifetime of clothes could be increased by 33%, potential footprint reductions and resource cost saving could amount to 27% carbon savings, 33% water savings, 22% waste savings, and 22% resource cost savings (WRAP, 2012).

Repairing the clothes could be another way to prolong the clothing lifetime of the garments. According to a study by Greenpeace, 42% of the participants have never repaired their clothes (Greenpeace, 2015). Bringing back the trend of valuing and repairing the garments could potentially decrease the unsustainable fashion consumption.

6.3 Post-usage

By increasing fashion purchasing, most of the garments are disposed of after being worn only a few times (Birtwistle and Moore, 2006). Studies on wasteful consumption that were conducted by

The Australia Institute show that about 1.7 billion dollars were spent yearly for clothes and accessories that were not worn at all or only used for a short period of time (Pears, 2006). In Germany, each adult between (18–69 years old) has about 18 clothing pieces that have almost never been worn (Greenpeace, 2015). This makes for about 1 billion unused clothing pieces stored in German wardrobes (Greenpeace, 2015). It seems that a huge amount of clothes is treated like waste shortly after purchasing. However, in contrast to other types of waste, they stay unused in wardrobes instead of going to a landfill. Analyzing the clothing lifecycle reveals the significant role of the consumer in garment waste management (NIRI, 2006; Tukker *et al.*, 2008; Birtwistle and Moore, 2007). Consequently, some researchers and fashion designers paid attention to this phase of the consumption process to increase the sustainability by re-designing, recycling, and re-using these unused fashion products.

6.3.1 Re-designing

Some small designers now use different methods and techniques, such as upcycling, restyling, reshaping, embellishing, and over-printing, to make new clothes out of the unwanted garments (Fletcher, 2008). TR Aid is an example of charitable organizations that give unsold charity clothes to the young designer groups to redesign and remodel them into fashionable pieces, which then are sold again. The Upcycling Fashion Store Berlin is also one of the initiatives that sells only garments that have been redesigned and remade out of existing clothes. Different designers who work in cooperation with this store use their innovative design ideas to reshape the existing garments and offer consumers redesigned clothes.

6.3.2 Recycling

The importance of recycling was mentioned in the production phase. However, consumers can play a significant role in this regard. They can find ways to recycle their clothes and use them in other ways. Donating the unwanted clothes is not always the best way, as it has been mentioned, “only about one-fifth of the clothing donated to charities is directly used or sold in their thrift shops” (Claudio, 2007, p. 452). There is a huge load of clothes that are given as donations. For instance, more than 12 million pounds of post-consumer textiles are processed yearly in the Trans-America Trading Company; about 30% of such textiles have industrial use, 25–30% are recycled into fibers to be used as stuffing for upholstery, insulation, and manufacturing paper products, and only 45% of them continue their lives as clothing and even then, not domestically (Claudio, 2007). These apparels are imported to the developing countries and are sold for expensive prices, there. Considering the high prices for the local people in such countries as well as the environmental problems caused by transportation of the used clothes to such countries, donating the unwanted clothes is not the best option. One can suggest to recycle and reuse the clothes domestically in order to avoid the consequences of transportation.

6.3.3 Re-using

It is claimed that collecting, processing, and distributing used apparel requires 1.7 kWh of extracted energy per kg of secondhand garment recycled (NIRI, 2006). However, the energy used to collect, sort, and re-sell used garments requires between 10 and 20 times less energy than for production of new clothes (Laursen *et al.*, 1997). A lifecycle assessment study shows that for every kilogram of new cotton clothing replaced by used clothing about 65 kWh are saved, and for every kilogram of new polyester clothing replaced by used clothing, about 90 kWh are saved (Woolridge *et al.*, 2006). In conclusion, it seems that reusing clothes consumes more energy than recycling them. However, in comparison to the energy used during the production of new clothes, re-using saves a considerable amount of energy.

Some unused clothes are passed on to charity shops that sell secondhand clothing in local areas. Only 10–20% of them are resold in UK charity shops (Black, 2008). Others are sorted, and better quality items are sent to developing countries to be sold in the local market (e.g. Rivoli, 2015; Mhango and Niehm, 2005; Hawley, 2006). There have been some arguments about western clothing exports threatening the local garment industry and culture of the countries that import these clothes. A study conducted by Baden and Barber (2005) reveals that the secondhand clothing imports are not the only cause for the decline of clothing production and employment in West Africa. Unreliable and expensive infrastructure as well as high costs and lack of available materials and training plus cheap import from Asia are some of the main reasons for this issue. Additionally, secondhand clothing trades create substantial employment in countries that are exporting the used clothes as well the countries that are importing those clothes. Promoting the market of used clothes in the same countries, where the used garments are collected might be a better strategy to decrease the environmental impact of the transportation of used garments.

7 Collaborative fashion consumption: the latest development

One can take a look at the traditional lifestyles and have some idea of how societies used to maintain a harmony between satisfying their needs, and at the same time not depleting the natural resources. One of the common activities in traditional societies was sharing goods and services. These collaborations are nowadays rare due to various economic reasons. Therefore, instead of using existing products, people are often used to enjoying the concept of ownership through buying affordable products. This new ownership concept has led to overconsumption of natural resources, as well as, social and economic injustice.

Before the industrial era, there was no mass production of products. People were consequently valuing their products and were engaging in sharing activities more than what we see nowadays in societies. On the one hand, products are currently cheap and affordable (at least in developed

countries) and most of the people can buy their own goods. On the other hand, the lifestyle of people has changed to more individual-oriented, in which the speed of lives is increasing and people are willing to acquire everything by spending the least amount of time possible. As a consequence, the concept of sharing products and services is no longer popular among consumers. However, recently some scholars and practitioners claim that a sharing economy or collaborative consumption has the potential to increase sustainability and reduce the ecological and carbon footprint in a number of key areas (Schor and Fitzmaurice, 2015). It is also claimed that collaborative consumption could lead to more social connections between citizens (Botsman and Rogers, 2011).

Collaborative consumption refers to “the redistribution of used products in which two or more persons (re)use the same product in a different period of time regardless of whether the ownership is transferred or if a monetary or non-monetary fee has been assessed” (Iran and Schrader, 2017, p. 472). This understanding of collaborative consumption is aligned with the definition introduced by Botsman and Rogers (2011). Information and Communication Technologies (ICT), explicitly Web2.0 technology, offered and extended the sharing possibilities. The previous local redistribution practices can now be promoted on a larger scale and with less transactional costs (esp. information and contracting costs, Schrader, 2001). Airbnb, Uber, Drivenow, and Spotify are some well-known examples of the fast growing companies that offer collaborative consumption opportunities. The Internet offers people a higher availability of sharing and collaborative consumption options.

Collaborative consumption has been also practiced in the fashion industry. CFC offers consumers the option of making their used clothes available on the market and/or taking advantage of using the already existing fashion items. “CFC embraces fashion consumption in which consumers, instead of buying new fashion products, have access to already existing garments either through alternative opportunities to acquire individual ownership (gifting, swapping, or secondhand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing)” (Iran and Schrader, 2017, p. 472). CFC is not a new concept and has been practiced in families, between friends, or even in the flea markets. But as mentioned before, nowadays it can be practiced on a broader scale through available online and offline platforms. Some businesses have already recognized the market potential of CFC and offer online or offline platforms, where different types of CFC (e.g. swapping, renting) are offered in exchange for monetary compensation.

In 2011, Botsman and Rogers introduced three models of collaborative consumption based on different forms of transactions. The first collaborative consumption model, Product Service Systems (PSS), can be described as “pay for the benefit, not the ownership” (Botsman and

Rogers, 2011). It disrupts the traditional models of individual private ownership and shifts the concept of ownership from material ownership to service ownership (Botsman and Rogers, 2011). In the fashion industry this model can be seen in clothing and accessories rental. There are different websites and shops trying to apply this concept to allow people to rent a product and use its service instead of buying it. Fashion Hire, Girl Meets Dress, Kennedy Purple, and One Night Stand are some examples.

Redistribution markets, the second model of collaborative consumption, is defined as exchanges that make secondhand goods available where they are needed (Botsman and Rogers, 2010). By increasing fashion purchasing, most of the garments are disposed of after being worn only a few times (Birtwistle and Moore, 2007). Instead of being stocked in the wardrobes, the massive volume of not-used (or once-used) clothing could be worn by others who need them or can use them again. Cloth swapping is embedded in redistribution markets and has been developed “from private parties among a small group of girlfriends to high fashion, big warehouse ticketed events” (Botsman and Rogers, 2011, p. 90). Big Wardrobe, Covert Candy, SwapStyle, and Fashion Reloaded Clothing Swap are some examples of fashion swapping websites.

The third model, collaborative lifestyles, encourages “people with similar interests [to] band together” (Botsman and Rogers, 2010, p. 85). Here people can exchange their time, skills, spaces, and so on. The most applicable skill in fashion industries is the ability to design or redesign the garments. Used clothes can be redesigned through methods and techniques such as upcycling, restyling, reshaping, embellishing, and over-printing. This is not limited to charity clothes but can happen among friends and neighbors where people redesign their old clothes and use them again or share them with those who need them. A growing number of sewing cafés are opening in different cities in Germany. People can use the space and available materials in addition to the knowledge that is offered either by organizers or other fellow members who are coming to the sewing café to repair and redesign their clothes. Skill sharing and social connections that are happening in such sewing cafés are some of the important motivators for participation in such platforms (Hirscher and Iran, submitted).

There are only a few articles that explicitly focus on collaborative consumption and even fewer focus on CFC. Recently, Schor and Fitzmaurice (2015) proposed a typology for a sharing economy. They introduced four types of collaborative consumption based on two dimensions of “market orientation towards profits and value creation” and “organization nature” (Schor and Fitzmaurice, 2015). In 2017, Iran and Schrader offered a typology of CFC and categorized CFC practices into peer-to-peer and business-to-consumer types. “The peer-to-peer type encompasses forms of CFC in which fashion products are passed from one consumer to another. Peer-to-peer could be organized by peers themselves either through online or offline platforms or

by a company in a service-based form” (Iran and Schrader, 2017, p. 473). In peer-to-peer CFC six different sub-types are introduced as: swapping parties, gifting, sharing, lending, borrowing, and buying as secondhand clothing (Iran and Schrader, 2017). All of these practices can happen offline and among a group of friends, colleagues, relatives, etc. However, by using social networks such as Facebook, people can widen their network and practice CFC even with those who they don’t know or know less. For instance, in Germany, consumers can use networks such as “Klamottentausch” (Clothing Exchange) for clothing swapping and “Kleiderkorb” (Clothing Basket) or “Kleiderkreisel” (Fashion Spinner) for gifting, swapping, or selling secondhand clothing. Kleidertausch (Clothing Exchange) is another Facebook page that announces different clothing swap parties all over the Germany. Companies can facilitate peer-to-peer CFC on a larger scale. For instance, Ebay is an online platform that consumers can use to sell or buy secondhand clothing. “Bag Borrow or Steal” is an example of a company, where users have the opportunity to sell or rent-out their used luxury bags. In Germany, “Mädchenflohmarkt” (Girls Flea Market) is a website, “where consumers can put their used clothes on the website and earn up to 80% of the sales price” (Iran and Schrader, 2017, p. 474).

The other type of CFC that has been mentioned is business-to-consumer CFC (Iran and Schrader, 2017). “The companies offer either services as substitutes for product ownership (renting and leasing) or secondhand retail service to make the purchase of new products dispensable” (Iran and Schrader, 2017, p. 474). People have had the possibility of renting special costumes from renting shops. Nowadays there are some clothing libraries that offer subscription-based services (e.g. Pedersen and Netter, 2015). For instance, Kleiderei is a clothing library in Germany. Once a month members of this library receive four pieces of clothing for a monthly-fee of 39 €. Apart from fashion libraries, there are different websites for renting fashion products. Kennedy Purple is a company that rents out designer handbags, jewelry, and fashion accessories. Leasing is another sub-type of business-to-consumer CFC that has been less practiced. In Germany, “Lütteleihen” (Baby Clothes Rental Service) offers leasing for baby clothing. Unlike renting services consumers here should have longer contracts. In case of Lütteleihen, the minimum time period of a contract is 2-months. “Besides the traditional secondhand shops, there are many online secondhand markets such as “Walk in my Closet” where consumers can buy secondhand luxury shoes, clothing, bags, or accessories from a commercial website” (Iran and Schrader, 2017, p. 475).

Nowadays, there are plenty of the existing practices of CFC in societies. The examples that are mentioned in this section and other similar ones that are continuously becoming more and more commonplace in societies can bring positive environmental and social impacts.

8 Summary and outlook

In this chapter, the author summarized some of the most important concepts related to sustainable fashion. An emphasis has been put on the consumption phase and specifically on the alternative and innovative fashion initiatives.

Systematically, the efforts towards fostering sustainability in fashion have been categorized into three groups: governance, production and consumption. First of all, we need a proper legislation to promote and control sustainability in the fashion industry. These rules and their implementation should be continuously monitored not only by governmental agencies but also by NGOs and independent media. Then in the production phase, efforts should be put on reaching the maximum resource efficiency according to the principles of sustainable development. Material-, intellectual-, and human resources are discussed in this group.

The sustainability of fashion is not only determined by sustainable governance and production but also by consumers, their intentions, behaviors, and habits. Consumers play a significant role in decreasing the harmful effects of fashion consumption on the environment. As it is classified in this chapter these effects occur in the purchase, the usage, and the post-usage phase of fashion consumption. Initially, consumers make a decision on buying new bio/fairtrade products or using secondhand ones. Afterwards, consumers make a decision on how they want to use and maintain their fashion products. Finally, they need to determine what should be done with the garments after the end of the usage period. In the final phase, they can decide to reuse the garments by selecting one of the opportunities that CFC offers.

Buying less, wearing long, maintaining well, and proper feeding back into the system for recycling after use are some examples of sustainable fashion consumption (Allwood *et al.*, 2006). Consumers can also decide to use secondhand garments instead of buying new ones. They can decide to return their used clothes to the lifecycle by making them available to the secondhand market. If consumers decide to use secondhand clothing either by swapping, borrowing, lending through peer-to-peer CFC, or by renting, leasing, or buying secondhand clothes from companies, they enter the area of CFC with all of its ownershipless opportunities. There is a good potential of achieving environmental and social benefits by extending CFC in the fashion industry. Having more comprehensive studies on different types of CFC in combination with generating good strategies could improve sustainability in the fashion industry. There is still a lack of academic research on the opportunities and barriers of different types of CFC, motives of the current consumers who are participating in CFC, as well as best practices and governance structure of CFC practices. In addition, a comprehensive lifecycle assessment could confirm the positive

environmental impact of CFC and could reveal the amount of environmental opportunities that CFC can offer.

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Collaborative fashion consumption and its environmental effects

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Abstract

Purpose – The purpose of this paper is to provide the conceptual basis of collaborative fashion consumption (CFC) as a possible path toward more sustainable clothing. A definition and a typology of CFC are introduced and possible environmental effects of CFC are structured and discussed. This provides a solid conceptual basis for future empirical studies on CFC as an element of more sustainable consumption.

Design/methodology/approach – This paper is written mainly based on a review of the more recent literature on collaborative consumption, as well as of older papers about related concepts like sustainable service systems and eco-efficient services. The proposed CFC typology and the structure of environmental effects are developed using both a deductive and an inductive process, and then by transferring existing structures to this specific field and challenging them by assigning practical examples.

Findings – The main contributions of this paper are the definition and typology of CFC and the structure for assessing its environmental effects.

Research limitations/implications – The findings provide a conceptual basis for future empirical research on CFC.

Practical implications – For practitioners, the CFC typology and the structure of environmental effects could be used as checklists for future development of more sustainable collaborative consumption offers.

Originality/value – This paper makes a unique contribution to the concept of CFC. To the knowledge of the authors, this is the first paper that has been explicitly dedicated to examining different types and environmental effects of CFC.

Keywords

Collaborative consumption, Sharing economy, Fashion consumption, Secondhand garments, Sustainable fashion

1 Introduction

Fashion consumption has been increasing constantly all over the world. In the USA alone, 15.1 million tons of textiles were disposed of in 2013 (US EPA, 2015) compared to 7.4 million tons in 1995 and 2.5 in 1980 (US EPA, 2003). In the UK, it is estimated that between 0.8 and 1 million tons of apparel are sent to landfills yearly; among them, a minimum of 151,300 tons of clothing and footwear could be directly reused (Bartlett *et al.*, 2013). In Germany alone, there are about 5.2 billion pieces of clothes in adults' (between 19 and 69 years old) wardrobes; on average each person has 95 pieces of clothing, excluding socks and underwear (Greenpeace, 2015). The fast fashion trend generates environmental and social hazards (Claudio, 2007), increases clothing turnover and consequently results in greater end-of-life clothing waste (DEFRA, 2008). Textiles have been recognized as the fastest growing fraction of private household waste in the UK (DEFRA, 2008). There are similar statistics all around the world. These astonishing numbers reveal the need for urgent material reduction strategies in the fashion industry. It has been emphasized that the reduction of disposed textiles is the single greatest unused economic and environmental opportunity within fashion industry (Bartlett *et al.*, 2013).

For many years, the emphasis was on producing more sustainable products and encouraging consumers to purchase such products. However, it is clear now that this strategy of substituting products is not as effective as previous estimates held it to be (Peattie and Peattie, 2009). More importantly, it is remarkable that up to 60 percent of the environmental impact of products comes from the consumption stage of their product lifecycle, e.g. from cleaning and fast replacement (Koefoed and Skov, 2010). WRAP (2012) conducted research to identify overall patterns of environmental impact, based on estimates of the quantities and impacts of clothing at each stage of the lifecycle. Taking into consideration that the data used in this study reflect approximations, it was estimated that one quarter of the carbon food print of the clothing lifecycle comes from the usage phase and that the post-usage phase accounts for almost two-third of the whole lifecycle waste (WRAP, 2012). It seems that changing lifestyles to be more sustainable requires not only more eco-efficient products, but also new patterns of product use and consumer behavior (which is also true for a sustainable economy in general; Lorek and Spangenberg, 2014). Implementing collaborative consumption or specifically collaborative fashion consumption (CFC) could help to reduce material overconsumption in the current fashion industry.

Some authors have already studied aspects of CFC in their research on collaborative consumption (e.g. De la Calle Vaquero and De la Calle Calle, 2013; Leismann *et al.*, 2013; Schor, 2013) or on product service systems for clothing (e.g. Armstrong and Lang, 2013; Armstrong *et al.*, 2015). Nevertheless, the term, the types, and the environmental effects of CFC have not been analyzed comprehensively and systematically.

Thus, the guiding question for this paper is: what exactly is CFC and how can it contribute to more sustainable consumption? By answering this question, the paper aims at providing a clear understanding of CFC, its different forms, and its possible effects on the environment. This should provide a useful foundation and structure for further research and recommendations for action in this innovative area of consumption and business.

Accordingly, after short methodological considerations in the next (second) section, CFC is then positioned in the broader field of sustainable fashion in section 3. Then, in section 4, a definition of CFC is proposed which serves as a basis for the development of a typology of different subtypes of CFC in section 5. In section 6, the contribution of CFC to the reduction of environmental resource use through eco-efficiency and sufficiency is discussed, before conclusions and a perspective on how CFC might be further developed are presented in the final section.

2 Methodological considerations

This conceptual paper is based especially on the review of recent literature on collaborative consumption and related concepts (see section 4). It also takes into account the older body of literature on concepts like product service systems (e.g. Mont, 2002; Tukker, 2015; Tukker and Tischner, 2006), sustainable services (e.g. Halme, 2005), and eco-efficient services (e.g. Schrader, 1999). These approaches have many common features and deal with forms of consumption like sharing, renting or using other service schemes. By applying existing ideas from these more general concepts to the specific field of CFC, and by adapting and further developing them, a better understanding of CFC and its effects should be possible – beyond the very few existing papers on CFC in specific (Pedersen and Netter, 2015 being the first journal article using this term explicitly, though only one time). The selection of considered papers was made based on a Google Scholar search for relevant keywords (collaborative consumption, sharing economy, sustainable services, product service systems, eco-efficient services; alone and in combination with fashion, clothing, clothes and/or typology, categorization, classification). First, results have been added by an analysis of the lists of references in the selected papers (“bread crumbing”) and by a search for new citations of the selected papers (“pearl growing;” see Fink, 2009, about systematic literature reviews). The goal is not to present a full record of publications in this broad field of research, but instead to identify main ideas that help to structure types and environmental effects of CFC.

The development of the CFC typology (section 5) drew on both inductive and deductive methods. It is based on the analysis of 17 CFC websites (listed in the Appendix) and the application of a typology for sharing economy platforms by Schor and Fitzmaurice (2015). This typology offers

the most recent and most appropriate typology of collaborative consumption and is generally applicable to CFC. The CFC websites were identified in a non-structured online research, added by websites already mentioned in the collaborative consumption literature. This paper does not attempt to provide a comprehensive inventory of CFC activities, but instead seeks to develop a typology which is illustrated by at least one practical example for every sub-type. Each website was analyzed for the relevant typology criteria: type of provider-consumer relationship (peer-to-peer (P2P) vs business-to-consumer (B2C)), organizer (peers vs company), compensation for participation and acquisition (none, non-monetary, monetary) and sub-type (gifting, sharing, lending, swapping, second hand buying/selling, renting). The suitability of the proposed typology is supported by the fact that all discovered CFC examples fit into one sub-type category.

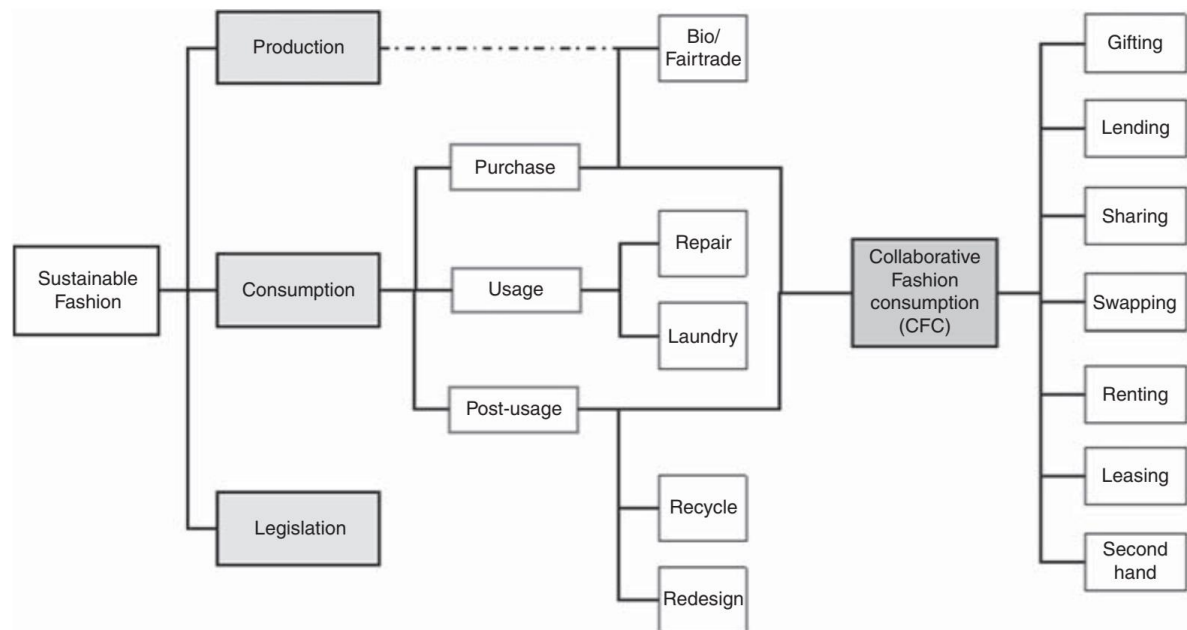
The structure for the environmental assessment of CFC (section 6) is based on numerous studies on environmental effects of eco-efficient services and was originally developed in a broader PhD study with a specific focus on car sharing and washing services (Schrader, 2001). This structure is applied here to CFC by referring to the newly developed CFC typology and by providing results of empirical studies from clothing and related fields of consumption. The described ecological effects of CFC are usually based on reasonable assumptions and deductions and require further confirmation. Thus, this paper does not provide a validation of hypotheses, but proposes structures for a better understanding of CFC and for future empirical studies on its effects.

Before the typology and the possible environmental effects can be presented, a clear definition of CFC and how it can become “an element of sustainable fashion” must be established.

3 CFC as an element of sustainable fashion

In light of the manifold environmental problems that have arisen in the last decades, the concept of sustainable fashion consumption has been surveyed by different researchers (e.g. Black and Anderson, 2010; Fletcher, 2008; Schultz, 2010). Eco fashion is defined as garments which are designed and produced to increase benefits for people and society while decreasing a garment's negative environmental effects (eco-friendly fashion cited in Ochoa, 2010). Joergens (2006) describes ethical fashion as fashion clothing that is manufactured with high regard for fairtrade principles and environmental standards in the production process. While eco fashion and ethical fashion are mainly focusing on the design and production phase of a product, sustainable fashion refers to clothing, which is designed, produced (re-)used, and disposed in a way that is aligned with the concept of sustainable development (Stanszus and Iran, 2015). Thus, sustainability does not only refer to the production of the garments but also to their usage and post-usage phase (see Figure 1).

