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MULTIPLE LIVES OF THE PRODUCTS: AN INVESTIGATION OF PRODUCTS' JOURNEY IN FREECYCLE COMMUNITY

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ABSTRACT

In today's needs, it is not enough to imagine products who have only one owner in their entire lives. To create more sustainable futures, designers might increase their ability to imagine multiple lives for things. To enable it, scale is the matter of concern. By increasing the usage scale, and examining the exchange of second-hand products informs designers by imagining multiple scenarios related to things lifes.

In this paper we focus on local freecycle groups on Facebook in the context of the second-hand product's circulation. In the field research, we identify significant usage cases of second-hand products that have multiple owners. We classify them under four sections, which are student house, permanent house, families with a baby, and re-purposers according to their concerns, criteria and behaviors related to handed-over products. Finally, we present insights about users' expectations and concerns that has decisive role in determining the life cycle of the product. We propose thinking for larger usage scales through examples that we provide, guide designers and companies in terms of products' journeys in circulation.

INTRODUCTION

Since exchanging things through internet-mediated settings become popular, things could have multiple owners and life cycles that designers and companies might not foresee. Observing exchanged products' life can enlighten design processes to broaden and scale up the product usage scenarios. In order to enable scaling up the user and usage context, we focus on exchanging goods on Facebook freecycle groups. Although there are many studies about online social interactions in the freecycle community, there is limited knowledge about the product - user relations in this context (Rufas & Hine, 2018) and how the user adapts such products in her/his daily routine. Since freecycling is the circulation of products without any fee, the consumption dynamics in these groups are different from mainstream trade. For instance, the value of objects and attributed meanings to them changes in the freecycle object exchange setting; undesired objects become desired ones. Moreover, products in freecycles might have a different journey by repairing and reconsidering (Eden, 2017). Accordingly, investigating the exchanged things and their usage might invite us to think about extending the usage scales of the things through design. Besides, exchange practices in the freecycle community not only shed light on real-life user interaction stories between users and second-hand products it also extends the life cycle of the products by enabling multiple lives. Even though circular design provides strategies in extending the lifespan of the products, investigating the further possibilities for scaling up the usage scenarios of the products can facilitate the evaluation of product lives. Furthermore, freecycle creates an opportunity for local and alternative exchange models that reflects current consumption practices. This study investigates how users experience products that cycle in the freecycle community by considering all these various aspects.

LITERATURE REVIEW

According to Manzini (2013), focusing on social innovation is crucial to answering the challenging

financial difficulties in the direction of sustainability. Furthermore, he says that social innovation can create novel approaches for ever-changing societies. He explains two types of social innovation models; top-down (driven by decision-makers) and bottom-up (driven by communities). These models might be applicable for many different cases. For example, consumers might take initiative and create or participate in alternative systems and that can evolve to bottom-up innovation. In this regard, we will explain alternative economies. Then we will look at circular design to express how these alternative systems, more specifically freecycles, can be supported by a design approach.

FREECYCLE AS AN ALTERNATIVE ECONOMIES

Transfer of goods and services can occur in different forms; it can be based on monetary value and exchange of goods in the market, or it can be in the form of alternative consumption practices like in the case of freecycling. According to Foden (2012), alternative consumption means activities of obtaining, using, transferring, or discarding goods in a way that it stays out of the mainstream economy. Alternative economies include collaborative consumption, sharing economy and the gift economy. Freecycle, exchanging second-hand goods among community members, can be classified as a gift economy.

Freecycle refers to the object circulation without reward and free from economic means. The freecycle website declares the official mission of their foundation as "to build a worldwide gifting movement that reduces waste, saves precious resources, and eases the burden on our landfills " (Freecycle, 2013). It is a type of collaborative activity that has intentions such as preventing consumption, extending the life cycle of the product and decreasing waste.

In 2003, the Freecycle website was founded to recycle reusable goods in Arizona (Aptekar, 2016). Online platforms expand the boundaries of the local communities (Fortuna & Diyamandoglu, 2017) as reaching a wide range of people. Freecycle networks also use the benefits of internet based communication while scaling up the movement on a global level. In time, the idea spread to all around the world. In Turkey, freecycle platforms were multiplied in the form of Facebook freecycle groups.