Figure 1 CFC as an element of sustainable fashion



Systematically, the previous efforts for fostering sustainability in fashion consumption could be categorized into three groups: consumption, production, and legislation (Figure 1). For many years, the two latter groups were the focus of efforts by academics and practitioners to understand and reduce the irreversible environmental impacts of the fashion industry. In the production phase, attempts were made to modify the practices of the fashion industry by focusing on the materials used in the garments, the design, the technology with which the garments are produced, the labor wages, etc. Applying organic materials, improving manufacturing technologies and processes, improving laborers' working conditions, in addition to introducing eco-designs have been recognized as the main strategies toward sustainable fashion in the production phase (e.g. Fletcher, 2008). Besides, the role of governmental endeavors has been emphasized in order to shift the unsustainable fashion to a more sustainable one (Siegle, 2011). More recently, due to the persistence of harmful environmental effects in consumption patterns, the focus of sustainability research has been widened to the consumption phase of the value chain (e.g. Bianchi and Birtwistle, 2010; Birtwistle and Moore, 2007; Carter and Rogers, 2008; Fineman, 2001).

The sustainability of fashion is not only determined by the material, the design, and production conditions, but also by consumers and their intentions, behaviors, and habits. Consumers play a significant role in decreasing the harmful effects of fashion consumption on the environment (e.g. Niinimäki, 2010). As shown in Figure 1, these effects occur in the purchase, the usage, and the post-usage phase of fashion consumption. Initially, consumers choose which fashion products they want to attain (e.g. decision on buying new bio/fairtrade products or using secondhand ones).

Afterwards, consumers make a decision on how they want to use and maintain their fashion products (e.g. decision on repairing, laundry, and usage lifetime). Finally, they need to determine what should be done with the garments after the end of the usage period (e.g. decisions about re-using, recycling, or re-designing). Decreasing amounts of clothes bought (in the purchasing phase), washing less frequently and at lower temperatures, longer wearing periods (in the usage phase), as well as proper feeding back into the system for recycling after use (in post-usage phase), are some examples of sustainable fashion consumption (Allwood *et al.*, 2006). When consumers decide to use secondhand garments instead of buying new ones or when they decide to return their used clothes to the lifecycle by making them available for secondhand use, they enter the area of CFC with its opportunities for gifting, lending, sharing, swapping, renting, leasing, and secondhand buying.

4 Definition of CFC

In recent years, numerous researchers have dealt with new collective consumption concepts such as collaborative consumption (e.g. Belk, 2014; Botsman and Rogers, 2011; Schor and Fitzmaurice, 2015), prosumption (e.g. Ritzer and Jurgenson, 2010), sharing (e.g. Belk, 2010; Lamberton and Rose, 2012), access-based consumption (e.g. Bardhi and Eckhardt, 2012), or connected consumption (Schor and Fitzmaurice, 2015). These concepts have a lot in common with older ideas on use-oriented service offers (see section 2). The principal idea behind all of these practices is to promote the notion of using, as opposed to owning, products. While these concepts share many common characteristics, each has its own unique approach. This paper concentrates primarily on collaborative consumption without neglecting the related concepts.

Felson and Spaeth (1978, p. 614) defined collaborative consumption as “those events in which one or more person(s) consume economic goods or services in the process of engaging in joint activities with one or more others”. More than three decades later, Botsman and Rogers (2011) define collaborative consumption as “the rapid explosion in traditional sharing, bartering, lending, trading, renting, gifting, and swapping redefined through technology and peer communities”. Both of these definitions have been recently criticized by Belk (2014). He considers the definition of Felson and Spaeth as too broad and not sufficiently concerned with the acquisition and distribution of resources. In addition, in his opinion, Botsman and Rogers’ definition does not consider the differences between sharing, marketplace exchange, and gift giving. For Belk (2014, p. 1597), “collaborative consumption is people coordinating the acquisition and distribution of a resource for a fee or other compensation”.

Although gift giving, secondhand market use, and sharing can be distinguished (as Belk, 2014 argues) with regard to ownership and compensation, they all can be subsumed under the term of

collaborative consumption. What is significant here is the redistribution of used products in which two or more persons (re)use the same product in a different period of time regardless of whether the ownership is transferred or if a monetary or non-monetary fee has been assessed. Therefore, this understanding of collaborative consumption is more aligned with the broader understanding introduced by Botsman and Rogers (2011). This also refers to the influential role of the new opportunities offered by information and communication technologies (ICT), explicitly Web 2.0 technology. In concepts of collaborative consumption, the existence of an online platform adds value to the previous local redistribution markets by promoting it to a broader scale by reducing transaction costs (Schrader, 2001). The fast growing companies which offer collaborative consumption opportunities such as car sharing (e.g. Zipcar, DriveNow, Car2Go), media sharing (e.g. Spotify, Pandora), or accommodation sharing (e.g. Airbnb, HouseTrip) indicate how the internet facilitates the ability of people to find what they need at all times.

In respect to the arguments above:

CFC embraces fashion consumption in which consumers, instead of buying new fashion products, have access to already existing garments either through alternative opportunities to acquire individual ownership (gifting, swapping, or secondhand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing).

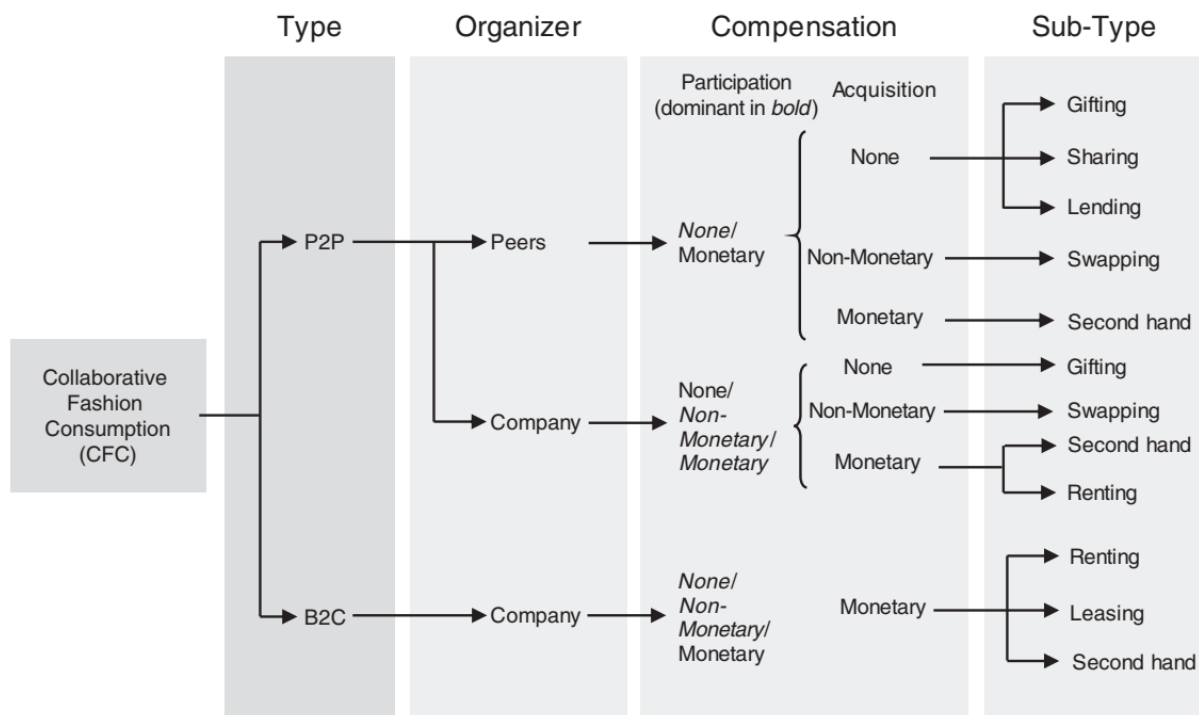
Most of the alternative ways of acquiring clothes (e.g. borrowing, swapping) are not new concepts. However, in the twenty-first century they have expanded on a scale and in ways never possible before, mostly due to the possibilities provided by ICT. Historically speaking, the CFC concept has been applied locally, within a family or between friends, neighbors or relatives. Nowadays, various forms of online and offline platforms (e.g. websites and shops) are assigned to facilitate, accelerate, and broaden the application of CFC among a wider range of consumers. This development has only been possible, since CFC is not restricted to pure P2P exchange but can be stimulated and organized also by companies. The above-mentioned examples like Zipcar or Airbnb show that collaborative consumption and professional business are not necessarily antipodes but can complement each other. The same is true for CFC. This is possible since collaborative consumption offers are often not for free, but require compensation from the user. The aspects of organization and compensation form the basis of a typology and should help us to better understand the CFC “market.” In the next section, these aspects are presented and illustrated with recently emerging practical examples.

5 Typology of CFC

The typology proposed below (see Figure 2) is based on the concept detailed by Schor and Fitzmaurice (2015) for sharing economy platforms. They classified four types according to the

organization's orientation toward profit or non-profit and whether the platform is P2P or B2C oriented. CFC can be similarly categorized into a P2P- and a B2C-type. However, a CFC typology could go beyond this differentiation since P2P-CFC is not necessarily organized by peers themselves, but can be facilitated by companies. The CFC types have different subtypes, which can be categorized according to organizer and compensation and include those forms mentioned in the definition in the previous section. The decision to use either monetary or non-monetary compensation in the CFC subtypes is studied by examining the existing CFC practices in Germany, UK, and the USA. The most prevalent forms of compensation for each type are highlighted.

Figure 2 Typology of collaborative fashion consumption (CFC)



5.1 P2P-type of CFC

The P2P-type encompasses forms of CFC in which fashion products are passed from one consumer to another. Therefore, it is a consumer-to-consumer (C2C) form of interaction. However, since the exchange is often different from traditional market-based transactions, the term P2P is preferred here. P2P could be organized by peers themselves either through online or offline platforms. In case of gifting, sharing, and lending, usually no compensation would take place for participation in an exchange platform or for acquisition of apparels. For instance, “The Freecycle Network” is an online platform organized through a non-profit movement of people around the world for gifting their unwanted items including fashion products in their local town.

Apart from such internet websites, there are plenty of initiatives in social media networks. For example, there is a local Facebook group called “Free Your Stuff Berlin,” in which local people from Berlin can give their unwanted clothes (and other goods) away, as well as lend other items to other members. Moreover, using social networks people organize swapping parties among a group of their friends or on bigger scale through online platforms like “Auxtausch” in Germany. Another example is a Facebook page called “Kleidertausch” created by Greenpeace volunteers. They organize and announce several clothing swapping parties all over Germany. Although in this case consumers do usually not pay for participation, there would be a non-monetary compensation for swapping, as consumers would receive other fashion products in exchange. Traditional peer-organized offline opportunities to buy and sell secondhand clothes (like community-based flea markets) can also be supported by P2P promotion in social networks.

An alternative arrangement to peer-organized CFC initiatives is initiatives facilitated by a company that provides and organizes a platform for consumers to participate in CFC. In this service-based form of P2P-CFC, the platform provider could compensate for the expenses such as platform rent, organizing effort, etc. and gain profits either by accepting advertisements from other companies, or by receiving a monetary compensation from peers. Websites like “Kleiderkorb” (Clothing Basket) or “Kleiderkreisel” (Fashion Spinner) in Germany enable fashion consumers to gift, swap, or sell their used fashion goods without compensation for participation and profit from online advertisements.

In other cases, the compensation can take place through the payment of an entrance fee for a swapping event or as a rent fee for a market booth in a secondhand local market, or as a commission percentage upon renting or selling price of fashion products. As an example, there are online and offline platforms for swapping. “Swishing” is a well-known website for swapping in the UK. This commercial website offers the opportunity to promote events which are normally organized by consumers themselves with an entrance fee of £2-5 to compensate the expenses for the parties. Some of the other top companies organizing P2P fashion swapping websites are “Rehash” and “Clothing Swaps.” The most prominent example for company-organized P2P secondhand buying and selling is “eBay.” Fashion plays an important part here and is often the first category mentioned on the website. In addition, there are specialized websites for fashion. Consumers have the opportunity to sell or rent-out their used luxury bags on a website called “Avelle” (formally “Bag Borrow or Steal”). The seller earns 60 percent of the proceeds from the price; the company takes a 40 percent commission. Other examples are websites like “Thredup” in USA or “Mädchenflohmarkt” (Girls Flea Market) in Germany, where consumers can put their used clothes on the website and earn up to 80 percent of the sales price. The rest is taken by the company as a commission fee.

5.2 B2C-type of CFC

The second main type of CFC is characterized as direct B2C services. Companies offer either services as substitutes for product ownership (renting and leasing) or secondhand retail service to make the purchase of new products dispensable. Unlike the P2P-type, consumers are less engaged here, as the company provides the platform and products for CFC and consumers can use the services. A monetary compensation is applied for acquiring the fashion products. The participation is often free, but may also be combined with a non-monetary compensation (in form of advertisement exposure) or a monetary subscription fee.

Companies can offer renting or leasing opportunities instead of selling fashion products. Offline or online clothing libraries provide a good example of these subtypes. These subscription-based services have popped up recently in a number of Nordic cities such as Stockholm, Copenhagen, Gothenburg, Lund or Helsinki. Helsinki Fashion Library, for example, has about 100 members with an offering of about 750 items (Pedersen and Netter, 2015). In 2013, different kinds of six-month memberships ranging from 160 to 460 euros, depending on the number of items to be rented, were offered (Pedersen and Netter, 2015). Another example could be the fashion library in Hamburg, which is called “Kleiderlei.” This online fashion library offers its members up to four fashion items each month for a monthly fee of 34 euros. Apart from fashion libraries, there are different websites for renting fashion products. For instance, “Girl Meets Dress” rents out dresses (more examples among others are “Fashion Hire,” and “One Night Stand”). Leasing is another sub-type. It differs from renting, as in the case of leasing a fix contract for some months is required and consumers are obliged to pay at least for the contract period before they send the fashion products back. As an example, “Lütte leihen” (Baby Clothes Rental Service) offers clothes leasing for babies in which the minimum period of the contract is two months. Before the end of the contract, consumers do not have the option of stopping payment. Beside the traditional secondhand shops, there are many online secondhand markets such as “Rebelle” where consumers can buy secondhand luxury shoes, clothing, bags, or accessories from a commercial website.

6 Environmental effects of CFC

Like other forms of collaborative consumption and related concepts, CFC could contribute to ecologization through efficiency and sufficiency effects. However, it also carries rebound risks of additional use of environmental resources. Both kinds of possible effects will be discussed in this section following the structure developed in Schrader (2001), which distinguishes efficiency and sufficiency effects.

6.1 Efficiency effects

Eco-efficiency is gained, when either the input of environmental resources results in more product-uses, or when a certain number of product used is realized with a lower environmental burden (e.g. Hinterberger *et al.*, 1997). CFC is likely to generate both effects. The most obvious effect of CFC is use intensification: if unused clothes are given to other users, the number of uses during product lifetime is increased. The high potential for this development is shown by a study from the UK, which comes to the conclusion that “[s]ome 30% of clothing has not been worn for the last year and four in five people own at least some clothes that have not been worn” (WRAP, 2012, p. 26). In Germany, on average adults have about 18 pieces of garments that have not been worn; the sum of them counts for about one billion clothes (Greenpeace, 2015). All subtypes of CFC described above are likely to increase the use intensification of garments. The environmental effect is achieved when a consumer decides to practice CFC with already used garments instead of buying new ones. Studies on car sharing show that a shared car could substitute up to seven cars (Firnborn and Müller, 2011). Similar effects are possible for CFC. One might argue that the positive environmental effect of use intensification is counterbalanced by a negative effect on life expectancy. For example, if a dress could be worn 30 times before it needs to be disposed, it would be ecologically irrelevant if it is worn by one owner three times a year over ten years or by 30 renters in one year. However, usually dresses are not be disposed because they are in pieces but because they are considered to be out of fashion, they do not fit any more or consumers like variety (e.g. Birtwistle and Moore, 2007). Average lifetime for a garment is estimated to be less than two years and three months (WRAP, 2012). CFC offers the chance to exploit the full use-potential of clothes, before they are disposed of. Therefore, compared to clothes in traditional private ownership, more uses of clothes in CFC systems can be expected in a given period of time. Maybe the most compelling example for this is the renting service for wedding dresses. While most privately owned wedding dresses are bought to be used only once by the buyer and maybe one or two more times by peers, a renting shop can only survive if the offered clothes are used frequently.

Even for intensively used clothes, CFC offers the chance to increase the number of uses further by life extension. Instead of dumping a piece of clothes or storing it unused in the wardrobe, CFC provides different ways of transferring the garment to other users who will continue the use. A British case study estimates that if the active life of clothes is extended by nine months, it would potentially result in 27 percent carbon saving, 33 percent water saving, 22 percent waste saving, and 22 percent resource cost saving (£2 billion) (WRAP, 2012). CFC offers incentives for companies to invest in life extension. If renting companies and consumers know that after a first user, additional consumers will use the garment (and often pay for this secondhand use

opportunity), they might be willing to pay a premium price for durability. Companies that earn money by providing access instead of by selling goods have a greater incentive to increase product durability (Stahel, 2010).

Use intensification and product life extension allow to satisfy consumption needs with less products. Thus, CFC allows for substitution of the purchase of new products. LCA studies have shown different environmental effects of substituting new clothes by secondhand garments. For instance, considering different steps of extraction of resources, material production, electricity generation, clothing collection, processing and distribution, and final disposal of wastes, up to 65 kWh could be saved, if one kilogram of virgin cotton is replaced by secondhand clothing; for polyester, saving could be even more (around 90 kWh/kg) (Woolridge *et al.*, 2006). Farrant *et al.* (2010) investigated the impact of replacing new clothing with secondhand garments. They studied the whole lifecycle of two products (a 100 percent cotton T-shirt and a pair of polyester (65 percent)/cotton (35 percent) trousers), from raw materials extraction to disposal or reuse. They assumed that each purchase of a secondhand item replaces the purchases of a new item and used estimations for the avoided production of new clothes. Their study has shown “that the purchase of 100 secondhand garments would save between 60 and 85 new garments dependent of the place of reuse” (Farrant *et al.*, 2010, p. 735). The LCA illustrates that compared to the savings achieved by replacing new garments, the collection, processing, and transportation of secondhand garments have insignificant impacts on the environment (Farrant *et al.*, 2010). However, there is no guarantee that same result could be achieved through renting or leasing.

If the clothes remain in the hands of the B2C-CFC organizer at the end of the lifecycle, there is also an additional stimulus to invest in eco-design. The concept of eco-leasing (Braungart *et al.*, 2007; McDonough and Braungart, 2010) which is used, for example, for electric appliances, could be also applied to clothing. In this concept, the ownership of the product stays with the manufacturer while the customers use the service of the product without assuming its material liability (Braungart *et al.*, 2007). Even if a piece of clothing is not directly usable anymore, some parts of it like zippers or knobs might be reused by manufacturer. For instance, Mud Jeans Company leases jeans. After the defined period, customers should return the products to the company so that the materials can be recovered and recycled. When the responsibility of disposing the used clothes remains at the producer or the service company (and is not transferred to the consumers), they have to think about the end of product life already at the beginning and might substitute a “design for the dump” with a “cradle to cradle” design (Braungart *et al.*, 2007; McDonough and Braungart, 2010).

Additionally, the B2C renting and leasing scheme might offer efficiency gains by professional garment care. Studies on washing services show that the utilization of innovative professional

technology creates the chance to use considerably less energy, water, and detergents in comparison to private washing (Hirschl *et al.*, 2003). In addition, it might be expected that professional care contributes to a preservation of material, colors, and functionality, thus extending the product lifetime even further.

6.2 Sufficiency effects

With regard to sustainability, sufficiency refers to the satisfaction gained with a reduced use of products and services (e.g. Figge *et al.*, 2014; Princen, 2003). According to this understanding, the above-mentioned efficiency effects could contribute to a more sufficient way of consumption on a macro-level (Mont *et al.*, 2006). However, CFC – like collaborative consumption in general – can also foster sufficiency on an individual level (Speck and Hasselkuss, 2015).

If consumers have to pay per product use instead of paying (only or mainly) when buying a product, they tend to reconsider their wish to use. This has been shown with regards to car sharing (e.g. Firnkorn and Müller, 2011): if a consumer considers the full price of driving, expressed in the car sharing price per hour and/or kilometers, s/he much more often decides to use public transport or the bike than a car owner who only considers petrol costs. Thus, many car sharers decrease their driving the longer that they practice car sharing. This sufficiency effect is often the most important environmental effect of car sharing; more important than the efficiency effects described above (Meijkamp, 1998).

With regards to clothing, similar effects are possible. If clothes need to be used for a special occasion at a (subjectively) high renting price, there is an incentive to stick to the already owned garments or ask peers for sharing, lending, or swapping existing clothes. However, it is questionable how significant this effect might be. In most countries, the renting of clothing is a marginalized form of garment distribution, often restricted to very specialized offers like costumes for carnival or theater, or for unique festive events. In these cases, the sufficiency effect might occur. However, many consumers might just buy affordable alternatives if renting is considered to be too expensive.

The indirect, long-term socio-cultural effects are more probable, yet they have received far less attention in academic debates. Consumers interested in CFC and actively practicing the P2P-type are likely to come into contact with others who (also) think about “the dark side” of the dominating fast fashion trend. So maybe the development of more sustainable fashion habits starts with gaining new pieces at swapping parties or on secondhand platforms instead of buying new ones in a retail shop. First, the number of pieces acquired and owned remains stable, but with deeper consideration of sustainable fashion, the acceptance of fewer and maybe older pieces of fashion could rise, so that the sufficiency effect might become more visible. In addition, thinking

more about sharing economy, sufficiency, and sustainability in the field of fashion might also have spill-over effects to other areas of consumption (Thøgersen and Ölander, 2003). Although this spill-over effect cannot be taken for granted (Thøgersen and Crompton, 2009), it is reasonable to argue that if collaborative consumption is accepted for clothes, it should be acceptable with regard to other consumer goods as well. If goods are considered as parts of the extended self (Belk, 1988), clothes are the first layer and thus much more difficult to share than other products.

The individual sufficiency effect is possible, since CFC fosters the chance for consumers to own only the goods they really need and use. The different subtypes offer new environmentally friendly opportunities to transfer unused products to places where they are needed. In doing this, the “environmental rucksack” (Hinterberger *et al.*, 1997) of consumers is reduced – in accordance with a more sufficient lifestyle. This might have additional environmentally positive follow up effects like reducing the need for wardrobes and flat space.

6.3 Rebound effects

A realistic estimation of total ecological effects of CFC also requires the consideration of rebound effects (e.g. Herring and Roy, 2002, 2007; Santarius, 2016). Eco-efficiency strategies could lead to a situation of increased resource use where the additional used resources even might exceed the savings.

In contrast to the described sufficiency effect, CFC could contribute to abundance and increased number of products used. CFC generally makes clothing consumption cheaper. Both, the P2P-type and the B2C-type could for instance allow even consumers with moderate income to use clothes and handbags of different premium designer brands, which were otherwise unaffordable to buy. Even if these products are secondhand and the time period of consumption might be restricted, their use is extra consumption for many compared to a situation without CFC. The total environmental effect depends on if CFC substitutes (at least partially) the consumption of new products or if both consumption types are practiced fully parallel. Only if CFC substitutes the purchase of new clothes instead of just adding to it, CFC has the chance to contribute to sustainability. Even then it could be questioned what the consumers do with the saved money (Erdmann, 2011).

It might be the case that CFC even accelerates the trend of increased buying and disposing of clothes. If a consumer knows, she/he can easily pass her/his clothes to peers if they do not appeal (and often get a good compensation for it) they might buy even more pieces (including pieces they themselves will not wear at all). In addition, it remains unclear if consumers use rented/leased products as carefully as their own products (Kuo, cited in Tukker, 2015). This could be the same for fashion items.

An additional negative rebound effect of CFC might be called ecological transaction costs (Schrader, 2001). If clothes do not remain for their whole use period in one household, but are passed to (maybe many) other peers and companies, additional transportation is necessary. In a complete LCA of a dress used in costume rental, the CO₂ emissions caused by the different renters using their cars to get and bring back the garment could easily overrun the climate effect of producing the dress. What is more, to bring clothes in a shape that they can be rented out again, an extra effort in care is needed. Private owners generally do not wash their tailcoat after a single use, but a rental shop must always do so to guarantee that it looks “as new.”

7 Conclusions and outlook

This paper has introduced CFC as an innovative way of consumption, which may contribute to sustainability – since sustainable fashion implies much more than buying “green clothes.” Although the different subtypes of CFC (gifting, sharing, lending, swapping, renting, leasing, and secondhand buying/selling of clothes) have existed already for centuries, its current development and expansion would be unthinkable without new forms of internet-based organization. The basic types of CFC are P2P and B2C, while it is notable that the P2P-type is not restricted to direct peer exchange but might include companies as organizers. Thus, the provided typology has shown that the field of CFC is very diverse. According to this, an evaluation of its ecological impact is complex. The expected positive environmental effects of CFC mainly refer to the potential for increasing use-intensity and garments’ product life and thus partially replacing the consumption of new products. In addition, CFC might create incentives for eco-design and reusability and opportunities for a more professional and efficient product care. Sufficiency effects are also possible, due to a partially use-related compensation system and the involvement of a potentially sustainability oriented consumer group. However, rebound effects like additional transportation and the incentive to use more clothes when they are easier to access and dispose of must also be taken into account.