When we look at the people's freecycle experience, it is found that people who give or acquire second-hand products through alternative platforms like freecycle have some concerns and expectations like hygiene, safety, affordability and convenience (Cherry & Pidgeon, 2018). Sharing and receiving second-hand personal products like clothes, luggage or kitchen equipment for preparing food can be questionable in terms of hygiene while circulation of second-hand tools and equipment can be problematic in terms of safety issues (Cherry & Pidgeon, 2018). Besides receiving goods without paying money, acquiring second-hand products might bring sustainable benefits such as extending products life which is vital in terms of decreasing waste and environmental burden. However, some risks and problems need further solutions.

CIRCULAR DESIGN

Studies in sustainability have underlined the importance of designing the extended life cycle of the product. Products' usage time can be lengthened through promoting second-hand consumption, repair and reuse of products (Cox, Griffith, Giorgi & King, 2013). In relation with the life cycle extension of the product, the circular design aims to consider the flow of materials in a circular system instead of a linear system in order to decrease waste and protect resources. Stahel (1994) suggested some significant strategies in the circular economy field as (1) extension of the functional period of products through various activities like reusing repairing and upgrading in order to decelerate the flow of materials from producing phase to disposal phase, (2) closing resource loops between production and disposal through recycling materials.

Apart from that, the circular economy framework suggests an order of maintenance, repair, reuse first, and remanufacture and recycle later, rather than direct recycling of an object (Ellen MacArthur Foundation, 2012). Some researchers offer different strategies and tools to promote a circular economy in a product design context. For example, Van den Berg and Bakker (2015) suggest a guideline that consists of five main topics: future proof, disassembly, maintenance, remake and recycling. Stahel (2010) states that the design needs to have a modular system in order to disassemble its components and reused in other products. Wastling, Charnley and Moreno (2018) highlight that contemporary discussions on the circular economy have focused on mostly the producer-led solutions but the role of user behaviors should not be neglected while designing.

Furthermore, according to Chapman (2005), the emotional bond between the user and product increases the product's usage time and makes the product emotionally durable and sustainable. In line with this argument, Walker (2011) points out that personal meaning is also needed for the long life duration of the products. Designing the product that allows personalization and increases emotional durability is a way to create long-lasting and meaningful usage scenarios (Chapman, 2005; Cooper, 2000; Fuad-Luke, 2010). As Eden (2017, p.269) explains that an object "commodified (for purchase), then 'decommodified' (through use and personalization) and sometimes may be 'recommodified' or 'recontextualised' (for resale) "during its life cycle and products evolve till the end-user. In the

freecycle, emotional bonds between product and users and products are recreated by repairing, transforming, or hacking. Through freecycle, the process of getting rid of used goods eventually turns to a productive activity through "repackaging, redesigning and handing-over to new users" (Eden, 2017, p.269). Therefore, understanding the backgrounds of acquisition and disposal behavior provides beneficial inputs for extending the lifetime of the products. In this regard, the concepts like the extension of the life cycle and circular economy can be valuable sources for extending usage scales for designing multiple lives of the things.

METHODOLOGY

We carried out field research in order to investigate the interaction between user and second-hand products in freecycle. We seek answers for (1) what are the significant usage cases of second-hand products, (2) how the life cycle of products can be extended for second-hand usage through design strategies and (3) how can we inspire designers to scale up their designs for multiple lifecycles and owners.

In order to answer these questions, we conducted the study with 10 participants who are members of different online freecycle platforms. We focused on the most popular Facebook freecycle groups in two cities in Turkey, Ankara and Eskişehir. For the recruitment of the participants, we used our connections and snowballing methods. We sent messages to reach group members on Facebook. Three men and seven women participated in our study. Their age range was from 23 to 38 and half of them were under the 30s. We used a purposeful sampling method in our research. We grouped the participants under three categories which are students who live with other student flatmates, adults who live as couples and families with children.