The total ecological effect of CFC is unclear and depends on framework conditions (Halme *et al.*, 2006; Leismann *et al.*, 2013). Here, it is important to conduct LCA case studies to better assess CFC’s potential for sustainable consumption. Conditions for high impact of CFC are its consumer acceptance and widespread distribution. Here, more empirical studies on actual and potential CFC-related consumer behavior and business activity are necessary. To date, only first explorations exist (Armstrong *et al.*, 2015). Further empirical data would provide a better basis for recommendations on how to develop existing CFC offers and initiatives. The analysis so far has shown, that potential impact of CFC on the environment, society, business, and academia is great.

However, it remains unclear if even optimized CFC concepts would be able to leave the current state of a niche market and generate larger impact under current prevailing economic conditions in countries of the global north (following e.g. Akenji, 2014; Speck and Hasselkuss, 2015). CFC often requires additional input of human labor which is either costly or needs to be done unsalaried. It has to compete with the consumption of new clothing, which can be offered at low prices due to the externalization of negative social and ecological effects, which predominantly harm others and future generations. In a world where costs for renting a designer dress for a weekend are often higher than the price for buying a cheap new one from fast fashion retailers, renting is not likely to become a dominant consumption practice. As long as a shirt at fashion discounters like Primark costs less than a cup of coffee at Starbucks (or in similar places), the private exchange of clothing will remain a niche, too. Traditional mainstream exceptions (like collaborative consumption of baby clothes) only prove the rule. This does not mean that CFC is an irrelevant concept – to the contrary! It shows that CFC could become a widely accepted way of fulfilling clothing needs in a sustainable world where external costs (and benefits) are internalized in prices. Until then, it remains an interesting, innovative, and relevant consumption option for limited target groups.

8 References

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Collaborative fashion consumption – drivers, barriers and future pathways

Becker-Leifhold, C. and Iran, S. (2018), Journal of Fashion Marketing and Management: An International Journal, Vol. 22 No. 2, pp. 189–208.

Abstract

Purpose – This paper explores the existing literature on CFC together with its relative concepts and discusses the current state of knowledge in the field of alternative apparel consumption. Drivers, barriers, and future pathways of CFC- from the business and consumer's perspective- are extracted, summarized, and discussed. By using a holistic approach, this study aims to demonstrate the linkages and interplays among the actors. Helpful implications for the industry and policy makers are derived.

Design/methodology/approach – A holistic systematic literature review was conducted. More than 2800 journal articles were reviewed for this conceptual paper, and the ones meeting the search criteria were subjected to a qualitative content analysis.

Findings – The findings facilitate a better understanding of what enables or prevents CFC from becoming a mainstream consumption approach. The study also examined the sustainability aspects of CFC, discussing both the positive environmental benefits and its negative impacts.

Practical implications – The results of this study can help businesses, governments, and institutions develop more efficient strategies toward promoting sustainability in the fashion industry. Understanding the drivers and barriers of CFC, in addition to the possible sustainability benefits of CFC, can facilitate and accelerate adoption of future business models of CFC.

Originality/value – CFC is a relatively new concept in the field of academic research. In fact, this study is among the first to explore the interplay of drivers and barriers from both the consumer and industry perspectives. This paper can support further academic and business efforts aimed at promoting CFC.

Keywords

Collaborative fashion consumption, Alternative consumption, Sharing economy, Fashion, sustainability

1 Introduction

The manifold environmental and social problems caused by fast-paced fashion consumption have motivated researchers, practitioners, and governments to direct their attention to the concept of “sustainable fashion consumption” (e.g. Armstrong *et al.*, 2015; Black, 2008). Recent studies have highlighted the idling capacity of textiles in different countries. For instance, according to a study in the UK, most individuals had not worn 30% of their clothing in the last year and four in five owned at least some clothes that they had never worn (WRAP, 2012). Similar figures have been reported in Germany (Greenpeace, 2015). For some years, the main sustainable fashion strategy has been to produce more sustainable products. However, given the huge amount of clothing that is purchased and disposed, this strategy may not be as efficient as expected. Reusing fashion items can help reduce the need for new items and thus lead to decreased wastage (Antanavičiūtė and Dobilaitė, 2015). Companies in the fashion industry looking for new sustainable business models could explore collaborative consumption as a promising pathway to promote efficiency as well as sufficiency. However, previous research focused either on alternative fashion consumers and consumption or on alternative fashion business models, this study is guided by a two-sided approach and studies CFC from both perspectives. The authors believe that only by having a holistic approach, useful, effective, and at the same time applicable solutions can be derived.

Research on collaborative consumption concepts is still in its infancy (Gullstrand Edbring *et al.*, 2015). Although, terms such as “sharing economy” or “collaborative consumption” have been studied by different researchers (e.g. Belk, 2014; Schor and Fitzmaurice, 2015), there is still a lack of knowledge and systematic research. This is especially the case with the fashion industry (here referred to clothing), where the lack of research is acute. Within the context of fashion, alternative practices have taken the form of swapping parties among friends, fashion libraries, secondhand online shops, and swapping websites, where consumers can consume their fashion products collaboratively. Very few researchers have explicitly focused on the CFC concept (Pedersen and Netter, 2015).

Unlike studies on CFC that adopted either a consumer or an industry perspective, this study employs a holistic approach and examines both perspectives likewise. Thus, by reviewing the relevant literature from the last decade, the most frequently discussed drivers and barriers from both perspectives are identified. This paper provides an overview of the current state of knowledge in the field of alternative apparel consumption. Accordingly, the main research questions are:

- 1) What are the drivers and barriers of CFC models from a consumer’s perspective (CP)?
- 2) What are the drivers and barriers of CFC models from a business perspective (BP)?

3) Which sustainability issues are addressed by CFC approaches?

Practitioners, companies and academic researchers might find this study useful, as it outlines major developments in the field of CFC. Further, it provides them with a comprehensive overview on the current state of knowledge, constraints and drivers for the diffusion of CFC. This study contributes to the overall body on literature of product service systems (PSS), collaborative consumption and sharing economy, providing highly relevant insights for the industry and marketers as well as academia and consumers seeking for more sustainable fashion consumption models. Knowing the drivers and barriers of CFC from business as well as consumer's perspective in addition to the possible sustainability benefits of CFC can facilitate and accelerate future business models of CFC. In addition, it can assist governments and policy makers to generate more efficient strategies toward achieving more sustainability in the fashion industry. The result of this study could be applied to generate more useful, efficient and applicable solutions for alternative clothing consumption and prevent further failures in the policy-makings and businesses regarding the CFC. The reminder of the paper is structured as follows. The next section defines the basic concept of CFC and its related concepts. This is followed by the methodology section, and finally, the findings of the study are presented and discussed.

2 Collaborative fashion consumption

"Sharing economy" and "collaborative consumption" are not new concepts, but they have recently come to enjoy growing popularity in different industries. The emergence of information and communication technology has once again facilitated the sharing of goods and services. These practices have been scaled up to an extent that was unimaginable before (Botsman and Rogers, 2011; Belk, 2014).

Iran and Schrader (2017, p. 472) defined CFC as a consumption trend "in which consumers, instead of buying new fashion products, have access to already existing garments either through alternative opportunities to acquire individual ownership (gifting, swapping, or second hand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing)." Collaborative consumption is generally studied along with sharing economy (e.g. Belk, 2014), prosumption (e.g. Ritzer and Jurgenson, 2010), sharing (e.g. Belk, 2010; Lamberton and Rose, 2012), access-based consumption (e.g. Bardhi and Eckhardt, 2012), or connected consumption (e.g. Schor and Fitzmaurice, 2015). Even though all of these concepts promote alternative consumption patterns, they are characterized by minor differences. For instance, in connected consumption the emphasis is put on the social aspects of the sharing economy, the term prosumption assumes an active role of consumers and promotes their integration in the process of making the products. Access-based consumption or PSS promote the idea of

ownerless consumption as used fashion item are transferred to the next consumer (for instance, in a clothing-swapping event).

The different forms of CFC (e.g. gifting, swapping, or second hand, sharing, lending, renting, or leasing) can be broadly categorized into two types: peer-to-peer (P2P) and business-to-consumer (B2C) (Iran and Schrader, 2017). For instance, swapping parties can be organized by the consumers themselves (P2P), or they can be organized by an organization (B2C). Various B2C and P2P forms of the CFC are differently accepted and practiced by consumers. Factors such as ownership and trust play a role in consumers' acceptance (e.g. Catulli, 2012). Some consumers prefer swapping clothes, as by exchanging the ownership will be transferred to them. Others prefer renting, as companies can guarantee the quality and hygiene of the products. Without consumer or industry acceptance of such alternative fashion consumption patterns, CFC cannot be successful. Hence, this study examines the drivers and barriers of different CFC forms from both the consumer and business perspectives.

Existing literature also offers some insights into the sustainability contributions of CFC. While some researchers are optimistic and claim that CFC has the potential to increase sustainable consumption of fashion (e.g. Bardhi and Eckhardt, 2012), others highlight the possibility of rebound effects of CFC (e.g. Frenken and Schor, 2017). The lack of consensus among scholars and researchers highlights the need to closely examine the existing literature for linkages between sustainability and alternative fashion consumption.

3 Research methodology

In this paper, a systematic literature review was carried out using qualitative content analysis techniques to identify and evaluate the stream of research (Fink, 2013) on CFC and all its different forms. Fink (2005, p. 3) defines a literature review as “a systematic, explicit, and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents.” Thus, a literature review fulfills two objectives. On the one hand, it provides a summary of the existing research, and on the other hand, it helps identify the conceptual content within the research domain and enables additional the contribution to the literature via theoretical and methodological findings (Fink, 2013). For this study, Fink's (2005) systematic literature review process model, which consists of seven stages was employed.

First, the research questions were defined. The overarching goal of this work was to provide an overview of the current state of knowledge and the existing body of literature on CFC. Accordingly, three research questions were developed: (1) What are the drivers and barriers of CFC models from a CP? (2) What are the drivers and barriers of CFC models from a BP?, and (3) Which

sustainability issues are addressed by CFC approaches? A further aim was to identify research gaps and inconsistencies.

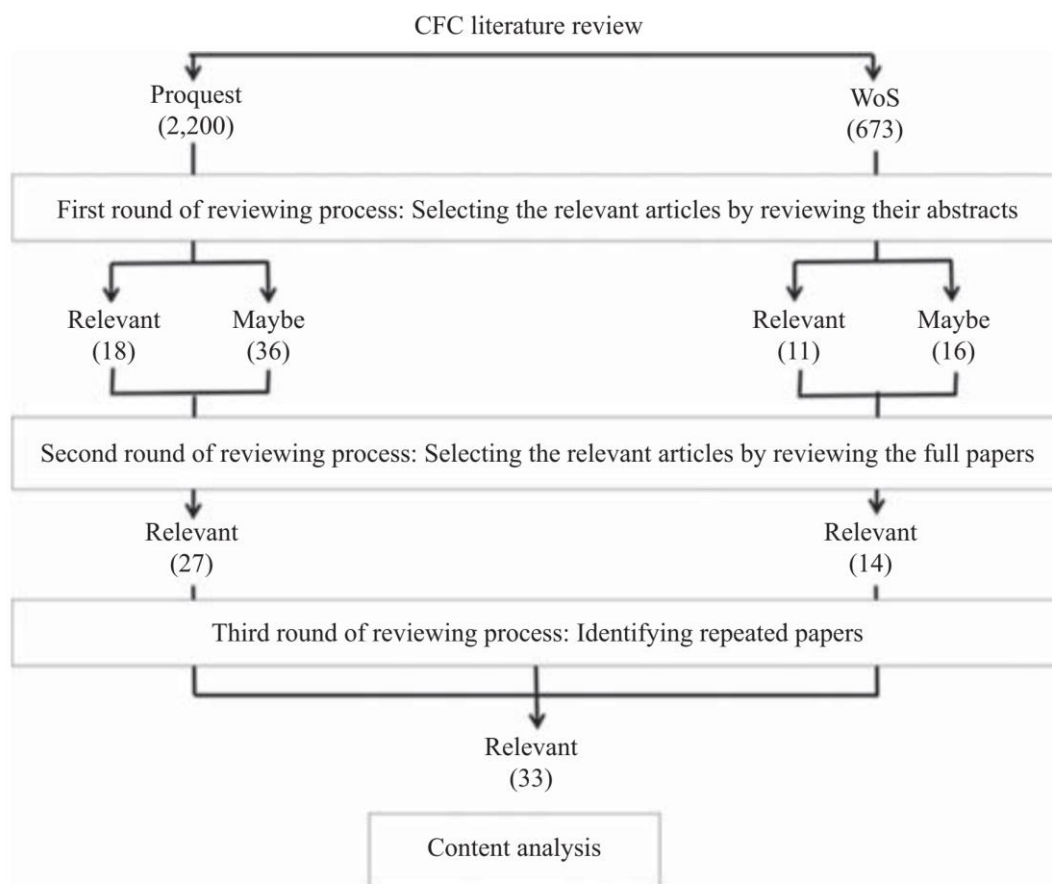
Second, the search databases were selected. To achieve a comprehensive sample that covered all the research topics of interest, two interdisciplinary databases were chosen: Proquest and the Social Sciences Citation index of the Web of Science (WoS) database. These two databases were selected for their wide coverage of English language peer-reviewed journals. The WoS database includes all journals with an impact factor covering the most important publications in the fields business (140 journals), economics (354 journals), and environmental studies (110 journals) (Thomson Reuters, 2018). In order to achieve an even more comprehensive coverage the Proquest database was also included. For an exhaustive list of topics, a large-scale search was conducted using the following two groups of keywords in the third step: (“product service systems” or “eco efficient services” or “collaborative consumption” or “circular economy,” “prosumption” or “lending” or “renting” or “swapping” or “sharing economy” or “sharing” or “leasing” or “exchanging” or “gifting” or “borrowing” or “second hand”) and (cloth* or “apparel” or “fashion” or wear* or textil*). Several experts were consulted to determine the final search keywords.

In the fourth step, the practical screening criteria were applied. No time period criteria in terms of publication year were defined for the articles, as older concepts such as secondhand clothing were also reviewed. The last database search granted by an US American university during a visiting scholar was conducted in October 2016 and yielded a total of 2200 peer-reviewed articles from Proquest and 673 peer-reviewed articles from the WoS (see Figure 1). By the end of October 2016, the researchers finished the searching phase and started the reviewing and coding processes. Moreover, after this time the databases were no longer accessible from the same user account. In order to guarantee comparability, the search phase was finished by then. Only papers published in peer-reviewed academic journals in English were included, as they were considered the most meaningful sources (Saunders *et al.*, 2012). Thus, articles in other languages, book reviews, and conference proceedings were excluded from this study. Even though, there are meaningful book reviews on this topic, only peer-reviewed articles were included in order to guarantee the highest scientific quality (Saunders *et al.*, 2012) . Moreover, papers that focused on collaborative consumption but outside the context of fashion were not considered, as this literature review focuses exactly on the fashion industry. Lastly, both conceptual and empirical studies were included in the selected list.

Abstracts were reviewed on the above criteria to determine if the articles could be used for further analysis. When a decision could not be made based on the abstract, the articles were filed for full paper review. To increase the reliability of the research, the articles were checked by both authors. Thus, the total body of literature was reduced to 29 articles that were surely relevant and

52 articles that were potentially relevant but needed full text reading. In the second round, all the articles were fully reviewed and checked by both authors, and a total of 41 fully relevant articles were obtained. In the third and final round of the reviewing, 8 articles were discarded because they were repeated papers that emerged in both databases and therefore have been accounted twice (see Figure 1). Thus, taking all the delimitations into account, a total of 33 papers were chosen for the content analysis.

Figure 1 Reviewing process – practical screening criteria



Next, all the papers were read in full and coded by using the Atlas.ti software, which is a tool used for qualitative data analysis. An inductive approach was used following the generic process model, proposed by Mayring (2010). The content analysis followed a four-step procedure. First, the material was collected by defining the article as a unit of analysis. Second, bibliographic and descriptive results of the selected articles were recorded (see section 3). Next, the text was analyzed by inductively identifying categories. The articles were independently searched for major topics to code the material. Atlas.ti was employed to facilitate the coding process and to allow the researchers to easily work in a group. In the last step, the articles were analyzed, and the results were interpreted. When necessary, the discussions were enriched by referring to other articles

outside the aforementioned databases and journals. This approach helped to determine information on the drivers and constraints that have an impeding effect on the distribution of the CFC models.

The findings of this study were presented at a conference on sustainable fashion consumption, which is an accepted means to ensure validity (Seuring and Müller, 2008). Reliability was also ensured by having both the researchers follow all the steps of the reviewing process and the subsequent analysis. Distinct views and assessments were discussed, furthering the rigor of the research process.

4 Findings

4.1 Descriptive results

In all, 33 articles on CFC practices and related topics such as eco-efficiency of alternative fashion consumption approaches were analyzed. Only four journals published more than one article: Journal of Fashion Marketing and Management (6), Journal of Cleaner Production (2), Sustainable Development (2), and Resources, Conservation and Recycling (2). Except for the papers published in the Journal of Fashion Marketing and Management, the rest of the articles were published in journals that covering distinct topics, which reflects the growing interest in CFC across disciplines.

Figure 2 Distribution of articles over time

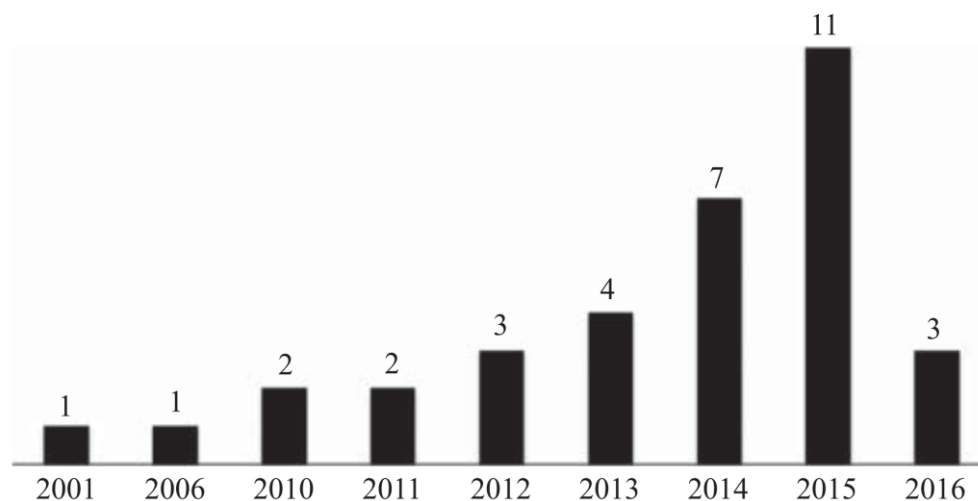


Figure 2 shows the distribution of publications by year. A steady increase in the number of publications over the years is evident, especially since 2012. As outlined above, the data collection took place from May until October 2016, thus only articles published in the first 10 months of 2016 have been included in the analysis.

Figure 3 Methods applied

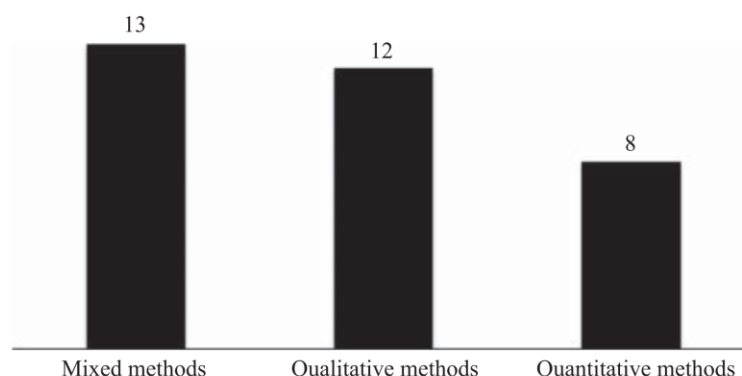
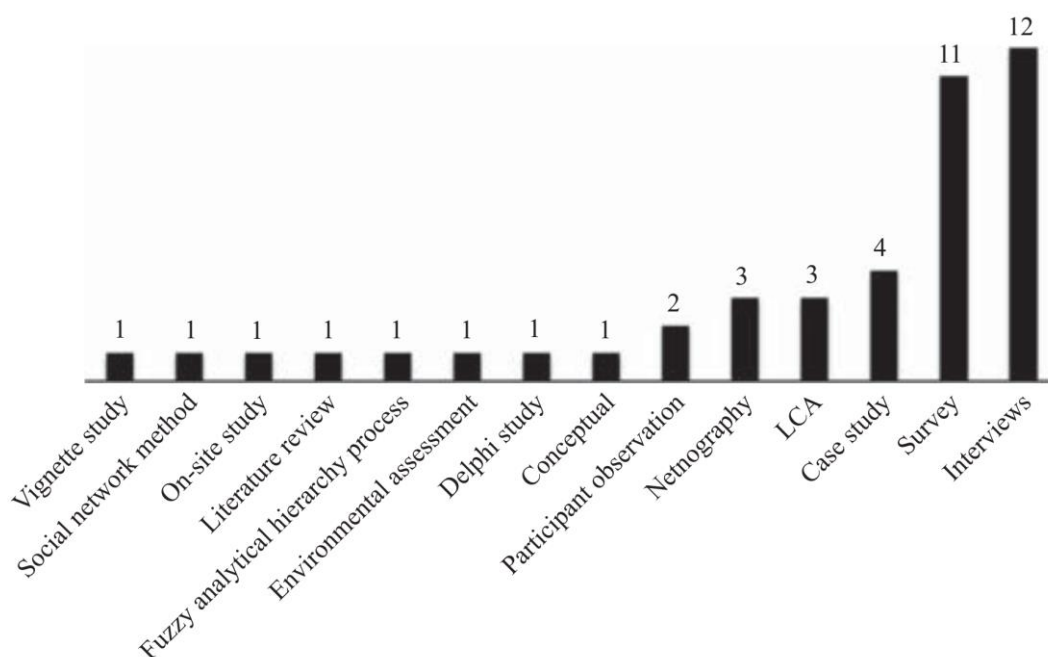


Figure 4 Methods applied in detail



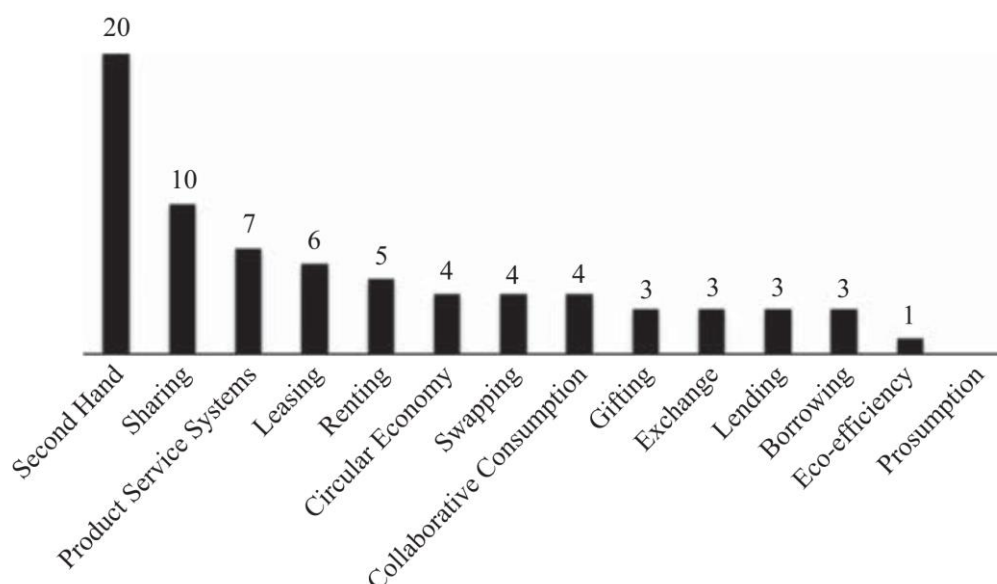
Figures 3 and 4 detail the methods used by the studies reviewed in this paper. The majority of the papers used a mixed-method approach (13 articles), followed by qualitative methods (12 papers). Quantitative research methods were used only in 8 studies. This is possibly because CFC is a relatively new topic of research in the academia. In terms of research designs, empirical investigations were the most common, followed by participant observations, conceptual work, case studies, qualitative content analysis, and lifecycle assessment. In the case of studies that employed a mixed-methods approach, all the methods applied were coded as shown in Figure 4.

Overall, findings suggest that qualitative methods outweighed quantitative ones in the context of CFC.

4.2 Qualitative content analysis

In the first category of keywords on alternative consumption actions, the most used search terms for studying CFC were “second hand” (found in 20 papers), “sharing” (found in 10 papers), and “product service systems” (found in 7 papers). The distribution of the remaining search terms is depicted in Figure 5. “Prosumption” and clothing keywords did not appear together in any article. Thus, apart from secondhand clothing, which has been studied for a long time, “sharing” and “product service systems” are the most used terms in relation to CFC.

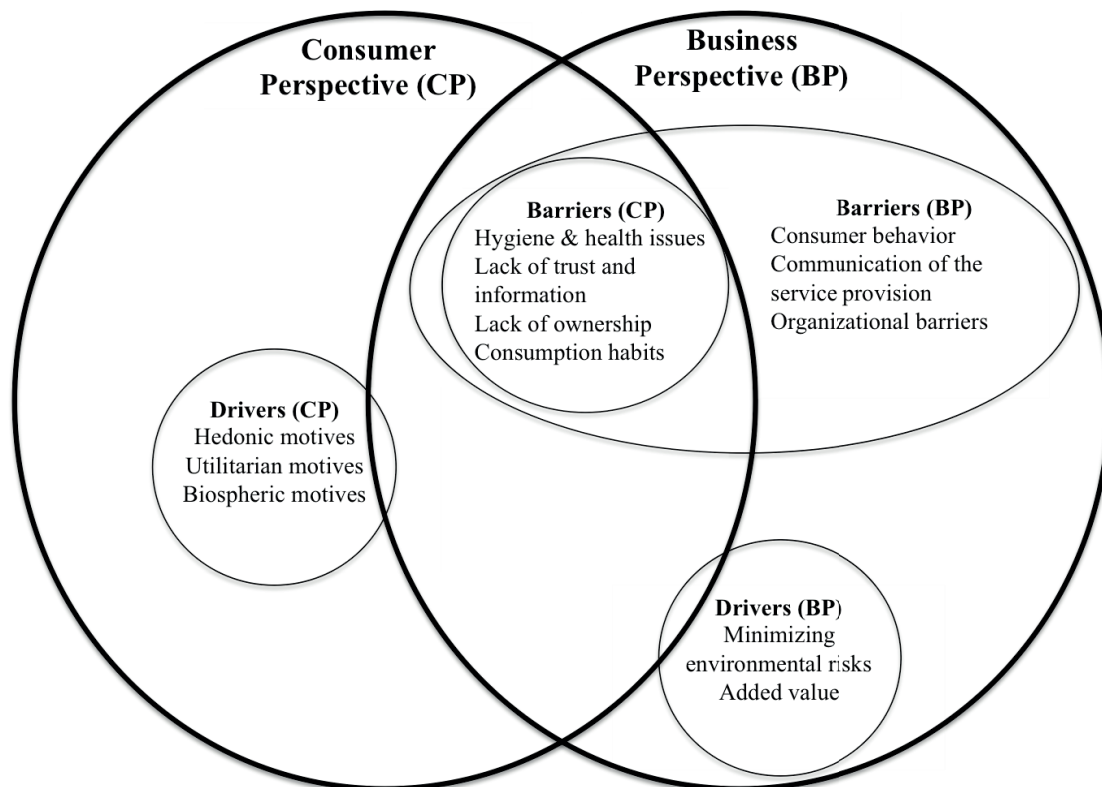
Figure 5 Distribution of search terms in the reviewed literature



This research is exploring CFC from both the consumer and business perspectives. By reviewing the relevant literature from the last decade, we identify the most frequently discussed drivers of and barriers to CFC from both perspectives. Barriers to CFC were discussed in 10 of the 33 papers analyzed in this study, while the drivers of CFC were discussed in 15. Sustainability-related contributions of clothing consumption were directly discussed in 10 papers. Some aspects of sustainability were studied under terms such as “voluntary simplicity” (found in 1 paper) and “sufficiency” (found in 1 paper). The reviewed papers partially referred to other relevant academic research in the field. Wherever it was fruitful for the discussion, these studies were considered, too.

On comparing the drivers and barriers from both perspectives, barriers relevant to consumers influence those experienced by the businesses and vice versa were found. The interplays and overlaps are shown in Figure 6.

Figure 6 Overlaps between the perspectives of consumers and businesses



The following sections illustrate the barriers and drivers of CFC and its contribution to sustainability, as extracted from the reviewed papers.

4.2.1 Barriers to CFC (CP)

Some of the challenges for consumer adoption of alternative fashion consumption are identified in the previous research. Here, they are categorized into four categories of hygiene/health concerns, lack of trust and information, lack of ownership, and consumption habits.

Hygiene/health concerns – Consumers' concerns about hygiene are particularly evident in the case goods worn close to the skin (Armstrong *et al.*, 2015; Catulli, 2012). With rental garments, Armstrong *et al.* (2016) found that participants' concerns pertain to bugs and mites, the overall cleanliness of clothes, and how the service provider can guarantee satisfactory sanitation. Similar feelings of discomfort were reported by Roux (2010), Na'amneh and Al Husban (2012) and Perry and Chung (2016). They found that their participants were worried about bacteria from pre-owners, transmission of diseases, odor, and dirtiness. These findings are in line with Fisher *et al.* (2008) who argued that the stigma associated with secondhand clothing, even when the products are used for redesign, might additionally complicate the adoption of CFC.

Lack of trust and information – Individuals lack trust in the provider because of perceived price-for-value challenges (Catulli, 2012; Hirschl *et al.*, 2003; Rexfelt and Ornäs, 2009) or are reluctant

to incur recurring costs, except for renting and clothing swaps. In a swap event, trust issues pertain to size, variability, quality, and the ability to find something suitable to swap (Armstrong *et al.*, 2015). Moreover, customers are skeptical about the viability and continuation of CFC business models (Armstrong *et al.*, 2016) as well as about the motives of the company providing such services (Rexfelt and Ornäs, 2009). This refers particularly to the sustainability claims of clothing companies (Fisher *et al.*, 2008) and the quality of their service delivery (Rexfelt and Ornäs, 2009).

Another barrier to CFC among customers is the lack of information about guarantees offered by the provider and how exceptional cases, such as damages and the subsequent customers' liability, would be treated. Individuals are also unaware of how to deal with situations in which they become attached to an item. The lack of examples of CFC within the industry make it especially difficult for customers to imagine the implementation (Armstrong *et al.*, 2015).

Lack of ownership – The removal of personal ownership is another frequently cited barrier and a notable impediment to the adoption of CFC (Tukker and Tischner, 2006; Catulli, 2012). Ownership is associated with a sense of control and social status (Hirschl *et al.*, 2003; Mont, 2002b), and individuals use clothing to express their identity and uniqueness (Gentina, 2014). Ownership may not be adequately substituted by a service (Armstrong *et al.*, 2015; Armstrong *et al.*, 2016). Similarly, Catulli (2012) argues that dematerialization through sharing or renting services might negatively impact the need for self-expression or memory-keeping.

Consumption habits – Attachment to frequent consumption of apparel has a negative influence (Hirschl *et al.*, 2003) on engagement in CFC. Mylan (2015) argues that a new method of acquisition and ownership of garments is particularly difficult to accept, as it reduces the consumers' ability to derive an emotional high from impulse purchases. If a product is not readily accessible, customers may perceive this as a sacrifice on their part (Tukker and Tischner, 2006; Catulli, 2012). Further perceived constraints refer to the ease of use, such as lack of accessibility to the product or technical information, demanded skills and efforts required (Armstrong *et al.*, 2015; Catulli, 2012; Rexfelt and Ornäs, 2009). Table 1 provides an overview of the most important barriers from the CP.

Table 1 Barriers to CFC from CP

No.	Barriers	References
1	Hygiene/Health concerns	Armstrong <i>et al.</i> (2015, 2016), Catulli (2012), Fisher <i>et al.</i> (2008), Hirschl <i>et al.</i> (2003), Rexfelt and Hiort Af Ornäs (2009), Na'amneh and Al Husban (2012), Perry and Chung (2016)
2	Lack of trust and information	Armstrong <i>et al.</i> (2015, 2016), Catulli (2012), Fisher <i>et al.</i> (2008), Hirschl <i>et al.</i> (2003), Rexfelt and Hiort Af Ornäs (2009)
3	Lack of ownership	Armstrong <i>et al.</i> (2015, 2016), Catulli (2012), Tukker and Tischner (2006)
4	Consumption habits	Catulli (2012), Hirschl <i>et al.</i> (2003), Mylan (2015), Tukker and Tischner (2006)

4.2.2 Drivers of CFC (CP)

Bardhi and Arnould (2005) summarize the motivations for purchasing secondhand clothes as a combination of utilitarian needs and hedonic aspects. Building on the work of Miller (1998), they argue that secondhand shopping, more than any other kind of shopping, brings these two concepts together (Waight, 2013). The findings of this study support their categorization, and allow for the results to be sorted accordingly. Biospheric motives were added in this research as an additional category.

Hedonic motives – Hedonic motives that drive the purchase of secondhand goods include the possibility to acquire rare items, unavailable in the mainstream markets; uniqueness, the wide variety of products; the hunt of bargains and items that are not mass produced; social interactions (Guiot and Roux, 2010; Yan *et al.*, 2015), and the opportunity to combine garments, fun, and satisfaction (Isla, 2013; Xu *et al.*, 2014) and thereby expressing individuality (Xu *et al.*, 2014; Perry and Chung, 2016).

Creative use of items with idling capacities not only satisfies the need for change and variety in the wardrobe but also reduces expenses, feelings of guilt and enhances product-satisfaction (Armstrong *et al.*, 2016; Niinimäki, 2010). For instance, people evaluated fashion libraries positively because of the chance to experiment with new styles without paying full costs (Armstrong *et al.*, 2015).

Conflicting views are present in the literature on the social value of CFC. While some find the social aspects valuable, for others, these aspects constitute an obstacle due to uncertainties if the items would be reflective of their personal style and concerns if the social engagement could be distractive (Armstrong *et al.*, 2015). Fashion libraries have been positively evaluated with regard to their social aspects, as they are perceived as meeting places for young designers and consumers (Pedersen and Netter, 2015). Young Lee *et al.* (2013) found fashionability and social responsibility as drivers for participating in swapping events and that participants primarily report positive emotions. Dururu *et al.* (2015) highlight the social aspect, arguing that community sector

organizations can be seen as key agents of change in the shifts towards a circular economy. Several further studies have found that CFC models are positively evaluated because of emotional benefits, such as fun and excitement (e.g. Armstrong *et al.*, 2015; Perry and Chung, 2016; Petrescu and Bhatli, 2013; Williams and Paddock, 2003).

Utilitarian motives – Saving money is a key driver not only for consumers with limited financial means but also for those who want to curtail spending on clothes for special occasions or those who thrive on bargains, regardless of their income levels. Thus, low prices exert a major influence on consumers' willingness to purchase secondhand goods (Cervellon *et al.*, 2012; Guiot and Roux, 2010; Isla, 2013; Williams and Windebank, 2002; Williams and Paddock, 2003).

Some fashion libraries carry popular fashion brands and designer labels (Pedersen and Netter, 2015), thus allowing consumers access to high-fashion goods that would be otherwise unaffordable (Armstrong *et al.*, 2016; Isla, 2013). The satisfaction and pleasure of getting a good bargain and the best value for the least amount of money are also key drivers for consumers engaging in CFC (Waight, 2013).

Biospheric motives – Environmental and ethical benefits of reusing clothes (Guiot and Roux, 2010; Waight, 2013; Xu *et al.*, 2014) and related motives such as avoiding the traditional market (Guiot and Roux, 2010; Bly *et al.*, 2015) are also significant drivers. Dururu *et al.* (2015) identified supporting environmental causes as key reason for engagement in circular economy models at the community level. Waight (2013) too found similar motives: as being resourceful and a strong desire to prevent wasteful disposal of items. Bly, Gwozdz and Reisch (2015) found sustainability as driver and facilitator of style. The participants in their study used sustainable fashion as a means for pleasure and well-being. Sustainable fashion was further perceived as support for solidifying values and aspirations like freedom from the fashion system and individuality. Aptekar (2016) found that members of internet-based sharing groups exhibit solidarity and altruism. While this appeared to be the predominant case, she also found members who were motivated by de-cluttering their homes in an environmentally friendly way that reliefs them from feelings of guilt from overconsumption. Beard (2015) reported a consistent growth in the secondhand market triggered by consumers' interest in environment-friendly consumption in the recent years. Concern for the environment also drives other forms of CFC besides purchase of secondhand clothing (Tu and Hu, 2015). These forms provide customers with the opportunity to reduce excessive consumption via smart purchasing behaviors and enable them to become more knowledgeable about individual fit and style. Table 2 provides an overview of all the drivers from the CP.

Table 2 Drivers of CFC from CP

No.	Drivers	References
	<i>Hedonic motives</i>	
1	Availability of rare items not usually available in mainstream markets	Arnould and Bardhi (2005) Guiot and Roux (2010), Jenß (2004), Yan <i>et al.</i> (2015)
2	Excitement because of access to a variety of products	Guiot and Roux (2010), Armstrong <i>et al.</i> (2016)
3	(Artistic) combination of garments	Isla (2013)
4	Fun	Isla (2013)
5	Satisfaction	Isla (2013)
6	Treasure hunting	Guiot and Roux (2010)
7	Nostalgic pleasure	Guiot and Roux (2010)
8	Satisfying the need for change without feelings of guilt	Armstrong <i>et al.</i> (2016), Niinimäki (2010)
9	Chance to experiment with new styles	Armstrong <i>et al.</i> (2015)
10	Need for uniqueness	Jenß (2004), Yan <i>et al.</i> (2015)
11	Social interaction	Armstrong <i>et al.</i> (2015, 2016), Guiot and Roux (2010), Pedersen and Netter (2015), Williams and Paddock (2003), Yan <i>et al.</i> (2015)
12	Increased product satisfaction	Armstrong <i>et al.</i> (2015)
	<i>Utilitarian motives</i>	
13	Smarter purchasing behavior	Arnould and Bardhi (2005)
14	Search for fair price (gratification role of price)	Arnould and Bardhi (2005)
15	Frugality	Guiot and Roux (2010)
16	Hunt for bargains	Arnould and Bardhi (2005)
	Avoiding the risk of wrong investment	Guiot and Roux (2010)
17	<i>Biospheric motives</i>	
18	Environment-friendly consumption	Connell (2011), Yan <i>et al.</i> (2015)
19	Prevention of wasteful disposal	Connell (2011), Yan <i>et al.</i> (2015)
20	Distance from the system	Guiot and Roux (2010)

4.2.3 Barriers to CFC (BP)

Companies are becoming aware of new developments that are worthwhile to incorporate in their business strategies. Yet, there are manifold challenges that need to be overcome. Here these barriers are categorized into three groups: consumer behavior, communication of the service proposition, and organizational barriers.

Consumer behavior – For businesses, consumer concerns are a deterrent to the implementation of clothing rental systems (Hu *et al.*, 2014). Consumer concerns typically pertain to the provider's reputation, business longevity, and issues such as hygiene, product abuse, lack of information on use and treatment of materials, and previous users (see Table 2).

Communication of the service proposition – Another frequently cited barrier in the literature is the providers' ability to clearly communicate the benefit-for-cost service proposition (Heiskanen and Jalas, 2003; Mont, 2002b; Reim *et al.*, 2015; Rexfelt and Ornäs, 2009), especially when the service involves providing readily available cheap clothing items (Reim *et al.*, 2015). In fact, consumers apparently prefer buying over renting if costs of the two are the same (Armstrong *et al.*

al., 2016). Thus, it is important for the provider to clearly communicate the benefit-for-cost service proposition in order to withstand the competition from readily available cheap alternatives. This is particularly relevant in the B2C market where clients purchase a service in a totally different environment than their earlier purchase experiences (Reim *et al.*, 2015). With regard to the value proposition, Rexfelt and Ornäs (2009) caution that companies should not rely on environment-friendly attitudes to encourage CFC promotion. Instead, they should have a better understand of the hindering contextual conditions (Ceschin, 2013).

Organizational barriers – The organizational barriers identified mainly refer to the lack of suitable infrastructure as well as the industry expertise needed for reuse, redesign, and recycling of clothing (Armstrong *et al.*, 2015). The most salient problem for companies is developing a reverse-logistics environment and creating the closed-loop supply chain required by CFC approaches (e.g. laundry, logistics, disposal, design, manufacture) (Hu *et al.*, 2014; Dissanayake and Sinha, 2015). The investigation of Dissanayake and Sinha (2015) further revealed that besides collaboration among the key players along the reverse supply chain, the involvement and commitment of fashion consumers is essential for the business growth. Because new ways of supplying fashion are yet not rewarded in the industrial system (Pedersen and Andersen, 2015), the provision of CFC for clothing is costly and difficult for companies (Hu *et al.*, 2014). Companies willing to undertake the challenge have to set up a collection and redistribution system, which is cost-effective, convenient, and meets the market needs. They also need to establish strong networks that support quality service delivery to ensure the long-term success of the CFC (Reim *et al.*, 2015). Additionally, new ways of customer engagement need to be established as customers turn into suppliers in the clothing resale scheme (Kant Hvass, 2014). In sum, a win-win CFC model needs to be identified that can generate economic benefits for the provider and simultaneously reduce redundant consumption and thus lower the environmental burden for all the parties (Armstrong *et al.*, 2015).

4.2.4 Drivers of CFC (BP)

Despite the challenges, companies can also benefit from incorporating CFC forms into their business models. As such, minimizing environmental risks and the added value of such adaption are two main motivations of the companies.

Table 3 Barriers to CFC from BP

No.	Barrier	References
	<i>Consumer behavior</i>	
1	Consumer concerns about company's motives (sustainability claims) and the quality of service delivery	Hu <i>et al.</i> (2014) Armstrong <i>et al.</i> (2015, 2016), Catulli (2012), Fisher <i>et al.</i> (2008), Hirschl <i>et al.</i> (2003), REXfelt and Hiort Af Ornäs (2009)
2	Consumers' lack of trust in service provider because of perceived price-for-value challenges	Catulli (2012), Hirschl <i>et al.</i> (2003), REXfelt and Hiort Af Ornäs (2009)
3	Consumers' concerns regarding hygiene and maintenance as well as the stigma associated with used goods	Armstrong <i>et al.</i> (2015, 2016), Catulli (2012), Fisher <i>et al.</i> (2008), Hirschl <i>et al.</i> (2003), REXfelt and Hiort Af Ornäs (2009), Na'amneh and Al Husban (2012), Perry and Chung (2016)
4	Consumers' concerns about product attachment	Armstrong <i>et al.</i> (2015)
5	Consumers' concerns regarding ease of use and the efforts required	Armstrong <i>et al.</i> (2015), Catulli (2012), Hirschl <i>et al.</i> (2003), REXfelt and Hiort Af Ornäs (2009)
6	Consumers' resistance toward habit transformation	Armstrong <i>et al.</i> (2015), Hirschl <i>et al.</i> (2003), Hirschl, Konrad, and Scholl (2003)
	<i>Communication of the service provision</i>	
7	No consumer interest in renting inexpensive everyday clothing	Heiskanen and Jalas (2003), Mont (2002b), Reim <i>et al.</i> (2015); REXfelt and Hiort Af Ornäs (2009) Armstrong <i>et al.</i> (2016), Reim <i>et al.</i> (2015)
8	Consumers' concerns about lack of information on service delivery, guarantee terms and liability in case of damaged products	REXfelt and Hiort Af Ornäs (2009), Fisher <i>et al.</i> (2008), REXfelt and Hiort Af Ornäs (2009)
9	Communication of clear value proposition	Heiskanen and Jalas (2003), Mont (2002b), Reim <i>et al.</i> (2015), REXfelt and Hiort Af Ornäs (2009)
	<i>Organizational barriers</i>	
10	Lack of suitable infrastructure and expertise	Armstrong <i>et al.</i> (2015)
11	Establishing reverse logistic schemes	Hu <i>et al.</i> (2014)
12	High investments	Hu <i>et al.</i> (2014)

Minimizing environmental risks – Sustainable business models have become increasingly relevant for companies in the fashion industry (Kant Hvass, 2015). The fashion industry, in particular, needs to reduce its environmental footprint and develop innovative and more sustainable business models. Compared to other waste management options, CFC is a viable solution in this regard (Armstrong *et al.*, 2015; Castellani *et al.*, 2015), as they offer an opportunity for the industry to close material loops, decrease its reliance on resources, reduce waste, provide product durability, extend product use time and quality, and simultaneously increase the overall customer satisfaction (Armstrong *et al.*, 2015; Gill *et al.*, 2016). Customer satisfaction is at the heart of a service economy and can be realized by high-quality products and services that do not result in waste streams (Hu *et al.*, 2014).

Kant Hvass (2015) investigated how the reselling of products could help fashion companies adapt their business models toward sustainability. Her findings suggest that high-end fashion companies (see also Fletcher and Grose, 2012) with market maturity and a strong brand image have the potential to incorporate reselling channels into their business model. This is in line with

the views of Armstrong *et al.* (2015), who suggest that clothing PSSs should potentially be implemented by companies with well-established brands and reputations.

Added value – Kant Hvass (2015) found evidence that reselling activities add value to a fashion company by attracting new customer groups, enriching relationships with existing customers, and generating additional profits from used products. In regards to product-oriented PSSs, the value-added related services typically cover add value to the sold product, such as financing, take-back schemes, maintenance, or consultancy, whereas or in the case of use-oriented CFC, the services are like renting and sharing. Table 5 provides a summary of the identified drivers of CFC from the BP.

Table 4 Drivers of CFC from BP

No.	Driver	References
	<i>Minimizing environmental risks</i>	Armstrong <i>et al.</i> (2015), Kant Hvass (2015), Mont (2002b)
1	Reduction of environmental footprint	Armstrong <i>et al.</i> (2015), Hu <i>et al.</i> (2014), Pal (2016)
2	Opportunity to close material loops	Armstrong <i>et al.</i> (2015), Hu <i>et al.</i> (2014), Pal (2016)
3	Decreased reliance on resources	Armstrong <i>et al.</i> (2015), Hu <i>et al.</i> (2014), Pal (2016)
4	Reduce waste	Armstrong <i>et al.</i> (2015), Hu <i>et al.</i> (2014), Pal (2016)
5	Extension of use time	Armstrong <i>et al.</i> (2015), Hu <i>et al.</i> (2014), Pal (2016)
6	Providing product durability	Armstrong <i>et al.</i> (2015)
7	Improvement of product quality	Armstrong <i>et al.</i> (2015)
	<i>Added value</i>	Kant Hvass (2015)
8	Better satisfaction of customer needs	Armstrong <i>et al.</i> (2015), Hu <i>et al.</i> (2014), Niinimäki and Hassi (2011)
9	Stronger and longer relationships with customers	Kant Hvass (2015)
10	Additional profits	Kant Hvass (2015)
11	Attracting new customer groups	Kant Hvass (2015)

4.2.5 Sustainability and CFC

Supporters of CFC argue that from a sustainability perspective, re-use decreases the environmental burden of a garment's lifecycle (Hu *et al.*, 2014), as it ensures significant savings in terms of energy use compared to the production of new garments (Bras-Klapwijk and Knot, 2001; Fletcher, 2008). Further, re-use of clothes is beneficial, as it helps avoid the production of new garments (Hu *et al.*, 2014) and thus reduces the quantity of disposed garments sent to landfills (Farrant *et al.*, 2010; Gill *et al.*, 2016). Thus, re-use is seen as a valuable alternative to the wasteful consumption of fashion: it contributes to the trend of socially responsible and sustainable fashion consumption (Isla, 2013). In fact, Waight (2013) and Woolridge *et al.* (2006) argue that re-use may even be the best consumption model for a greener economy, as it leads to a reduction in the environmental burden compared to buying new clothing made from virgin materials. The ecological benefits resulting from reduced use of resources, the prolongation of

the product lifecycle, and the intensification of the use are some of its key advantages. If one were to consider the transport emissions and resources spent on the re-use model, the sharing system is still more environment-friendly than the production of a new product (Botsman and Rogers, 2011). As outlined above, environmental concerns drive at least in part the consumers' willingness to engage in alternative consumption behaviors (Hiller Connell, 2011; Cervellon and Wernerfelt, 2012; Armstrong *et al.*, 2015; Yan *et al.*, 2015).

Another closely related aspect that could promote consumer engagement in CFC is voluntary simplicity. Wu and colleagues (2013) argue that motivations for voluntary simplicity linked to social concerns and sustainability should be explored by retailers and apparel manufacturers, as voluntary simplicity appears to be a growing trend.

5 Discussion and conclusion

Unlike prior research on CFC, which has presented either the consumer or the business perspective, this study uses a holistic approach that sheds light on both perspectives simultaneously and thereby provides highly relevant insights on the interplay of barriers for CFC between industry and consumers. Examining these barriers and drivers of all stakeholders is necessary to derive viable solutions and future pathways. To the best of the authors' knowledge, this is the first article using such a holistic two-sided approach. By reviewing the relevant literature published in peer-reviewed journals over the last decade, a better understanding of what enables or prevents CFC from becoming a mainstream consumption approach is facilitated. By using the result of this research, companies can have a better understanding of their consumers' concerns and can accordingly derive strategies to overcome these concerns. Further, relevant information for companies planning to integrate CFC approaches in their business model and important issues to take into account are provided. Policy makers can apply this study to generate more efficient and applicable strategies in order to support and facilitate CFC practices. In regards to implication for academic scholars, research gaps were successfully identified, which mainly refer to the lack of research on the sustainability contribution of CFC approaches. Further sustainability aspects of CFC are highlighted.