We used semi-structured interviews through face to face meetings which approximately took one hour. We asked questions about how they give and receive products via freecycle platforms, what type of products they exchanged and why, their concerns and criteria to exchange second-hand products, and how they interact with exchanged products. Besides, we created a template for a graphic that is inspired by the UX curve method (Kujala, Roto,Väänänen-Vainio-Mattila, Karapanos & Sinnelä, 2011) and photos of the exchanged products which they sent us before our meeting. At the end of the interview, we displayed the template and, we introduced the graphics and explained what we expect them to do. In the graphic, we requested participants to draw a line as highlighting critical points from the time they see the product to the end of the use time. The graphics and photos were beneficial for stimulating participants to talk about the exchanged products and remind them related stories. Also, we used the graphic to identify the typical freecycle process (Figure 1), generic problems and intervention points.

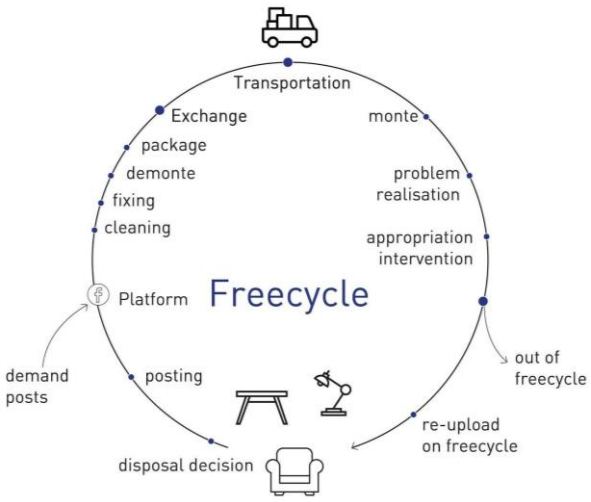

Figure 1: Typical freecycle process

DISCUSSION

According to the field research, we identify users' motivations, criteria, strategies and problems during the freecycle process both related to the online freecycle platform and the second-hand product itself. We generated the typical process of freecycling as specifying significant points in order to identify possible design interventions and suggestions. For second-hand products, four different usage cases are identified, which are student house, permanent house, families with the baby and repurposers. Although the users have common criteria for exchanging second-hand products, we see that criteria are dependent on the usage cases. Firstly, we discuss which criteria are more significant for each usage case. Secondly, we elaborate on our findings and discuss related literature. Finally, we offer some design suggestions.

STUDENT HOUSE

In our findings, the nature of student houses identified as living with other student flatmates, frequent flatmate change, temporary housing and low income. Student houses have a high circulation rate both for residents and furniture because the furniture of the house is changing when a flatmate moves in or out. In this context, the most frequently exchanged products are beds. P3 stated that students consider the house as a temporary place and it affects their product and furniture decisions. They do not want to buy brand new products for a house in which they live for a short time. Therefore, they prefer to get second-hand products through online freecycle platforms.

One of the characteristics of student houses is having a low income. Although transportation is an essential concern for all users, students are more sensitive about it because they want to avoid transportation expenses. Two

of our participants stated that in short distances, they carried second hand products on their shoulders with the help of their friends or by trolley even for big size products like beds and wardrobes. We identify that students prefer to get second hand products in short distance and this is an important criteria of selecting products on the freecycle platform. Therefore, products that are used in student houses need to be easy to carry, light-weighted, easy to assemble and have carrying apparatus like handles.

Students want to receive products for their basic needs. They agreed to receive products from the freecycle even if that product has some problems and is damaged. They prefer to use defective products with minor repairs instead of discarding them. As an example, P3 keeps using the bed taken freecycle even though it threatens his health and he consoles himself compared with sleeping on the floor. He emphasizes that his basic need is to have something to sleep on. Similarly, P9 has a lamp that can not stand by itself because of the broken structure. She tried to find a temporary solution such as attaching a lamp to some surfaces like a corner of the table or stacking between bookshelves and heater (Figure 2). Moreover, students appropriate second-hand products and change the usage context according to their preferences, as in the example of using an extra-base of the bed as a storage space for personal belongings (Figure 3).