With regard to RQ 1, the two categories of drivers proposed by Arnould and Bardhi (2005) were applied in this study: hedonic motives and utilitarian needs (see Table 2). Frequently cited hedonic motives included fun, satisfaction, hunting for bargains and treasures that are not available in mainstream markets, the need to assert one's uniqueness and individuality, satisfying the need for variety and change without feelings of guilt, and the opportunity to engage in environment-friendly consumption of fashionable clothing. The utilitarian needs mainly covered prices, frugality, and smarter purchasing. Low prices decrease the risk of wrong purchases, prevent the

subsequent wasteful disposal of unwanted goods, and increase product satisfaction. Further, biospheric values that drive the consumers' motivation to engage in CFC were identified. In regards to the social value of CFC conflicting views were identified. While some highlight the benefits of the social aspects, others point to uncertainties, especially in the case of swapping. These inconsistencies should be further investigated in future studies.

Despite these drivers, CFC is still a niche concept (RQ1). The most salient problems from the CP were hygiene and health concerns, lack of trust and information, lack of ownership, and consumption habits. While some of these concerns can be easily addressed (e.g. by including proof of professional cleaning, clear value propositions, or guarantees), other consumer-related barriers are difficult to overcome. For instance, Armstrong *et al.* (2015) report that consumers are resistant to changes in habits, especially if they are used to frequent consumption as is common with fashion products. Another key barrier to sharing of clothing is the removal of personal ownership. Ownership is linked to social status and a sense of control (Hirschl *et al.*, 2003; Joung, 2013), and it serves as a means for memory keeping and self-expression (Catulli, 2012). While CFC can satisfy a variety of emotional needs, such as uniqueness, transitioning toward sharing and ownerless consumption of fashion calls for much more comprehensive change in society (Mont, 2004).

From a BP, consumer behaviors (Hu *et al.*, 2014) as well as the communication of a clear value proposition are key areas of concern (Reim *et al.*, 2015; Rexfelt and Ornäs, 2009). Referring to the interplay of barriers among the actors, the lack of a clear value proposition and information by the companies were identified as one reason that causes consumers' concerns. These points should definitely be tackled by companies in order to better promote the service. Other than consumer-related factors, an important constraint faced by the businesses (RQ2) are organizational barriers, such as the lack of cost-efficient and convenient reverse logistics supply chains needed for implementing CFC schemes (Hu *et al.*, 2014; Kant Hvass, 2015).

Moreover, establishing such reverse supply chains does not seem feasible for supplying cheap clothes of low quality. This suggests CFC may not be suitable for providers of everyday wear but may be useful to businesses selling high-quality garments, which cannot be easily afforded by consumers. Consumers may favor such CFC to fulfill hedonic motives, unless they exclusively driven by the desire to consume more sustainably.

CFC and the post-retail responsibility in the fashion industry are emerging areas that offer a variety of business opportunities to companies (RQ2) (Kant Hvass, 2014; Armstrong *et al.*, 2015). For instance, it can help to reduce environmental risks and at the same time generate additional value for the company (Armstrong *et al.*, 2015; Hu *et al.*, 2014; Niinimäki and Hassi, 2011; Kant

Hvass, 2015). CFC can improve product quality and longevity (Armstrong *et al.*, 2015), attract new customer groups, enrich relationships with existing customers, generate additional profits through used products, and enable companies develop innovative and more sustainable business models (Armstrong *et al.*, 2015; Kant Hvass, 2015).

To take advantage of these possibilities, the outlined barriers need to be overcome. Possible solutions referred to providing clear value propositions (Heiskanen and Jalas, 2003), information about benefits and processes (Rexfelt and Ornäs, 2009), developing effective marketing and communication strategies (Kant Hvass, 2015), highlighting the sustainability aspects and hedonic motives, and providing proof of professional cleaning (Yan *et al.*, 2015; Perry and Chung, 2016). In regards to tackling organizational barriers, companies need to develop new ways of customer engagement (Kant Hvass, 2015) and build strong networks that ensure the quality of the delivery (Reim *et al.*, 2015).

Reports indicate that consumers are interested in a CFC (Niinimäki, 2011; Niinimäki and Hassi, 2011); however, they also suggest that CFC is a challenging prospect, as no viable business models are available (Armstrong *et al.*, 2015). These opposing views should be investigated in a future study, preferably via a real business case.

With regard to sustainability issues (RQ3), this literature review yielded promising results. CFC mainly contributes to sustainability by de-valuing material consumption and altering traditional consumption patterns (Mont, 2002a; Maxwell and van der Vorst, 2003; Pal, 2016). It helps to decrease negative environmental impact, reduces the reliance on resources and extends the lifecycle of a product (Hu *et al.*, 2014; Gill *et al.*, 2016; Pal, 2016). Waight (2013) identified reuse as the best option for a green economy. An interesting finding in this regard is the growing trend of voluntary simplicity as a driver of collaborative consumption, which could prove expensive for the current apparel industry (Wu *et al.*, 2013).

However, the articles considered in this literature review only focused on the positive environmental benefits of CFC, they did not address the drawbacks of such a consumption pattern, indicating a major research gap. Hence, it was referred to research from related disciplines for a more critical understanding of CFC's sustainability contributions.

Challenging the positive assumptions of scholars (e.g. Hu *et al.*, 2014; Liedtke *et al.*, 2015; Ozanne and Ballantine, 2010; Seegebarth *et al.*, 2016; Frenken and Schor, 2017) argue that no empirical data or lifecycle assessments have confirmed the positive effects of collaborative consumption, especially in the context of clothing. A pertinent question is whether the environmental benefits of sharing smaller products, such as clothing, actually exceed the environmental impacts of transport and cleaning (Frenken and Schor, 2017). The widespread

assumption of higher eco-efficiency and the reduction of CO₂ emissions have only been empirically confirmed for a car sharing model, which generated substantial savings (Frenken and Schor, 2017). The eco-efficiency of sharing economy models should be analyzed in light of possible rebound effects in future studies. If consumers start consuming more instead of less, possibly because of the additional income generated by sharing, the ecological benefits will be nullified or, in the worst case, reversed (Kathan *et al.*, 2016). Thus, as long as rebound effects cannot be completely excluded, the true contribution of collaborative consumption patterns remains unclear (Frenken and Schor, 2017).

As outlined above, scholars studying sustainability issues in the field of collaborative consumption of fashion goods come to inconsistent results. While some argue that sustainability and the opportunity to prevent excess consumption are strong motivators (Armstrong *et al.*, 2015; Armstrong *et al.*, 2016; Pedersen and Netter, 2015; Piscicelli *et al.*, 2015), others found that sustainability is irrelevant (Hamari *et al.*, 2016; Barnes and Mattsson, 2016) or even worse, that collaborative consumption can be framed as a “nightmarish form of neoliberalism” (Martin, 2016). Even though this study provides first insights on the role of sustainability from the consumer’s perspective, more research is needed in regards to its true contribution.

Additionally, further research is needed not only on the sustainability effects of CFC but also on the interplay of factors between businesses and customers. Further insights are needed on how companies can establish adequate and cost-effective reverse supply chains for renting schemes. Strategies to better promote the concept of CFC among consumers and eliminate barriers, such as concerns about the provider and hygiene, need to be tested. More research is needed on how habit transformation toward CFC can be fostered. This might be one of the most challenging but highly effective tasks for creating a more sustainable fashion industry.

6 References

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To wear or to own?

Influences of values on the attitudes toward and the engagement in collaborative fashion consumption

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Abstract

Recently, a number of Collaborative Fashion Consumption (CFC) initiatives have been established that offer consumers opportunities to use idling capacities of already existing clothes to fulfill their desires with less environmental and social impacts. CFC integrates the concept of sharing economy in the fashion industry. By participating in CFC, consumers have the opportunity to acquire clothing in innovative manners as an alternative to the classic purchase of new products. In CFC, consumers can share, rent, lease, swap, borrow, gift or buy secondhand clothing. Using a mixed method research approach, the influence of different values (biospheric, altruistic, hedonic, egoistic) on the attitudes toward and the engagement in CFC is studied in this research. The results of this study show that egoistic values negatively influence attitude towards CFC, while biospheric values have a positive impact. Hedonic motives neither promote nor diminish attitudes towards CFC. For altruistic motives, the results of the qualitative and quantitative studies somewhat diverge. Whereas altruistic motives are found to play a small positive role in attitudes toward CFC in the survey data, such motives have not been mentioned in the qualitative study.

Keywords

Collaborative fashion consumption, Values, Attitudes

1 Introduction

Today's predominant linear fashion scheme endangers the environment and perpetuates bad working conditions (e.g. Donaldson, 2016) to offer cheap clothing in ever-faster fashion cycles. From a sustainability perspective, both production as well as the consumption of fashion must become less environmentally and socially harmful (e.g. Fletcher, 2008; Armstrong *et al.*, 2015). Fashion consumption has been increasing constantly all over the world. Yet, while consumers in developed countries are aware of sustainability issues that are associated with fast fashion (Black,

2008), clothing consumption keeps rising, as consumers in such countries have access to cheap clothing and can afford buying more than they need.

In 2013, about 15 million tons of textiles were disposed of in the United States (US EPA, 2015). By comparing this to the 7.4 million tons of textile waste which was disposed of in 1995 (US EPA, 2003) one can observe the effects of the fast increasing trend of clothing consumption. According to a study conducted by Greenpeace in 2015, there are about 5.2 billion pieces of clothes in German adults' (between 19 and 69 years old) closets; of which one fifth is never used and a second fifth very rarely. There is a notable idling capacity in such unused fashion products.

Could these idling capacities be used to fulfill consumers' desires to mitigate environmental and social issues? Recently, a number of alternative fashion consumption initiatives have been established that offer consumers such opportunities. Collaborative Fashion Consumption (CFC) has emerged, integrating the concept of sharing economy in the fashion industry. By participating in CFC, consumers have the opportunity to acquire clothing in innovative manners (e.g. swapping or renting used clothes) as an alternative to the classic purchasing of new products. However, the reasons for consumer acceptance and rejection of such concepts are still to be studied. Attitudes towards a product have been claimed to be one of the most important drivers for consumer behavior (Ajzen, 1991) which in turn are influenced by general values people endorse (Groot and Steg, 2007). Therefore, using a qualitative and a quantitative research, the influence of different values (biospheric, altruistic, hedonic, egoistic) on the attitudes toward and the engagement in CFC is studied in this research. In the next sections the concept of CFC and the influence of values on CFC will be theoretically elaborated. In the methodology section the different methods used in a quantitative and a qualitative study will be explained, followed by the results of both studies that are jointly discussed in the last section.

2 Collaborative fashion consumption

Piles of clothing are stored in wardrobes that are not used for months and sometimes for years. For instance, it is estimated that about 0.9 million tons of garments are sent to landfills every year in the UK (Bartlett *et al.*, 2013). Of this 0.9 million, it is estimated that at least 151,300 tons could be directly reused (Bartlett *et al.*, 2013). In the context of fashion consumption, the sharing economy suggests different ways of reusing garments that are no longer actively in use by the owner. "CFC embraces fashion consumption in which consumers, instead of buying new fashion products, have access to already existing garments either through alternative opportunities to acquire individual ownership (gifting, swapping, or secondhand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing)" (Iran and Schrader, 2017, p. 472). Most of these CFC initiatives have traditionally existed among friends, families,

neighbors, etc., however what makes them considerable nowadays is that due to the internet, they are now available in a scale never possible before. Currently in Germany, different types of CFC are increasingly practiced by consumers. For instance, clothes-swapping parties can be seen all around Germany. “Kleidertausch” (clothing swapping) is a Facebook group that was established by volunteers of Greenpeace. They announce different swapping parties that are happening in Germany. Another example could be “Kleiderei”, which is a clothing library based in Hamburg. Consumers can rent clothing items from Kleiderei for a monthly membership fee.

Aside from the positive ecological impact of CFC (Iran and Schrader, 2017), social connections that CFC offers (specifically in the offline case) can be seen as an additional positive contribution of alternative clothing consumption. For example, participants of swapping parties can acquire clothing items while enjoying social interactions and form longer lasting relationships.

Despite of the growing rate of collaborative fashion concepts, there is still a lack of academic research on CFC. Open questions remain to be answered, such as: do consumers use CFC initiatives as ways to acquire additional clothing or as a substitution to acquiring clothing? Why do some consumers accept to engage in CFC while others do not? On which grounds do consumers accept innovative forms of clothing consumption?

3 The influence of values on CFC attitudes and behavior

One promising line of research to shed light on the acceptance of CFC is basic human values. Values are thought to be moral principles, reflected in peoples’ overarching aims in life, that are stable over time and guide people’s aspirations and behaviors in different areas of life (Schwartz, 1992). DeGroot and Steg (2007) applied the universal value theory to sustainable behavior and could repeatedly show that the type of values people endorses for their lives, affect their consumption patterns. One motivation for wanting to protect the environment, for example, is biospheric values, where an intact environment is held in high esteem. The same is true to a lesser extent for altruistic values. People with strong altruistic values who are characterized by the concern about the wellbeing of others tend to take work conditions or environmental impact into account for their consumption choices. In contrast, car use was shown to relate positively to hedonic and egoistic values. That means that people who are focused on their own pleasure, as much as people concerned with egoistic goals such as power, success or material possessions were greater car lovers and used them more often (Groot and Steg, 2007, 2008; Steg *et al.*, 2014).

For CFC, what role different values play in the attitudes toward collaborative consumption and in the actual engagement in collaborative practices has yet to be assessed. Given that the deplorable working conditions of textile industry workers are quite well known to fashion consumers (due to extensive media coverage, own data) and the social aspects of interchanging

clothes with strangers, it seems warranted to expect that altruistic values are positively related to CFC. Biospheric values should play a positive role for CFC as well, as long as consumers are aware of the environmental advantages of collaborative consumption. People with strong egoistic values might refrain from CFC, as they attach more importance to material possessions and might be deterred from sharing possession with others. The case is least clear with hedonic values. On one hand, pleasure-seeking is thought to be a strong motivation in the acquisition of new garments, usually rather associated with shopping tours in fashion retailers with their overwhelming choices. On the other hand, some of the CFC concepts, as e.g. swapping parties, also place an emphasis on the fun aspects interchanging clothing could imply.

4 Research questions

Given that CFC is still rarely researched topic, we explored some fundamental questions underlying the concept. First of all, we wanted to know how well people know CFC and its related concepts. Secondly, we explored their attitudes towards CFC concepts and how widespread actual usage of different concepts is. Lastly, we tried to unveil reasons for the engaging in CFC practices. The research therefore was centered around 4 main questions:

- 1) Degree of familiarity with CFC: Do people know existing initiatives? Do they know how to use such initiatives?
- 2) Engagement in CFC: How widespread are the actual CFC practices?
- 3) Attitude towards CFC: Do they find them interesting? And would like to use them?
- 4) Reasons for acceptance or rejection of CFC: Do altruistic values positively influence CFC as much as biospheric values? Do hedonic and egoistic values influence CFC negatively?

Answers for all questions were analyzed through in-depth qualitative interviews, while a quantitative survey study extended evidence on question 2, 3 and 4 to a large sample.

5 Methodology

5.1 Interview study

Twenty people participated in semi-structured interviews for the qualitative study in Ulm, a city in the South of Germany. The interviews were conducted in a time period of one month (13.05. 2016 - 09.06.2016) and took between 30- 45 minutes each. Topics generally covered in the interviews were about the length of clothing usage, clothing maintenance behavior of consumers (e.g. laundry, repair), and secondhand usage/ alternative clothing consumption (e.g. swapping, renting). In this chapter, only the results regarding secondhand usage and alternative clothing consumption will be presented and discussed. Participants of this study were between 20 and 60

years old. More than half of them were young adults between 20 and 30 years old. 80% of them were female and 20% were male. 50% had university degree, 20% had a university entry-high school degree and further 30% a simple secondary education level. The interviews were later transcribed. All the interviews were coded and analyzed with the program Atlas.ti.

Furthermore, a wardrobe study followed the interviews. Interviewees were initially asked to guess the amount of clothing that they thought was currently in their wardrobes. In order to compare this guess with objective data, interviewers counted the exact quantity of clothing in interviewees' closets piece by piece. This way, an existing estimation bias could be quantified as well.

5.2 Survey study

The quantitative data stems from a large survey directed at all inhabitants of a small town in the South of Germany ($n = 5761$, $n_{\text{final}} = 1014$). The town is taking part in a living lab on sustainable fashion consumption, and has had a long history of textile manufacturing that has almost ground to a halt over the last decades. Respondents were between 18 and 92 years old (mean age: 50.2 years), half of them were female (52.9%). 22.3% had a university degree, 10.6%, a university entry high school degree, further 36.0% a high school degree and 30.5% a 9 year secondary school education. The survey employed a questionnaire with wide coverage of topics including sustainable fashion consumption, including some aspects of collaborative practices such as buying secondhand, swapping and lending. For these practices, we asked for both, the attitude towards the practices and actual behavior (how many clothes have come into possession this way). Additionally, 16 questions on universal values were asked: 4 for biospheric (e.g. preservation of nature, prevention of pollution), 4 for altruistic (e.g. world peace, helpfulness), 5 for egoistic (e.g. success, power) and 3 for hedonic (e.g. enjoyment, pleasure) values.

6 Results

6.1 Interview study results

The qualitative study focused on the consumption of secondhand clothing, swapping and renting clothing (clothing libraries). During the interviews, most participants mentioned an additional concept of borrowing clothes from friends and families when asked about rental services (clothing libraries). Prior to turning to the results of the interviews, the outcomes of the wardrobe investigation will be presented. The estimated number of clothing pieces by interviewees was between 60 and 285. However, the real amount of the clothing items was ranged between 93 and 520 pieces of clothing. It was noticeable to see that all the participants have underestimated their number of clothing by at least 35%. The question here is whether all these fashion items are regularly used or are they stored unused in wardrobes? The staggering result could indicate that there is an even greater idling capacity in German wardrobes than expected from survey studies.

Degree of familiarity with CFC – The result of the interviews shows, that generally participants (75% of the interviewees) have information about where they can buy secondhand clothing (in retail shops or online through websites), while a majority (65%) is not aware of where to find clothing libraries or swapping parties.

Engagement in CFC – Half of the participants have never bought secondhand clothing, while the other half has bought at least some fashion items (mostly shoes) secondhand. With the exception of a few interviewees, most have not acquired used clothes in any of the three ways from businesses. They rather have experiences with receiving, borrowing or swapping clothes from/with their family members, relatives, or friends.

Attitude towards CFC – Most participants have a positive attitude toward clothing swapping, clothing libraries and secondhand purchasing. Fewer participants are neutral to such ways of acquiring clothes and even less showed negative attitude toward them. In comparison to clothing libraries and secondhand purchasing, most of interviewees have a positive feeling about clothing swapping. All of those who have experienced these forms of CFC found it positive to exchange clothes with people they know or to borrow from or lend to their friends and families. When it comes to buying secondhand clothing from strangers, most of interviewees prefer to buy secondhand clothing from shops rather than online. This way they could be sure about the quality of clothes. This result was confirmed when they showed more interest in receiving clothes from people they know in comparison to strangers. A small number of participants think that wearing secondhand clothing is embarrassing, however more than double this number doesn't have any social problem with such clothing choices.

Reasons for acceptance or rejection of CFC – The interviewees were further asked about reasons for accepting or rejecting CFC. In analyzing the answers, it becomes apparent that motives alluding to egoistic values have the strongest impact on attitude towards CFC. Materialistic orientation attaching importance to ownership is a value that intrinsically counters the basic premise of CFC. One-fourth of the interviewees mentioned that the concept of ownership is important to them and they prefer to own fashion items. For instance, interviewee #11 said: "I have to know, that things belong to me ... not that they are rented or borrowed... I should have the feeling that my garment belongs to me". Moreover, some interviewees found swapping to be unfair. For instance, interviewee # 2 said: "what I always find difficult with swapping is that I have great fashion items. Most of people, that would like to swap, have cheap clothing that neither is brand nor expensive. Each of their clothing items worth maybe 5 € and mine worth 50 €. This is simply unfair". Additionally, financial incentives can play an important role in CFC either way. Most participants have mentioned that, "saving money" could be a motive for them to acquire used clothes. When Kleiderei was presented to them as an example of a clothing

library, some found it expensive and mentioned that this could be a reason for them to avoid this type of CFC. Furthermore, hygiene is mentioned to be an issue for some interviewees, specifically if they do not know the previous owner of the clothing. Paying attention to own health can also be seen as an egoistic motivation that prevents people from CFC.

Positive ecological impacts of substituting new clothing purchases with used clothing has been mentioned by two interviewees as a motive for participating in alternative clothing consumption. For instance, Interviewee #13 said: “when one buys something new, then again clothing will be consumed that only a few times will be worn before they are stuck in the closet forever without being used. If we think about it, then secondhand is actually environmentally friendly”. Hence, it seems that biospheric motives could encourage CFC practices.

Turning to hedonic motivations, the lack of variety in terms of sizes and colors in addition to time pressure are mentioned as further reasons against CFC. For instance, one cannot spontaneously decide what to wear and clothing has to be planned in advance. Finding a suitable secondhand item is additionally mentioned to be time consuming. On the positive side, one interviewee found clothing renting interesting. She said: “it sounds great, as you always have something new to wear”. A further practical reason for participating in CFC that was mentioned is the fewer space needed in wardrobes, as all the clothes cannot be stored in the closet.

We found no mentioning of altruistic reasons for the engagement in CFC.

In summary, it is notable to see that all interviewees have underestimated the quantity of clothing items they possess. They are not aware of the great potential that is lying unused in their wardrobes. If any, then only a small share of the total amount of clothing in their wardrobes is acquired through CFC practices. The general results of interviews show that participants are to some extent aware of the possibilities of CFC such as secondhand clothing or swapping parties, however they are not familiar with the new types of CFC such as renting garments. More than half of the participants could imagine using alternative clothing consumption (clothing libraries and clothing swapping parties), if a good structure for such initiatives was available; for instance, if a clothing is professionally laundered, before the used clothes are passed to the next consumer; or if consumers could be assured to receive clothing in a good quality and for a reasonable price (cheaper than the same new product's price). Egoistic, biospheric, and hedonic values have been extracted from the interviews as influencing factors on acceptance of CFC, however altruistic values have not been mentioned by interviewees.

6.2 Survey results

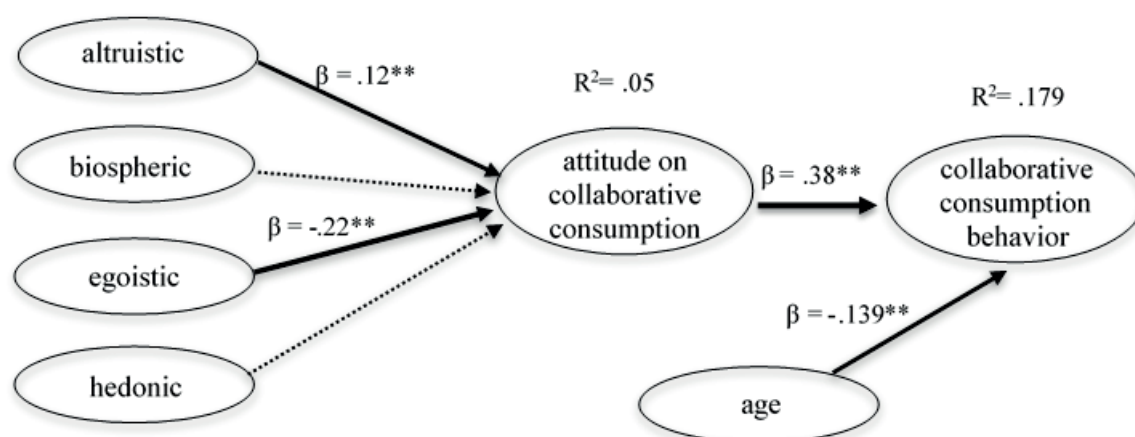
From the large-scale survey study, we extracted data on engagement in CFC, attitude toward CFC and mainly values influencing both.

Engagement in CFC – When we asked how many clothes entered the wardrobe via collaborative practices, our respondents declared that only 4.4% were borrowed or swapped and only 3.5% were bought secondhand. The low prevalence of CFC practices is also reflected in the number of people who had never engaged in any collaborative practice. 75,9% of respondents had never bought a single secondhand piece, and 70,5% had never swapped or borrowed a piece.

Attitude towards CFC – Results revealed that attitudes on CFC are rather neutral, people are neither very fond of, nor against swapping or buying secondhand clothing (mean ratings were close to the neutral option, neither agree, nor disagree). Borrowing clothes from others had the least approval rates.

Reasons for acceptance or rejection of CFC – When looking at the influence of different value types on CFC, we found the relationships to be stronger with attitudes on CFC than with actual behavior, which indicates an indirect influence of values on collaborative consumption via attitude (see Figure 1). As hypothesized, altruistic values were positively, albeit weakly related to attitude towards CFC, while biospheric values were not. On the other hand, egoistic values were negatively associated to attitude towards CFC, while hedonic values were not. All the effects we found were quite small; egoistic and altruistic values could only account for 5% of attitudes' variance, which in turn explains 14.4% of behavioral variance. Additionally, we found a negative effect of age on the engagement in CFC, meaning that older people are slightly less likely to swap, borrow or buy their clothing secondhand. Attitude and age together explained 17.9% of the variance of engagement in CFC.

Figure 1 Influence of value types on attitude on collaborative consumption and actual behavior



7 Discussion and conclusion

The wardrobe study shows that there is significant potential in terms of available clothing in consumers' closets. All the interviewees underestimated the number of the clothing they actually

possess, which could be an instance of an estimation bias based on the availability heuristic (Tversky and Kahneman, 1973). This means that interviewees only remembered and thus could count items that they readily brought to mind, and - quite naturally - forgot to count clothing they rarely or never wear. The sizeable underestimation points to a general bias of self-reported data on clothing consumption. Very likely, interview data generally underestimates the true, probably much higher potential of idling capacity of unused clothes. Keeping in mind this bias while pointing to the high number of most likely unused fashion items in interviewees' closets, it seems warranted to ask: how all this superfluous clothing could be made of use?

Fashion items could be used more intensively, if CFC was accepted and practiced by more people. With the exception of secondhand purchasing, CFC practices, such as swapping or renting, are generally unknown and scarcely practiced among participants of both studies. The attitude towards CFC practices is rather neutral and negative attitude toward CFC was rarely voiced.

The influence of people's values on their attitudes towards CFC has been studied in this research. Both the survey and the interview data suggest that when trying to promote CFC practices, egoistic motives have to be considered as potential hurdles. People who are focused on egoistic aspiration such as power, success or material possessions are less in favor of collaborative consumption and find it hard to let go of the concept of individual ownership. For those costumers, egoistic advantages of CFC practices should be pointed out (e.g. financial incentives).

Surprisingly, hedonic motives, that are a highly targeted motive in fashion promotion, have been only mentioned in one interview as to positively influence attitude toward CFC for bringing more variety to the wardrobe. This coincides with the result of the survey, where hedonic motives neither promote nor diminish attitudes towards CFC. This would suggest that hedonic motives in fashion shopping (to feel good, to underscore personality or moods) are not exclusively confined to purchasing *new* clothes and could also be satisfied with CFC practices. In this aspect, CFC differs from sustainably produced fashion, where a negative role of hedonic values has been previously found (Geiger and Keller, 2017).

Although biospheric values were mentioned during interviews as a potential positive motive, one should take into consideration that the majority of interviewees (n=18) did not mentioned it at all. The survey data supports this, as it failed to find a positive relation of environmental conservation motives (expressed in biospheric values) with attitudes toward CFC. This could point towards a lack of consciousness of the possible ecological advantages of CFC practices in the fashion clientele. Value based messages should therefore highlight the ecological benefits of CFC to promote it to ecologically inclined consumers. This might be especially helpful for an older

clientele, as our quantitative data empirically confirmed that collaborative practices are more widespread among younger people. As people tend to grow more environmentally aware with age (Wiernik *et al.*, 2013), the ecological benefits for the planet might bring CFC closer for older people.

For altruistic motives, the results of both studies somewhat diverge. Whereas altruistic motives are found to play a small positive role in attitudes toward CFC in the survey data, such motives have not been mentioned in the qualitative study. This could be due to the nature of different research. For instance, in the questionnaire, the altruistic motives have been directly asked, while in the in-depth interviews, only open questions were asked e.g. “why would you participate in different forms of CFC?” It might be possible that people have not immediately thought about altruistic motives or that other motives are more dominant in their minds in comparison to altruistic ones.

In summary, ecological and social potentials of CFC could be unlocked if consumers practiced it on a wider scale. Normative aspects such as universal values play only a minor role for the acceptance of CFC: More efficient structures for different CFC practices are required. For instance, a professional clothing laundry before passing the garment to the next consumer to make the clothes attractive, or a competitive price strategy could help CFC to overcome materialistic barriers. Nevertheless, values that influence the acceptance of CFC such as egoistic and altruistic values should be taken into consideration for suitable strategies to encourage consumers to engage in alternative clothing consumption. Further academic research on other motives and factors influencing CFC are needed to help practitioners develop effective strategies to successfully implement CFC initiatives.

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Collaborative fashion consumption – a cross-cultural study between Tehran and Berlin

Iran, S., Geiger, S.M., and Schrader, U. (submitted), Journal of Cleaner Production.

Abstract

Collaborative fashion consumption as a possible path towards more sustainable clothing has taken different forms all around the world. However, it has been differently received in different cultures. Collaborative fashion practices and initiatives have not been deeply studied in the academic literature. Employing a quantitative comparative study between Tehran and Berlin, the theory of planned behavior is tested for the case of collaborative fashion consumption in a cross-cultural context. The Hofstede's national cultural factors are used to explain the differences between two cultures. The results of this study show that attitude, social norms and perceived behavioral control are relevant predictors of the intention to adopt collaborative fashion consumption. The degree of this is found to have a high influence on the actual consumption, while there is no direct influence of perceived behavior control on the collaborative fashion consumption. Moreover, the results show that the predictors of intention towards collaborative fashion consumption are different in two cultures and some of them display significant differences. For instance, in Tehran attitude is found to be the most important factor influencing the intention towards collaborative fashion consumption while in Berlin perceived behavior control is found to be the most important predictor of this intention. Besides, all the elements of the theory of planned behavior, the influence of the intention towards collaborative fashion consumption on actual behavior, and preferences for its different forms differ between Iranian and German culture. Some of these differences can be explained using Hofstede's cultural factors.

Keywords

Collaborative fashion consumption, Intercultural study, Sustainable consumption, Secondhand clothing, Fashion

1. Introduction

Linear fast fashion systems endanger the environment and perpetuate poor working conditions (Donaldson, 2016). From a sustainability perspective, not only the production but also the consumption of fashion items must become less environmentally and socially harmful (e.g. Armstrong *et al.*, 2015; Fletcher, 2008). In Australia alone, every ten minutes about 6000 kg of clothing is sent to a landfill (Liu, 2017). In Germany, there are about 5.2 billion pieces of clothes in the closets of adults (between 19 and 69 years old) of which one fifth has never been used and another fifth is used only rarely (Greenpeace, 2015). This tendency to keep clothing idle, which is to say to keep unused/less used fashion products, cannot be ignored. A number of fashion initiatives have recently been established that provide consumers with alternatives to the common practice of purchasing new, inexpensive, low quality clothing for short periods of usage.

By integrating the concept of the sharing economy into the clothing sector, Collaborative Fashion Consumption (CFC) offers consumers alternative fashion consumption options (Iran and Schrader, 2017). Different forms of CFC (ranging from swapping and borrowing to renting and buying secondhand clothes) are alternatives to the classic model of purchasing new products. The reasons for consumer acceptance or rejection of CFC remain to be discovered.

Different social and cultural drivers influence fashion consumption behavior. For example, in Islamic countries garment design is generally adapted so as not to offend Islamic rules. Therefore, in addition to the physical aspects such as the style and aesthetic of garments, cultural drivers and social elements influence the decision-making process with regard to sustainable fashion consumption.

By conducting a quantitative comparative survey in Berlin and Tehran, we seek to understand the reasons for the acceptance and rejection of CFC. The Theory of Planned Behavior (TPB) (Ajzen, 1985) is applied to explore whether attitude, social norms, and Perceived Behavioral Control (PBC) are predictors of the reception of CFC and whether having positive intention toward CFC together with a positive PBC might influence the real consumption of alternative fashion. The intercultural differences regarding CFC are also studied. In the next sections, the concept of CFC and the influence of attitude, behavioral norms, and PBC, as well as the influence of cultural contexts on attitude toward CFC will be elaborated. In the methods section, the measures and procedure are presented, followed by the data analysis and findings of the study, summary and discussion of the results of the study, and finally limitations of this research.

2. Theoretical background

2.1. Collaborative fashion consumption

Collaborative consumption is not a new concept but it has been facilitated and scaled up in recent years, enabled by the emergence of new information and communication technologies (Belk, 2014; Botsman and Rogers, 2011). CFC is defined as a consumption trend “in which consumers, instead of buying new fashion products, have access to already existing garments either through alternative opportunities to acquire individual ownership (gifting, swapping, or secondhand) or through usage options for fashion products owned by others (sharing, lending, renting, or leasing)” (Iran and Schrader, 2017, p. 472). Various forms of CFC are accepted and practiced by consumers. Some people accept one or more form(s) of CFC, while others reject the concept entirely and are against sharing their clothes. Some prefer renting clothes from companies, as there is a guarantee of items’ quality and hygiene, while others prefer swapping clothes, where they acquire ownership through exchange (Becker-Leifhold and Iran, 2018). It is assumed that consumers have different preferences regarding location of acquiring and previous owners of secondhand clothing. These preferences are studied in this research.

There is a limited, but growing number of studies on consumer attitudes towards alternative consumption practices (Gullstrand Edbring *et al.*, 2015). A few newly released publications have focused on the driving factors of CFC. For instance, Iran and Geiger (2018) explored the role of values influencing consumers’ attitudes towards CFC and found only weak influences of egoistic and altruistic values on the attitude towards CFC. Further reasons that could explain acceptance and rejection of CFC are not yet well researched. In this study, we consider seven different forms of CFC: gifting, swapping, sharing, borrowing, and buying secondhand clothes from friends and family, flea markets, and secondhand shops.

2.2. Applying TPB to CFC

TPB (Ajzen, 1985) is an extension of the theory of reasoned action by Fishbein and Ajzen, 1975. Behavioral intention is the characteristic feature of both theories. Behavioral intention is identified as the main element for predicting the consumer’s actual behavior and can be described as an “indication of an individual’s readiness to engage in a given behavior” (Ajzen, 2011, p. 1122). TPB predicts individuals’ behavior based on attitudes towards a certain behavior, social norms, and PBC.

Attitude refers to the evaluation of a particular behavior. According to Ajzen and Fishbein, 2005, attitudes make the greatest impact on human behavior only if there are favorable conditions. In practice, this means that despite of having a positive attitude, one can be prevented from behaving a certain way due to the disadvantaged situational factors or demographic

characteristics. Still, attitudes can provide important stimuli for a behavior to emerge. Besides, the same drivers also can influence a person's perceptions on his/her ability of performing a particular behavior or keeping it suppressed (Niaura, 2013). Hence, personal, social and informational factors are claimed to directly influence behavioral intentions and finally predict the actual behavior (Niaura, 2013). Social norms reflect an individual's perception of social proof with regard to the performance of a certain behavior. PBC refers to a person's perception of the relative ease or difficulty of engaging in a certain behavior in a given context (Ajzen, 1991). PBC explains how a person perceives his/her own ability to engage in a specific behavior. For example, if people were cognizant of their personal impact on the environment, there would be a greater likelihood that they would behave in a more environmentally-friendly manner (van Birgelen *et al.*, 2008).

TPB has its advantages as well as limitations. Two significant limitations are the difficulty of understanding questions regarding social norms (French *et al.*, 2007) and the inconsistencies between self-reported and actual behavior (Armitage and Conner, 2001). However, many researchers have been confident in using this model for investigating consumer behavior in different research contexts, including sustainability (e.g. Bamberg, 2003; Niaura, 2013; Yeon Kim and Chung, 2011), fashion (e.g. Jin Gam, 2011; Kim and Karpova, 2009), and cross-cultural studies (e.g. Halder *et al.*, 2016). In the context of sustainable marketing and consumption, the "robustness of the theory has been confirmed" (Yeon Kim and Chung, 2011, p. 40). In this study the TPB is used as the basic theory to predict the reception and behavior of consumers toward CFC. Accordingly, the first two hypotheses of this research are built as follow:

H1: Attitude, social norms and PBC are the predictors of the intention towards CFC.

H2: Intention towards CFC and PBC are the predictors of CFC.

2.3. Cross-cultural context

Chapter 4 of Agenda 21, entitled "Changing Consumption Patterns" called for a better understanding of consumers' roles and promoting new patterns of consumption and production to reduce the environmental impact while meeting basic human needs (UNCED, 1992). In order to influence behavioral patterns, interventions at cultural, social, environmental, and economic levels are required. In spite of this call for action, relatively little attention has been given to the cultural dimensions of unsustainability (Kagan, 2012).

Fletcher (2010, p. 37) believes that, "Fashion clothes are much more than the fiber and necessary chemicals for making them. They are signs and symbols, expressions of culture, newness and tradition...Thus, unsustainability issues in fashion are as much about cultural, economic and social phenomena as material and manufacturing ones". Dodd *et al.* (2000) claim that ignoring the role of culture in fashion and clothing buying behavior is impossible. Consequently, the significant effect of cultural contexts on sustainable and CFC is perceptible.

One of the most well-known cultural theories is Hofstede's national culture model. Hofstede's framework has been applied almost 5000 times in a twenty years period (1981-2001) regarding the ISI database which makes it "the most ubiquitous, appearing in more than two-third of the culture papers with explicit theories" (Nakata, 2009, p. 70). Four cultural dimensions of his model are integrated in this research: individualism/collectivism, power distance, masculinity/femininity, and uncertainty avoidance. He describes these dimensions based on four fundamental problems facing society: the relationship between the individual and the group, social inequity, social implications of gender; and handling of uncertainty inherent in economic and social processes.

2.3.1. National cultural drivers

The term "individualism vs. collectivism" is shortly described as the extent of individuals' integration into groups in a society (Hofstede, 1991; Hofstede and Peterson, 2000). In individualistic cultures, the concept of self-actualization is significant; however, in collectivistic cultures, people's values and attitudes are based on the social system to which they belong, and loss of face should be avoided (Mooij and Hofstede, 2010).

Power distance measures "the extent to which the less powerful members of organizations and institutions (like the family) expect and accept that power is distributed unequally" (Hofstede, 1991, p. 61). In cultures with large power distance, everyone's rightful position in a society must be clear, so that other members of society can show a proper level of respect (Mooij and Hofstede, 2010).

The cultural dimension of masculinity refers to societies where gender roles are clearly separated and specified. Men are supposed to be "assertive, tough, and focused on material success" while women are expected to be "modest, tender, and concerned with the quality of life" (Hofstede, 1991, p. 140). Hence, societies where division of gender roles is not specified are classified as feminine.

The uncertainty avoidance "expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity" (Hofstede, 2018). In cultures with high uncertainty avoidance, people seek for rules and formality to structure their life, although in

cultures with low uncertainty avoidance, practice is more favorable than principles (Hofstede, 2018). In high uncertainty avoidance cultures, people are less open to changes and innovations and the concepts such as health and foods are more important for them (Mooij and Hofstede, 2002).

2.4. The influence of national culture on CFC

Some researchers previously studied the influence of national cultural drivers on different sustainable behaviors (e.g. Cox *et al.*, 2011; Husted, 2005). As no research has yet been conducted on national cultural factors and CFC, we refer to the previous literature dealing with cultural factors and sustainable behaviors in general.

The concepts of in-group benefits, interdependence and togetherness in an extended family are mostly common in collectivistic communities. The creation of common belief among collectivist cultures members is more attainable than in individualist cultures, due to the we-conscious logic of thinking and respecting the group desires as a group member. Theoretically it can be assumed that people coming from more collectivist cultures should be more interested in sustainable consumption, however, different results are found in previous studies. For instance, Ramirez (2010) found that students with individualistic cultures also show the tendency for communal washing, which could reveal the existence of some other motivators in individualistic societies that lead to more sustainable behavior. However, Park and his colleagues (2007), found no significant relationship between individualism and environmental sustainability.

It is found that low power-distanced cultures have a significantly higher level of environmental sustainability (Cox *et al.*, 2011; Husted, 2005; Park *et al.*, 2007). In high power-distanced cultures, the stylish clothing, shoes, posture, make up and grooming shows the position of people in the society. On the other hand, in low power-distanced cultures, people don't take care of their outer-appearance so much and their private and public clothes are the same (Hofstede, 1998). In low power-distanced cultures, due to the low level of hierarchy and unimportance of social status, the possibility of shaping the social proof regarding CFC is higher compared to high power-distanced cultures.

Some research elaborates on the significant higher level of environmental sustainability for more feminine cultures (e.g. Husted, 2005; Park *et al.*, 2007). Later, Cox and her colleagues (2011) found no significant relationship between masculinity-femininity and environmental sustainability. The formation of social proof in feminine cultures could be more attainable as people in such a society are caring more about each other and try to support the idea and life quality improvement of other members of the society.

Some previous research has found no significant correlation between the level of uncertainty avoidance and sustainability in their studies (e.g. Husted, 2005; Park *et al.*, 2007). In cultures with high level of uncertainty avoidance, the people are less interested in change and innovation; also taking and accepting risk is the first step of participating in an innovation in order to reach a desirable level of social proof. Therefore, the achievement of social proof is less expected. Moreover, the level of trust in cultures with high uncertainty avoidance is lower in comparison with cultures with low uncertainty avoidance (Siakas and Georgiadou, 2006).

In this research, it is assumed that different cultural backgrounds might influence the way people perceive and behave regarding the CFC. Hence, three hypotheses are:

H3: There are differences regarding all five factors of the TPB between the two samples with different cultural backgrounds.

H4: There are differences regarding the importance of predictors of CFC between the two samples with different cultural backgrounds.

H5. There are differences regarding the cultural factors between the two samples with different cultural backgrounds.

3. Methods

3.1. Scale construction

This research applies a quantitative comparative study of the differences between university students in two capital cities, Tehran and Berlin, regarding CFC. A preliminary questionnaire comprised of 64 Likert scale questions (with nine items for each TPB construct and nineteen items for national cultural drivers) was designed. Moreover, demographic questions and two descriptive questions asking 1) where consumers prefer to receive their secondhand clothing from and 2) who they prefer to be the previous owner of these items were added to the questionnaire.

The questionnaire was then given to eight experts to review the construction of the questions. Moreover, two sets of pretests were conducted: one with six German students who precisely went through the questions and checked whether the language was understandable and then an online pretest with 72 students to check whether the constructs were well designed and again whether the questions were understandable. After modifying the German questionnaire, a total of 35 questions regarding the TPB constructs remained. 15 questions were deleted from the TPB, as most students were not familiar with the form of CFC being asked about (for instance, none of them was aware of the existence of clothing libraries and a few of them shared clothing with their family or friends). Besides, questions regarding the actual behavior

have been changed to open-ended ones, so that participants could have the possibility of writing the number of clothing directly as their answers.

In the next step, the questions were translated into Persian. Another round of qualitative pretest was performed, this time with Iranian students, to make sure that all the questions were well translated in Persian and were understandable.

3.2. Measures

TPB constructs – 30 Likert scale questions for attitude, social norms, PBC, and intention were constructed based on recommendations of Ajzen (2006). The questions were answered on a 5-point scale ranging from “strongly agree” to “strongly disagree”. Additionally, five open-ended questions were used to assess actual CFC in number of clothing items acquired through CFC.

Hofstede’s cultural factors – The original measure has been developed to measure organizational culture (Hofstede, 2001), however later it has been often applied to measure cultural values for individual consumers. Yoo and his colleagues (2011) developed a measure of Hofstede’s culture at the individual level, called CVSCALE. 19 items of this measure (regarding individualism, power distance, masculinity, and uncertainty avoidance) were used for this research. The answers were given on a five point Likert scale used for TPB constructs.

Demographic questions – Four questions on age, gender, income, and marital status were asked.

Descriptive questions – Two five-point Likert scale questions were asked about preferences on location of acquiring and previous owner of CFC with the same scale used for TPB constructs.

3.3. Procedure

The main survey in Germany is conducted online in fall 2016. Due to limited Internet accessibility in Tehran, the Iranian students could decide between online and paper pencil participation. The survey in Tehran is conducted during winter 2017. The participation of students in the survey was voluntarily in both cities and there were financial incentives for them. By filling out the questionnaire, participants could take part in a lottery game, where three people in each sample could win a voucher. A total of 322 fully completed questionnaires are finally gathered in Berlin and 297 questionnaires are collected in Tehran.

4. Data analysis and findings

Descriptive and variance analyses are conducted with IBM-SPSS 24 and Confirmatory Factor Analyses (CFA) and path modeling are conducted using AMOS.

4.1. Demographic characteristics of the samples

About 95% of Iranian students and 92% of German students are under the age of 35. The average age for German sample is 25.7 and for Iranian sample is 23.2. About 70% of the participating Iranian students and 75% of German students are female. 50% of the German students and 63% of the Iranian students are single. The rest are married or are living with a partner. The average monthly income is around 236 Euros for Iranian students and about 742 Euros for German students. In 2016, the minimum wage is defined to be about 0.75 Euros per hour in Iran (Ministry of Labour and Social Affairs, 2016) and 8.50 Euros per hour in Germany (Bundesministerium für Arbeit und Soziales, 2016). The difference between the income level of Iranian and German students is understandable due to the different living costs in both cities and the opportunities that German students have in terms of receiving scholarships or student jobs. In sum, the chosen samples have common characteristics that give the researcher the opportunity to relate different results of the two data sets with two different cultural backgrounds.

4.2. Pretest 1: testing the TPB model's latent constructs

Before presenting results on the TPB model, CFA is used to ensure that each of the latent variables is measured validly and reliably for the TPB instrument for secondhand clothing. In CFA, an appropriate fit should be achieved for each construct. The Comparative Fit Index (CFI) and Tucker-Lewis index (TLI) should be higher than .9 (Hair *et al.*, 2010). A Root Mean Square Error of Approximation (RMSEA) of less than .05 is good but .05-.10 is acceptable (Awang, 2012). The RMR, which is square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model, should be less than .10 or .08 (in a more conservative version; see Hu and Bentler, 1999). Table 1 shows the fit for each construct. Estimates of the squared multiple correlations range from .141 to .983 related to the indicator variables (Table 3 in appendices). Modifications are completed by identifying the modification indices that could improve the model fit based on error covariance within the same factor (Byrne *et al.*, 1989). The items with lower factor loadings are deleted from the model until a good fit is achieved; therefore, S_5, C_1, B_3, and B_5 are taken out of the model. However, two items of behavior (B_1 and B_9) have very low factor loadings; they are considered in further analysis, as they are not influencing the good fit of the behavior construct. A reason for such low factor loadings for behavioral items could be a floor effect. A high number of participants have never used one or more forms of CFC, but in contrast there are also participants who regularly are engaged in CFC practices.

Table 1 TPB constructs' fit

Latent Variable	CFI	TLI	RMSEA	RMR
Attitude	.990	.978	.077	.036
Social Norms	.996	.988	.060	.023
PBC	.977	.946	.061	.054
Intention	.999	.998	.020	.020
Behavior	.995	.986	.040	.416

All in all, the adequacy of the reflective measurement models can be attested. The measuring instruments are therefore deemed to be adequate for this study.

4.3. Pretest 2: common method variance

When applying structural equation modeling to the complete data set, no satisfying model fits for a TPB-model could be obtained (CFI= .760, TLI= .729, RMSEA= .127, RMR= .583). One possible explanation is that common method variance could exist in the model, which causes problems in behavioral research (Podsakoff *et al.*, 2003). Bagozzi and Yi (1991) mention method variance as one of the main sources of systematic measurement error. They define method variance as a variance that is related to the method rather than constructs. Here method can be referred to measurement forms such as the content of specific items, scale type, and response format (Fiske, 1982). "At a more abstract level, method effects might be interpreted in terms of response biases such as halo effects, social desirability, acquiescence, or leniency effects" (Bagozzi and Yi, 1991, p. 426).

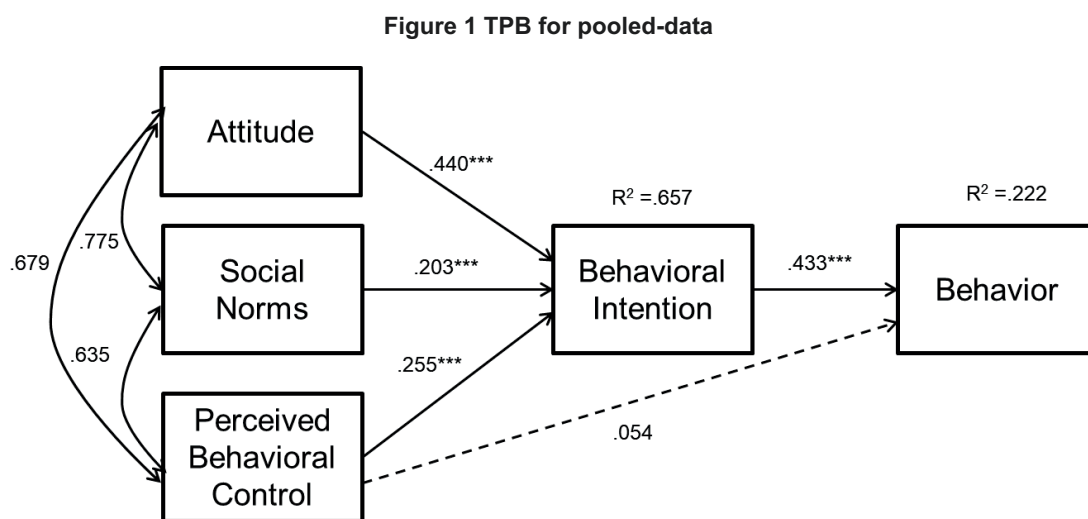
To test the existence of the common method variance, Harman's single factor test is applied. The results show that more than 46% of the variance could be explained by a single factor. As this number does not show a majority of variance, a marker variable is not included for further analysis. However, this high number indicates a common method bias in the data. This common method variance occurs in large part as a result of the very similar items used in the questionnaire for different constructs of TPB. The error covariance between similar items of different constructs later result in an inadequate model fit. Based on the existing common method factor and in order to avoid the error of covariance between different independent constructs, a parceling method is used in this study to test the TPB model. It is reported that parceling is a preferred method to disaggregated analyses in some cases, as the measurement error is reduced with parceled sets of items (Bagozzi and Edwards, 1998).

4.4. Results on the TPB model with pooled-data

First, a path model for the pooled-data (N= 619) is tested to explore the applicability of the model in a cross-cultural context. The model has a good fit to the data (CFI= .999, TLI= .997, RMSEA= .03, RMR= .005).

The TPB model is analyzed based on the path coefficients and R^2 . Path coefficients can be used in examining the possible causal linkage between variables of the model. The coefficient of determination R^2 provides information about the explanatory power of a model.

Attitude, social norms, and PBC can significantly predict more than 65% of the variance in intention towards CFC. In turn, intention can explain CFC while there is no direct relationship of PBC and behavior (Figure 1). Therefore, the first hypothesis (H1) is confirmed; while regarding the second hypothesis (H2) only behavioral intention is found to be a predictor of the actual behavior. Additionally, we find relatively high covariances between attitude, social norms and PBC.



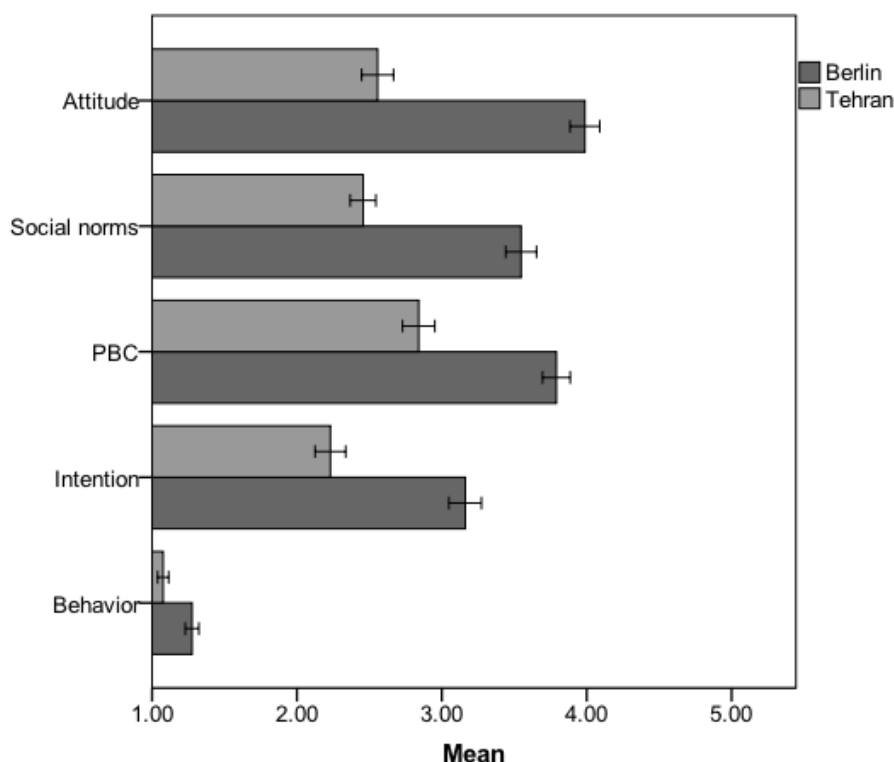
Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

4.5. Intercultural descriptive results for TPB constructs

To test if there is a significant difference between two groups of Iranian and German students (regarding their attitude, social norms, PBC, intention towards and engagement in the CFC), we ran a multivariate analysis of variance (MANOVA). The result confirms the third hypothesis (H3) and shows that there are significant differences between the cultures when it comes to all the TPB elements regarding CFC (Figure 2, F-values significant at $p < .01$). Generally German students rate all TPB factors higher. In terms of actual behavior, German students are more engaged in the CFC in comparison to Iranian students. As mentioned, a floor effect exists

regarding the actual behavior and most of the participants (more than 54%) have never engaged in CFC. We also observed that there are significant differences between different forms of CFC in both cultures. For all the four behavioral items included in the analysis German students performed the actual CFC more than Iranian students. But looking at the other three items, that were deleted from the analysis, shows that the practice of sharing clothing with friends and family has been done by more students in Tehran.

Figure 2 Intercultural descriptive results for TPB constructs



Note: error bars: 95% CI, all answers range from strongly disagree (1) to strongly agree (5) except for behavior that range from never (1) to high number of clothing obtained through CFC (5)

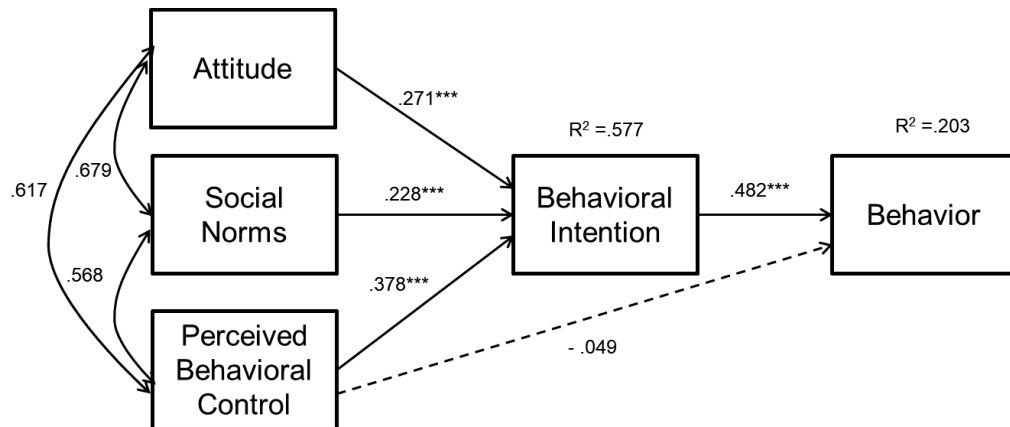
4.6. Intercultural differences in the TPB model

To test the TPB-model in both samples, a multi-group analysis is conducted. The intercultural model has a good fit to the data (CFI= .995, TLI= .976, RMSEA= .051, RMR= .006). The high covariance between attitude, social norms and PBC is found here, too.

4.6.1. Model for Berlin

In Berlin, PBC is the most important factor influencing the intention towards CFC. Social norms and attitude are also good predictors of the intention towards CFC. The intention towards CFC strongly influences the actual CFC. PBC has no correlation with CFC (Figure 3).

Figure 3 TPB for Berlin

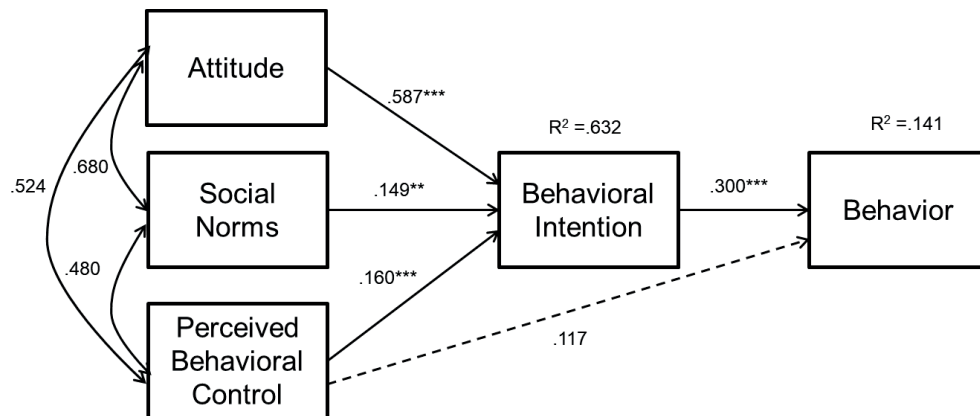


Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

4.6.2. Model for Tehran

In Tehran, attitude towards CFC is the most important factor influencing the intention towards CFC. Social norms and PBC have weaker correlations with the intention towards CFC. The intention towards CFC influences the actual behavior to a higher degree and the correlation between PBC and behavior is also not significant in this sample (Figure 4).

Figure 4 TPB for Tehran



Notes: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

4.6.3. Differences between Tehran and Berlin

Using z-scores, the differences between the two sample groups are tested for significance. As shown in Table 2, there are three paths that lead to different behaviors in different cultures: attitude to intention, PBC to intention, and intention to behavior. The influence of attitude on intention is different in Berlin and lower compared to the one in Tehran. The influence of PBC on the intention differs in two cities: it is higher in Berlin compared to Tehran. Another difference

could be found regarding the influence of intention toward CFC on the actual behavior: It is higher in Berlin. Therefore, the fourth hypothesis (H4) is confirmed.

Table 2 Cross-cultural differences

	Tehran		Berlin		z-score
	Estimate	p	Estimate	p	
Attitude-Intention	.564	.000	.295	.000	3.535***
Social norms- Intention	.177	.002	.241	.000	-.811
PBC-Intention	.152	.000	.441	.000	-4.21***
Intention-Behavior	.109	.000	.201	.000	-2.54**
PBC- Behavior	-.040	.068	-.024	.469	1.614

Notes: * $p < .10$, ** $p < .05$, *** $p < .01$

4.7. Cultural comparison of the samples

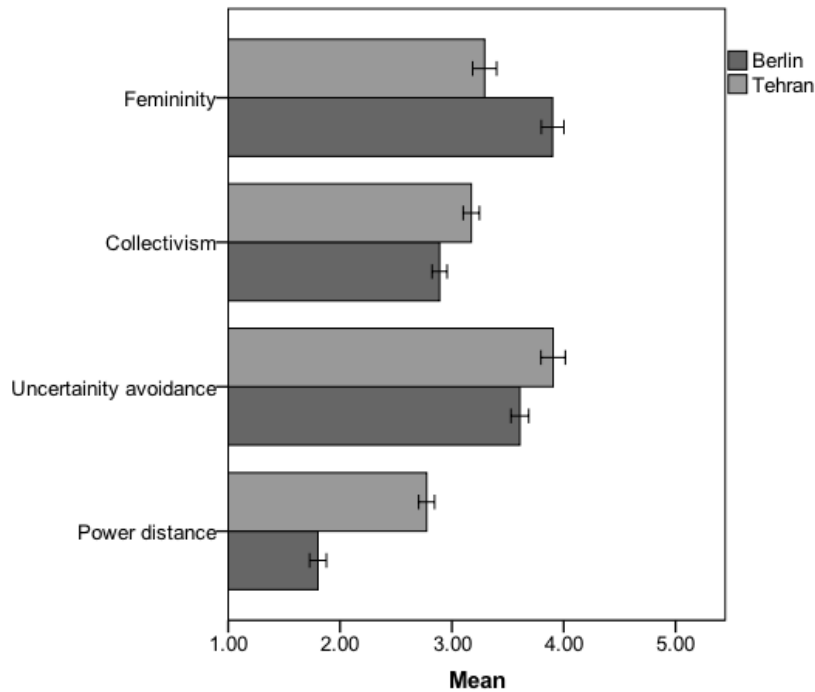
Using MANOVA, cultural drivers are compared between the two sub-samples. According to the results, there are significant and meaningful differences between cultural drivers (Figure 5). Berlin has a more feminine ($F(4,614) = 65.6$; $p < .001$), individualistic ($F(4,614) = 32.0$; $p < .001$) culture in comparison to Tehran. Uncertainty avoidance ($F(4,614) = 19.2$; $p < .001$) and power distance ($F(4,614) = 341.8$; $p < .001$) are lower in Berlin. Therefore, the last hypothesis (H5) is also confirmed.

4.8. Location and previous owner and CFC

Where and from whom to receive the secondhand clothes could also influence the acceptance of CFC. In addition to the items related to the TPB, consumers are asked where and from whom do they prefer to receive their secondhand clothes.

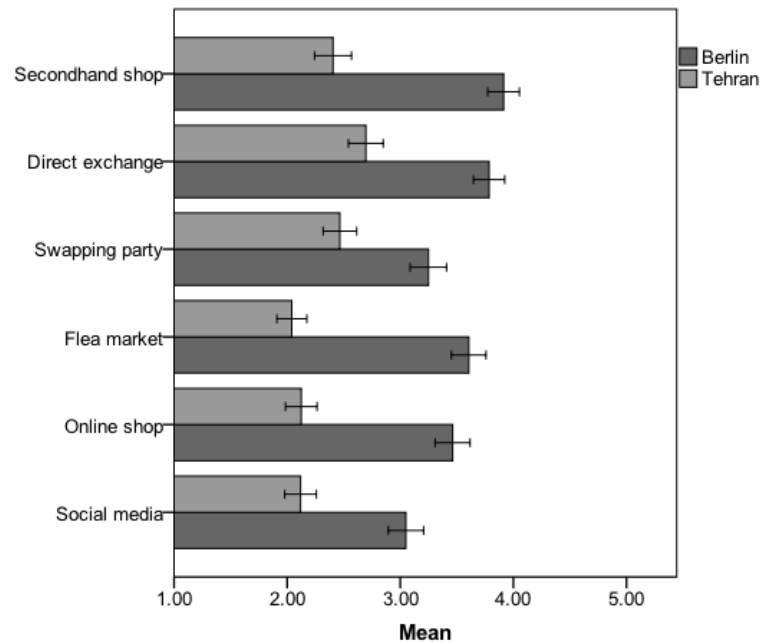
Regarding the best place for receiving the secondhand clothing, consumers prefer direct offline practices such as direct exchange, buying from secondhand shops, and exchanging (Figure 6). These preferences may reveal a lack of trust about the quality and provenance of the product. German consumers generally show a more positive tendency toward all of the means of receiving secondhand clothing. All the differences between German and Iranian students regarding the place of acquiring secondhand clothing are meaningful (F-values significant $p < .001$). Nevertheless, the patterns show that in both samples direct offline exchanges are more favorable than online forms.

Figure 5 Cultural differences between Tehran and Berlin



Note: error bars: 95% CI, all answers range from very low (1) to very high (5)

Figure 6 Place of acquiring secondhand clothing

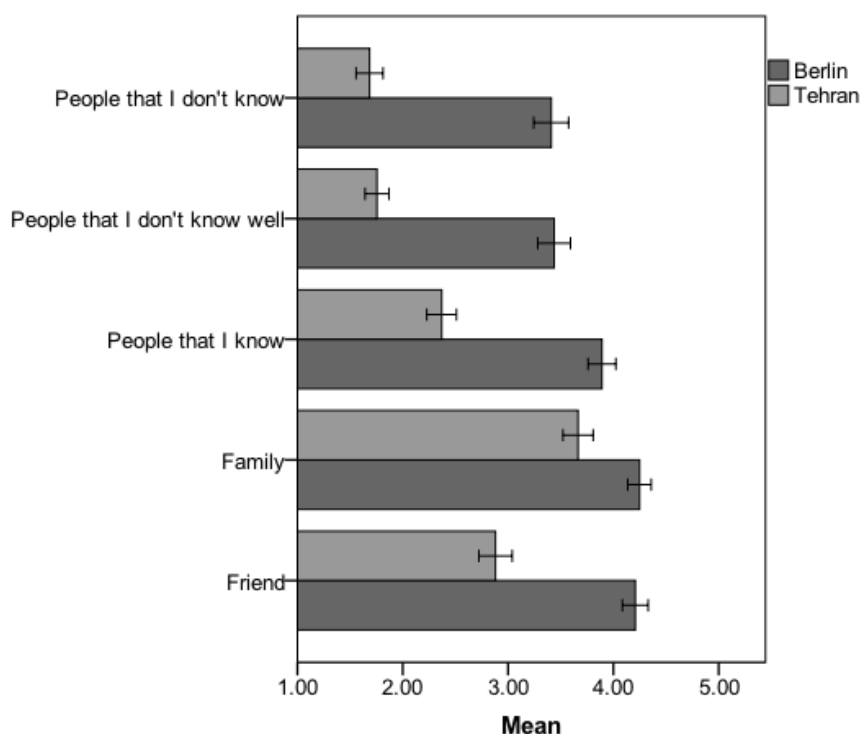


Note: error bars: 95% CI, all answers range from strongly disagree(1) to strongly agree (5)

Regarding the previous owner of the secondhand fashion items, the same pattern can be seen in both cultures (Figure 7). Consumers prefer friends and family members over others. The issue of trust could play role also here, as consumers might trust those who are close to them

more than others. German consumers are relatively more positive about receiving secondhand clothing from different groups of consumers and these differences are all significant (F-values significant $p < .001$).

Figure 7 Previous owner of secondhand clothing



Note: error bars: 95% CI, all answers range from strongly disagree (1) to strongly agree (5)

5. Discussion and conclusion

The primary objective of this study is to test the TPB in a cross-cultural context and then to explore this theory for each sample group (Tehran vs. Berlin) and find the similarities and differences of the students' CFC in two different cultures.

Looking at the pooled-data, attitude is the main predictor of the intention confirming former behavioral studies (e.g. Halder *et al.*, 2016). Today consumers can easily purchase inexpensive clothing at fashion retailers. In addition, most of the consumers associate secondhand clothing unpleasant and/or time consuming to find. Changing their attitude and perceptions about secondhand clothing could motivate them to change their behavior. Social norms seem to be the least important for the consumers when they decide about the CFC. This show that (regarding pooled-data as well as both sample) what significant others think about students' engaging in the CFC is not as important as their own attitude toward CFC and PBC. In other studies (e.g. Armitage and Conner, 2001), social norms are also claimed to be the weakest predictor of the intention in the TPB. The three predictors attitude, social norms, and PBC can

explain up to 66% of the variance of the intention towards CFC. Intention is a good predictor of actual CFC, but PBC has no direct relationship with behavior. This might be due to an existed opposing effect. Having the possibility of performing an act should normally stimulate the actual behavior. However, in the case of CFC, a reverse causality might happen: engaging in the CFC could be perceived as very difficult - and those individuals who do not perform the behavior do not experience this difficulty. Only about 22% of CFC can be predicted by the intention, again conforming many previous studies (e.g. Carrington *et al.*, 2010, 2014) indicating an intention-behavior gap. Although consumers have positive intention towards CFC, their actual behavior does not follow. As mentioned before, a high number of participants claimed that they have never practiced some forms of CFC. Unless factors such as pleasure or self-expression are linked to the sustainable fashion (or CFC), limited engagement persist (Bly *et al.*, 2015).

Iranian and German cultures differ along many dimensions. Looking at them from Hofstede's point of view we found that German culture is a more individualistic culture. Moreover, German students are coming from a more feminine culture with lower uncertainty avoidance and lower power distance comparing to the Iranian students. It is found that here is a significant difference between two samples regarding their attitude, social norms, PBC, intention towards and engagement in the CFC. All elements of TPB are more positive in Berlin and behavior is shown more frequently.

Regarding the influences on intention, in Berlin, PBC is the most influential predictor of the intention towards CFC while in Tehran attitude is found to be the most important factor. This is an interesting difference between two samples. It is claimed that in a more individualistic culture, the connection between attitude and intention is stronger (Barbarossa *et al.*, 2015). Here the opposite is found: attitude has a stronger influence on the intention towards CFC in Tehran in compare to Berlin. This unexpected result might be explained considering different level of power distance in two cultures. Iranian students are coming from a culture with higher power distance and in their culture using secondhand clothing is most of the time connected with being poor or coming from non-wealthy families. Therefore, changing consumers' attitude toward secondhand clothing usage could result in having a positive intention toward CFC. In contrasts German students are coming from a culture with lower power distance. As mentioned, in these cultures, people care less of their outer-appearance (Hofstede, 1998). Hence, it is more of a question if German consumers have the possibility of engaging in the CFC or not. This does not necessarily refer to the financial possibilities, but rather to the time they should spend in finding their desired secondhand clothing for instance, in terms of size, color, or quality or other behavioral costs.

Despite of the positive intention towards CFC in both cultures, the results of this study also show that German students are more engaged in CFC and the influence of intention on the CFC is also higher in Berlin in compare to Tehran. In a more individualistic culture, where people have enough financial resources and have the buying power (Berlin), the likelihood that a positive intention results in an actual behavior could be higher. Knowing about the cultural dimensions influencing sustainable behavior could help in generating successful strategies for promoting the sustainability in different societies.

Our participants prefer direct offline practices for acquiring secondhand clothes (e.g. direct exchange, buying form secondhand shops and exchanging in swapping parties). They also prefer to receive their secondhand clothing from their friends and family members as compared to others. Botsman and Rogers (2011) consider trust, as one of the most important pre-requisites of the sharing economy. In the case of secondhand clothing, consumers might find it easier to trust and to buy an item, if they could see the product and make sure of the quality before purchasing. Moreover, previously consumers mentioned that they had some hygienic concerns and were unsure about the cleanliness of the secondhand clothing (Becker-Leifhold and Iran, 2018). Again here, trusting someone they know might make it easier for them to accept using secondhand clothing. Considering the location and previous owner of secondhand clothing, mostly a similar pattern is emerged in both sample groups. Therefore, it seems that similar strategies regarding the location and previous owners could be applied for promoting CFC in both cultures.

In conclusion, in the current global village, consumer culture might be similar all around the world, at least among those nationalities with similar welfare level. Here we could also see that regarding the location and previous owner of secondhand clothing mostly similar results could be found in both cultures. Still motives and drivers of intention toward CFC follow a different pattern in different cultures; and performing the actual behavior depends on more diverse factors than only having a positive intention toward an action. Using the result of this study, we assume that cultural differences can influence the intention towards CFC and actual CFC.

6. Limitations to the study

As this study is among the first to look at the CFC in a cross-cultural context, there was no ready-to-use questionnaire for TPB. Therefore, the questionnaire is designed for the purpose of this study. The TPB constructs are tested for validity and reliability using different qualitative as well as quantitative methods (for instance, expert interview, pre-tests, and CFA). After modifying the items, the constructs have good fits and can be used for further analysis. A problem with the questionnaire items is that the questions are very similar and apparently participants cannot

distinguish the differences (e.g. between the questions regarding their attitude or PBC). This leads to a high common factor variance and leads the researcher to use parceling method to conduct further analysis.

As research on the alternative clothing consumption topics is in its initial phases, there is still a need for further academic studies regarding this topic. For instance, another cross-cultural research could be conducted to cover more consumers and not only university students. Other drivers such as individual values, social and economic factors should be studied to discover further reasons of acceptance and rejection of CFC in different cultures.

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8. Appendix

Table 2 Questionnaire items for TPB

Latent Variable	Item	Item	Factor Loading
Attitude	It is a good idea to buy some clothing from friends or relatives.	A_1	.731
	It is a good idea to receive some secondhand clothing from friends or relatives.	A_2	.585
	It is a good idea to buy some secondhand clothing from others (e.g. in a flea market).	A_3	.857
	It is a good idea to share some clothing with friends or relatives.	A_4	Deleted
	It is a good idea to borrow some clothing from friends or relatives.	A_5	.983
	It is a good idea to exchange some clothing with friends or relatives.	A_6	.660
	It is a good idea to buy some clothing from secondhand shops.	A_9	.949
Social Norms	I think most people that are important to me approve of my buying some clothing from friends or relatives.	S_1	.620
	I think most people that are important to me approve of my receiving some secondhand clothing from friends or relatives.	S_2	.646
	I think most people that are important to me approve of my buying some secondhand clothing from others (e.g. in a flea market).	S_3	.637
	I think most people that are important to me approve of my sharing some clothing with friends or relatives.	S_4	Deleted
	I think most people that are important to me approve of my borrowing some clothing from friends or relatives.	S_5	Deleted
	I think most people that are important to me approve of my exchanging some clothing with friends or relatives.	S_6	.555
	I think most people that are important to me approve of my buying some clothing from secondhand shops.	S_9	.619

PBC	I have the possibility to buy some clothing from friends or relatives.	C_1	Deleted
	I have the possibility to buy some secondhand clothing from others (e.g. in a flea market).	C_2	.301
	I have the possibility to receive some secondhand clothing from friends or relatives.	C_3	.591
	I have the possibility to share some clothing with friends or relatives.	C_4	Deleted
	I have the possibility to borrow some clothing from friends or relatives.	C_5	.446
	I have the possibility to exchange some clothing with friends or relatives.	C_6	.706
	I have the possibility to buy some clothing from secondhand shops.	C_9	.270
Intention	I have a plan to buy some clothing from friends or relatives in the next year.	I_1	.504
	I have a plan to receive some secondhand clothing from friends or relatives in the next year.	I_2	.543
	I have a plan to buy some secondhand clothing from others (e.g. in a flea market) in the next year.	I_3	.622
	I have a plan to share some clothing with friends or relatives in the next year.	I_4	Deleted
	I have a plan to borrow some clothing from friends or relatives in the next year.	I_5	.346
	I have a plan to exchange some clothing with friends or relatives in the next year.	I_6	.556
	I have a plan to buy some clothing from secondhand shops in the next year.	I_9	.451

Behavior	I bought some clothing from friends or relatives in the previous year.	B_1	.141
	I bought some secondhand clothing from others (e.g. in a flea market) in the previous year.	B_2	.518
	I received some secondhand clothing from friends or relatives in the previous year.	B_3	Deleted
	I shared some clothing with friends or relatives in the previous year.	B_4	Deleted
	I borrowed some clothing from friends or relatives in the previous year.	B_5	Deleted
	I exchanged some clothing with friends or relatives in the previous year.	B_6	.566
	I bought some clothing from secondhand shops in the previous year.	B_9	.159

Appendix 1: questionnaire in German

Liebe Studierende,

im Rahmen eines Forschungsprojektes zum Thema Konsumverhalten und gemeinsame Nutzung von Kleidung führen wir eine spannende Studie durch.

Wir freuen uns, wenn Sie unser Forschungsprojekt unterstützen und sich ca. 20 Minuten Zeit nehmen, die Umfrage auszufüllen. Grundsätzlich gilt:

- Bitte beachten Sie, dass es immer kleine Unterschiede zwischen den Fragen gibt, auch wenn sie sehr ähnlich klingen. Deswegen beantworten Sie bitte immer alle Fragen.
- Alle Fragen beziehen sich auf Ihren eigenen Kleiderkonsum und nicht darauf, welche Kleidung Sie z.B. für Ihr Kind kaufen.
- Ihre Daten werden anonym verwendet, d.h. es werden keine personenbezogenen Auswertungen durchgeführt.

Die Angabe der EMail Adresse am Ende der Umfrage ist freiwillig. Sie ist Voraussetzung für die Gewinnspielteilnahme und weitere Korrespondenz, wenn Sie damit einverstanden sind (unter allen Teilnehmenden verlosen wir 3 Gutscheine von Amazon oder Avocadostore à 50 Euro; Sie können wählen, welchen der Gutscheine Sie bekommen möchten).

Vielen Dank für Ihre Teilnahme!

Herzliche Grüße, Samira Iran

Prof. Dr. Ulf Schrader

Institut für Berufliche Bildung und Arbeitslehre, Technische Universität Berlin

Question No.	Inwiefern stimmen Sie den folgenden Aussagen zu? Es ist eine gute Idee, manche Kleidungsstücke...	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
1	...gebraucht von Freunden oder Verwandten zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	...gebraucht von Freunden oder Verwandten geschenkt zu bekommen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	...secondhand von anderen Menschen (z.B. online oder auf Flohmärkten) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	...mit Freunden oder Verwandten zu teilen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	...von Freunden oder Verwandten auszuleihen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	..., die man nicht mehr tragen möchte, gegen andere Stücke zu tauschen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	...gebraucht in Secondhandläden (auch online) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Question No.	Inwiefern stimmen Sie den folgenden Aussagen zu? Ich denke, die Mehrheit der Menschen, deren Meinung mir wichtig ist (z.B. meine Familie oder meine Freunde), fände es gut, wenn ich...	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
8	...manche Kleidungsstücke als gebrauchte Kleidung von Freunden oder Verwandten kaufen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	...wenn ich manche Kleidungsstücke als gebrauchte Kleidung von Freunden oder Verwandten geschenkt bekommen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	...manche Kleidungsstücke von anderen Menschen (z.B. online oder auf Flohmärkten) kaufen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	...manche Kleidungsstücke mit Freunden oder Verwandten teilen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	...wenn ich mir manche Kleidungsstücke von Freunden oder Verwandten ausleihen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	...manche Kleidungsstücke, die ich nicht mehr trage, mit Freunden oder Verwandten tauschen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	...manche gebrauchte Kleidungsstücke in Secondhandläden (auch online) kaufen würde.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question No.	Inwiefern stimmen Sie den folgenden Aussagen zu? Ich habe die Möglichkeit, manche Kleidungsstücke...	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
15	...gebraucht von Freunden oder Verwandten zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	...gebraucht von Freunden oder Verwandten geschenkt zu bekommen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	...secondhand von anderen Menschen (z.B. online, auf Flohmärkten) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	...mit Freunden oder Verwandten zu teilen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	...von Freunden oder Verwandten auszuleihen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	..., die ich nicht mehr trage, mit Freunden oder Verwandten zu tauschen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21	...einfach gebraucht in Secondhandläden (auch online) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Question No.	Inwiefern könnten die folgenden Aussagen für das nächste Jahr zutreffen? Ich habe vor, manche meiner Kleidungsstücke...	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
22	... gebraucht von Freunden oder Verwandten zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23	... gebraucht von Freunden oder Verwandten schenken zu lassen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24	... secondhand von anderen Menschen (z.B. online, auf Flohmärkten) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25	... mit Freunden oder Verwandten zu teilen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26	... von Freunden oder Verwandten auszuleihen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27	..., die ich nicht mehr trage, gegen gebrauchte Stücke von Freunden oder Verwandten zu tauschen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28	... secondhand in Secondhandläden (auch online) zu kaufen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question No.	Wie viele Kleidungsstücke (ohne Socken und Unterwäsche) haben Sie jeweils auf folgende Weise im letzten Jahr bezogen? Bitte geben Sie die Antwort als Zahl an. Ich habe folgende Anzahl Kleidungsstücke...
29	...von Freunden oder Verwandten gekauft: <input type="text"/>
30	...von Freunden oder Verwandten geschenkt bekommen: <input type="text"/>
31	...von anderen Menschen (z.B. online, auf Flohmärkten) gekauft: <input type="text"/>
32	...mit Freunden oder Verwandten geteilt: <input type="text"/>
33	...von Freunden oder Verwandten ausgeliehen: <input type="text"/>
34	...mit Freunden oder Verwandten getauscht: <input type="text"/>
35	...in Secondhandläden (auch online) gekauft: <input type="text"/>

Question No.	Wen bevorzugen Sie als Vorbesitzer bei Secondhandkleidung? Ich kann mir vorstellen, Secondhandkleidung zu tragen, die vorher...	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
36	...einem/einer Freund/-in gehört hat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37	...einem/einer Verwandten gehört hat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38	...einem/einer Bekannten gehört hat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39	...Menschen, die ich ein wenig kenne, gehört hat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40	...Menschen, die ich gar nicht kenne, gehört hat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question No.	Woher können Sie sich vorstellen Secondhandkleidung zu beziehen? Ich kann mir vorstellen, Secondhandkleidung...	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
41	...bei kleinen Austauschpartys zu beziehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42	...Online über soziale Medien zu beziehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43	...in Online-Shops zu beziehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44	...auf Flohmärkten zu beziehen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45	...im direkten Austausch von den Vorbesitzern zu beziehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46	...in einem Laden zu beziehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Diese Fragen beziehen sich auf kulturelle Aspekte.						
Question No.	Inwiefern sind die folgenden Aussagen für Sie zutreffend? Wenn Sie arbeiten oder schon gearbeitet haben, beantworten Sie bitte die folgenden Fragen anhand Ihrer Erfahrungen in der Arbeitswelt. Wenn Sie noch nicht gearbeitet haben, stellen Sie sich bitte vor, dass Sie an der Universität als studentische Hilfskraft angestellt sind.	Stimme nicht zu	Stimme eher nicht zu	Unentschieden	Stimme eher zu	Stimme völlig zu
47	Menschen in höheren Positionen sollten mehr Entscheidungen treffen, ohne Menschen in niedrigeren Positionen zu Rate zu ziehen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48	Menschen in höheren Positionen sollten nicht zu oft die Meinung von Menschen in niedrigeren Positionen einholen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49	Menschen in höheren Positionen sollten den Kontakt zu Menschen in niedrigeren Positionen meiden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50	Menschen in niedrigeren Positionen sollten den Meinungen von Menschen in höheren Positionen nicht widersprechen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51	Menschen in höheren Positionen sollten wichtige Aufgaben nicht an Menschen in niedrigeren Positionen delegieren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52	Es ist wichtig, immer genaue Anweisungen zu bekommen, damit man weiß, was zu tun ist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53	Es ist wichtig, Anweisungen und Abläufen genau zu folgen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54	Regeln und Vorschriften sind wichtig, damit man weiß, was von einem erwartet wird	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55	Standardisierte Arbeitsprozesse sind hilfreich.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56	Handlungsanweisungen sind wichtig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57	Jeder Einzelne sollte die eigenen Interessen für die der Gruppe opfern.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58	Jeder Einzelne sollte in der Gruppe bleiben, auch wenn es Schwierigkeiten gibt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59	Die Belohnung des Einzelnen ist wichtiger als das Wohlbefinden der Gruppe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60	Der Erfolg der Gruppe ist wichtiger als der des Einzelnen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61	Der Einzelne sollte seine Interessen erst dann verfolgen, wenn er das Wohl der Gruppe bedacht hat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
62	Die Gruppenloyalität sollte gefördert werden, auch wenn die Ziele des Einzelnen dabei vernachlässigt werden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63	Für Männer ist es wichtiger als für Frauen, beruflich Karriere zu machen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64	Männer lösen Probleme gewöhnlich mit logischem Denken; Frauen lösen Probleme gewöhnlich durch Intuition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65	Schwierige Probleme zu lösen erfordert eine aktive, entschiedene Herangehensweise, die typisch für Männer ist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
66	Manche Arbeiten können Männer besser als Frauen erledigen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question No.

Jetzt möchten wir ein paar Fragen über Ihre demografischen Daten stellen.

67 Alter

68 Geschlecht

Männlich ☐

Weiblich ☐

Keine Antwort ☐

69 Wohnort

Berlin ☐

Teheran ☐

Andere ☐

70 Verfügbares Netto-Einkommen pro Monat Wenn Sie kein regelmäßiges Einkommen haben: Wie viel Geld steht Ihnen persönlich im Monat zur Verfügung?

71 Religion

Christentum ☐

Islam ☐

Andere ☐

Keine ☐

72 Welche Bedeutung hat Religion für Sie?

Sehr wichtig

Eher wichtig

Unentschieden

Eher nicht wichtig

Nicht wichtig

☐
☐
☐
☐
☐

73 Familienstand

Verheiratet oder in Partnerschaft lebend ☐

Single ☐

Keine Antwort ☐

Was möchten Sie uns noch zum Thema dieser Befragung mitteilen?

Bitte geben Sie uns Ihre Email-Adresse, wenn Sie an unseren Gewinnspiel teilnehmen möchten.

Vielen herzlichen Dank für Ihre Teilnahme.

Bei Fragen über dieses Projekt kontaktieren Sie uns bitte unter folgender Email-Adresse:
s.iran@mailbox.tu-berlin.de

Appendix 2: questionnaire in Persian

شرکت کننده گرامی،

پرسشنامه زیر صرفاً در جهت انجام پروژه پایان نامه دکتری اینجانب در زمینه "مصرف مجدد لباسها" تهیه گردیده است. پاسخگویی به سوالات این پرسشنامه نیاز به حدود 15 دقیقه وقت دارد. شما برای پاسخگویی به این پرسشنامه نیاز به ذکر نام خود در هیچ مرحله ای ندارید لذا خواهشمندم پاسخها را با دقت و صادقانه انتخاب کنید.

ممکن است که در طول پاسخگویی به سوالات برخی از آنها به نظر شما تکراری بیاید اما در هر یک از سوالات نکته ای وجود دارد پس خواهشمندم با دقت سوالها را مطالعه و بهترین پاسخ را انتخاب نمایید. توجه داشته باشید که سوالات همیشه در مورد رفتار شخص شما هستند و نه در مورد خانواده و فرزندان شما.

به سه نفر از شرکت کننده های این تحقیق به قید قرعه کارت هدیه... به مبلغ ... تومان اهدا میشود. در صورتی که مایل به شرکت در قرعه کشی ما هستید لطفاً درانتهای پرسشنامه ادرس پست الکترونیکی خود را بنویسید. در غیر این صورت لزومی به نوشتن ادرس پست الکترونیکی ندارید.

قبلاً از همکاری صمیمانه شما کمال تشکر را دارم.

سمیرا ایران

دانشجوی دکترا در دانشگاه برلین

تا چه اندازه با گزاره های زیر موافقت میکنید؟					
کاملاً موافقم	موافقم	نظری ندارم	مخالفم	مخالفم کاملاً	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1. خریدن برخی لباسهای پوشیده شده از اقوام یا دوستان ایده خوبی است.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2. دریافت برخی لباسهای پوشیده شده از اقوام یا دوستان به صورت رایگان ایده خوبی است (به عنوان مثال لباسهای شب یا لباسهایی که معدود دفعاتی پوشیده شده اند).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3. خریدن برخی لباسهای پوشیده شده از دیگران (به طور مثال در جمعه بازارها) ایده خوبی است.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	4. استفاده کردن برخی از لباسها به صورت مشترک با اقوام یا دوستان ایده خوبی است (به عنوان مثال خواهر یا برادر شما یک کیف میخرد و شما هم اجازه دارید که گاهی از آن استفاده کنید).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	5. امانت گرفتن برخی لباسها از اقوام و دوستان ایده خوبی است (به عنوان مثال لباسهای شب یا رسمی، کت و شلوار یا کیف های گران قیمت مجلسی).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	6. معاوضه برخی لباسهایم با لباسهای دیگری متعلق به اقوام و دوستان ایده خوبی است (به این معنا که شما لباسهای پوشیده شده که هنوز قابل استفاده هستند ولی شما به هر دلیلی اعم از تغییر سایز یا تنوع بیشتر مایل به استفاده نیستید را در مقابل دریافت لباسهای بهتر و باب سلیقه شما با اقوام یا دوستان تعویض کنید).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	7. خرید برخی لباسها به صورت دست دوم از مغازه های دست دوم فروشی ایده خوبی است.

تا چه اندازه با گزاره های زیر موافقت می کنید؟					(افرادی که نظرشان برای شما مهم است ممکن است خانواده، دوستان یا همکاران شما باشند)
کاملاً موافقم	موافقم	نظری ندارم	مخالفم	کاملاً مخالفم	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	8. من فکر میکنم اگر من لباسهای پوشیده شده ای را از اقوام یا دوستان خود خریداری کنم، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	9. من فکر میکنم اگر من لباسهای پوشیده شده ای را از اقوام یا دوستان خود به صورت رایگان دریافت کنم، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	10. من فکر میکنم اگر من لباسهای پوشیده شده ای را از دیگران (به طور مثال در جمعه بازارها) خریداری کنم، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	11. من فکر میکنم اگر من برخی لباسها را با اقوام یا دوستان خود به صورت مشترک استفاده کنم، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند (به عنوان مثال خواهر یا برادر شما یک کیف میخرد و شما هم اجازه دارید که گاهی از آن استفاده کنید).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	12. من فکر میکنم اگر من برخی لباسها را از اقوام یا دوستان خود به امانت بگیرم، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند (به عنوان مثال لباسهای شب یا رسمی، کت و شلوار یا کیف های گران قیمت مجلسی)..
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	13. من فکر میکنم اگر من برخی لباسهایم را با لباسهای دیگری از اقوام یا دوستان خود معاوضه کنم، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	14. من فکر میکنم اگر من برخی لباسها را از مغازه های دست دوم فروشی بخرم ، بیشتر افرادی که نظرشان برای من مهم است این کار مرا تایید میکنند.

تا چه اندازه با گزاره های زیر موافقت می کنید؟					
کاملاً موافقم	موافقم	نظری ندارم	مخالفم	کاملاً مخالفم	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	15. برای من این امکان وجود دارد که برخی لباسهای پوشیده شده را از اقوام یا دوستان خود خریداری کنم.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	16. برای من این امکان وجود دارد که برخی لباسهای پوشیده شده را از اقوام یا دوستان به صورت رایگان دریافت کنم (به عنوان مثال لباسهای شب یا لباسهایی که معدود دفعاتی پوشیده شده اند).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	17. برای من این امکان وجود دارد که برخی لباسهای پوشیده شده را از دیگران (به طور مثال در جمعه بازارها) خریداری کنم.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	18. برای من این امکان وجود دارد که برخی از لباسها را به صورت مشترک با اقوام یا دوستان خود استفاده کنم (به عنوان مثال خواهر یا برادر شما یک کیف میخرد و شما هم اجازه دارید که گاهی از آن استفاده کنید).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	19. برای من این امکان وجود دارد که برخی لباسها را از اقوام و دوستان خود به امانت بگیرم (به عنوان مثال لباسهای شب یا رسمی، کت و شلوار یا کیف های گران قیمت مجلسی).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	20. برای من این امکان وجود دارد که برخی لباسهایم را با لباسهای دیگری متعلق به اقوام و دوستان خود معاوضه کنم (به این معنا که شما لباسهای پوشیده شده که هنوز قابل استفاده هستند ولی شما به هر دلیلی اعم از تغییر سایز یا تنوع بیشتر مایل به استفاده نیستید را در مقابل دریافت لباسهای بهتر و باب سلیقه شما با اقوام یا دوستان تعویض کنید).
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	21. برای من این امکان وجود دارد که برخی لباسها را به صورت دست دوم از مغازه های دست دوم خریداری کنم.

با در نظر گرفتن سال آینده تا چه اندازه با گزاره های زیر موافقت می کنید؟					
کاملاً موافقم	کاملاً مخالفم	معتدلاً موافقم	معتدلاً مخالفم	فقط ندارم	فقط ندارم
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

در سال گذشته چند تکه لباس از راههای زیر بدست آوردید ؟ (لطفاً اگر دقیق به خاطر بنویسید عدد تقریبی را ذکر کنید و اگر هرگز انجام نداده اید عدد صفر را وارد کنید)		تعداد دفعات
29.	من برخی لباسهای پوشیده شده را از اقوام یا دوستان خود خریداری کرده ام.	<input type="text"/>
30.	من برخی لباسهای پوشیده شده از اقوام یا دوستان به صورت رایگان دریافت کرده ام (به عنوان مثال لباسهای شب یا لباسهایی که معدود دفعاتی پوشیده شده اند).	<input type="text"/>
31.	من برخی لباسهای پوشیده شده را از دیگران (به طور مثال در جمعه بازارها) خریداری کرده ام.	<input type="text"/>
32.	من برخی از لباسها را به صورت مشترک با اقوام یا دوستان خود استفاده کرده ام (به عنوان مثال خواهر یا برادر شما یک کیف میخرد و شما هم اجازه دارید که گاهی از آن استفاده کنید).	<input type="text"/>
33.	من برخی لباسها را از اقوام و دوستان خود به امانت گرفته ام (به عنوان مثال لباسهای شب یا رسمی، کت و شلوار یا کیف های گران قیمت مجلسی).	<input type="text"/>
34.	من برخی لباسهایی با لباسهای دیگری متعلق به اقوام و دوستان خود معاوضه کرده ام (به این معنا که شما لباسهای پوشیده شده که هنوز قابل استفاده هستند ولی شما به هر دلیلی اعم از تغییر سایز یا تنوع بیشتر مایل به استفاده نیستید را در مقابل لباسهای بهتر و باب سلیقه شما با اقوام یا دوستان تعویض کنید).	<input type="text"/>
35.	من برخی لباسها را به صورت دست دوم از مغازه های دست دوم فروشی خریداری کرده ام.	<input type="text"/>

چه کسی را به عنوان صاحب قبلی لباس میتوانست تصور کنید؟ من میتوانم تصور کنم که لباسهای پوشیده شده ای را بپوشم که قبلاً متعلق بوده به...					
کاملاً موافقم	کاملاً مخالفم	معتدلاً موافقم	معتدلاً مخالفم	فقط ندارم	فقط ندارم
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○
○	○	○	○	○	○

کاملاً موافقم	موافقم	نظری ندارم	مخالفم	کاملاً مخالفم	از کجا می‌توانید تصور کنید که لباسهای قبلاً پوشیده شده را تهیه کنید؟ من میتوانم تصور کنم که لباسهای پوشیده شده ای را ...
○	○	○	○	○	41. ... در یک جمع دوستانه با دیگران معاوضه کنم.
○	○	○	○	○	42. ... به صورت آنلاین در شبکه های اجتماعی پیدا کنم.
○	○	○	○	○	43. ... از فروشگاههای آنلاین تهیه کنم.
○	○	○	○	○	44. ... از بازارهای کوچک محلی مثل جمعه بازارها تهیه کنم.
○	○	○	○	○	45. ... مستقیماً از صاحب قبلی دریافت کنم.
○	○	○	○	○	46. ... از یک مغازه تهیه کنم.

کاملاً موافقم	موافقم	نظری ندارم	مخالفم	کاملاً مخالفم	تا چه اندازه با گزاره های زیر موافقت می کنید؟ لطفاً با در نظر گرفتن موقعیت کاری به سوالات زیر جواب دهید. در صورتی که هنوز شاغل نیستید، سوالات زیر را با توجه به روابط موجود در دانشگاهتان و روابط بین اساتید و دانشجویان پاسخ دهید.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	47. مدیران بایستی بیشتر تصمیمات را بدون مشورت با زیردستان اتخاذ نمایند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	48. مدیران نبایستی در عقاید زیردستان به طور دقیق و مستمر تفتیش کنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	49. یک مدیر بایستی از (حشر و نشر) با زیردستان خود در خارج از محیط کار بپرهیزد.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	50. زیردستان نبایستی با تصمیمات مدیران خود مخالفت کنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	51. مدیران نبایستی وظایف مهم و مشکل را به زیردستان تفویض کنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	52. قوانین و مقررات دارای اهمیت هستند زیرا آن ها به کارکنان اطلاع می دهند که سازمان چه انتظاری از آن ها دارد.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	53. مدیران انتظار دارند که کارکنان به طور دقیق از دستورات و رویه ها پیروی کنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	54. این مهم است برای افراد که ملزومات و دستورالعمل های شغلی تشریح گردد تا افراد همیشه بدانند چه انتظاری از آنان می رود.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	55. رویه های عملیاتی استاندارد برای کارکنان در هنگام کار مفید است.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	56. دستورالعمل های عملیاتی در هنگام کار مهم است.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	57. یک فرد باید اهداف خودش را برای اهداف گروه نادیده بگیرد.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	58. افراد باید در گروه بمانند حتی اگر مشکلاتی در گروه وجود دارد.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	59. پاداش های فردی نسبت به رفاه گروهی از اهمیت بیشتری برخوردار است.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	60. موفقیت گروه مهم تر از موفقیت فردی است.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	61. یک فرد نبایستی بدون در نظر گرفتن خیر و رفاه گروه تنها به دنبال اهداف خودش باشد.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	62. افراد باید همواره به گروه متعهد باشند حتی وقتی اهداف فردیشان نادیده گرفته میشود.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	63. مردان نسبت به زنان برای داشتن یک مسیر ترقی حرفه ای اهمیت بیشتری قائلند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	64. مردان معمولاً مسائل را با تجزیه و تحلیل منطقی حل می کنند در حالی که زنان معمولاً مسائل را شهودی حل می کنند.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	65. حل مسائل سازمانی معمولاً نیازمند زورمندی و شیوه ای فعال است که این نوعاً از مردان بر می آید.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	66. بعضی مشاغل وجود دارد که یک مرد همیشه بهتر از یک زن می تواند آن را انجام دهد.

در پایان لطفا به سوالاتی در مورد خصوصیات فردی پاسخ دهید.

			سن <input type="text"/>		67.
جنسیت		<input type="radio"/> زن	<input type="radio"/> مرد	<input type="radio"/> بدون پاسخ	
محل سکونت		<input type="radio"/> برلین	<input type="radio"/> تهران	<input type="radio"/> هیچکدام	
درآمد ماهیانه*		<input type="text" value="تومان"/>			70.
مذهب		<input type="radio"/> مسیحیت	<input type="radio"/> اسلام	<input type="radio"/> مذاهب دیگر	
تا چه اندازه مذهب برای شما اهمیت دارد؟		<input type="radio"/> بسیار مهم	<input type="radio"/> مهم	<input type="radio"/> بی تفاوت	<input type="radio"/> بی اهمیت
		<input type="radio"/> بسیار بی اهمیت			
وضعیت تاهل		<input type="radio"/> مجرد	<input type="radio"/> متاهل	<input type="radio"/> بدون پاسخ	

*در صورتی که درآمد ندارید یا کار نمیکنید لطفا ذکر کنید که چه مبلغی ماهیانه در دسترس شما قرار دارد.

اگر مطلب دیگری در زمینه این تحقیق به ذهنتان میرسد اینجا با ما در میان بگذارید.

اگر مایل به شرکت در قرعه کشی ما هستید لطفا ایمیل خود را خوانا در این قسمت بنویسید.

از وقت و توجه شما کمال سپاسگزاری را داریم.

در صورتی که در زمینه این تحقیق سوال یا نظری دارید میتوانید با من با ایمیل زیر تماس بگیرید

s.iran@mailbox.tu-berlin.de