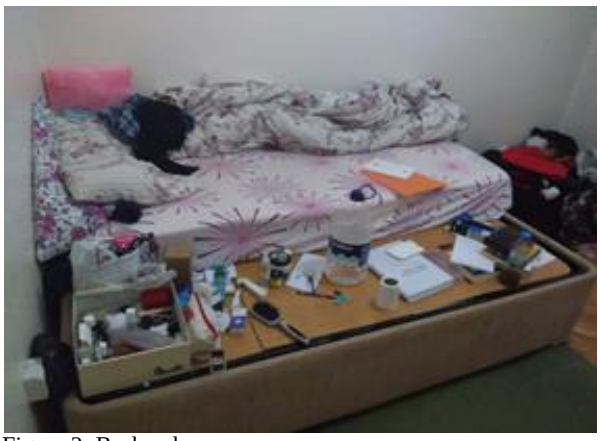
Figure 2: Broken lamp


Figure 3: Bed used as a storage space

Students prefer quick and easy repair and develop their ways to fix products like in the example of attaching a table lamp to different surfaces and putting an extra layer between the mattress of the bed and base. However, they do not change the cover of the couch by themselves because it requires specific skills. We conclude that difficulty, laziness, lack of motivation and time are the reasons for limited repair and appropriation of products in the student houses. As in the Van den Berg and Bakker's (2015) circular design guideline, disassembly and maintenance are significant for designing products for student houses; the components need to be removed, cleaned and changed for easy repair and longer usage time. Therefore, if products are open to user intervention and designed for easy repair, the exchanged products in student houses can have longer usage time and students can be encouraged to repair and appropriate them.

PERMANENT HOUSE

Participants in this group mostly have jobs and better income compared to students. They are generally living individually or with their partners. They have permanent accommodations. Those participants generally use freecycle as a product disposal platform. They are willing to sacrifice their unused products such as furniture, ovens, washing machines, televisions. While they share a wide range and amount of product, they receive fewer products.

Since unused objects occupy a place at home, they prefer to discard them rather than storing them. P8 gave an example that since he uses Netflix, he wanted to discard his movie archive to gain free space. Also, easy disposal processes and convenience are prior for them. P9 stated that she writes on the platform and someone comes and takes unused products away. Therefore, she accomplishes the discarding process without spending any effort.

Most of them have spare products in place of the given object. Although their product is still working, financial power stimulates to buy the newer version. P8 remarked that he had an oven but he wanted to upgrade it. Then he bought a new oven and gave away the old one. Another disposal reason is an unwillingness to spend money or effort on repairing the old one. Even for small problems such as broken buttons, they tend to buy a new product. Also, lack of repair knowledge results in the disposal. The designer should take into account the design easy repair process without expertise.

Furthermore, they are worried about the social acceptance of having second-hand products from online freecycle platforms. They are hesitating to comment under the post in case of the possibility of being seen by their bosses, friends or acquaintances. Social pressure limits their freecycle behaviours and causes status concerns.

In conclusion, adults in permanent houses have better living conditions and income. Therefore, they prefer to buy a new product instead of repairing and care for the aesthetics of objects compatibility to the home setting, as well as security concerns of electronics. Performance upgrade opportunities for the existing product might be developed instead of designing a new one. Designers should consider the compatibility of products and design adaptable features for different home settings. If an expert checks the second-hand electronics and states that it is safe to use it, second-hand usage might increase, and disposal of durable second-hand electronics can be prevented.

FAMILIES WITH A BABY

According to our participants, having a baby changes couples' lifestyles and the home setting is affected by this change. P7 illustrated that as saying" after having a child, everything goes upside down; study rooms become baby rooms." With the baby, parents re-decorate the house; some of the products need to be discarded for safety and space concerns and new ones are bought. For example, P7 stated that they discarded a coffee table because it has sharp edges that are dangerous for the baby. Also, she said that they would give away the couch in the children's room soon because they are planning to place a desk and a toy closet in that space. Therefore, having a baby at home brings the circulation of products in so many ways.

Baby products are expensive and have a short usage time because of babies' growthiness. Parents are willing to have second-hand products through online freecycle platforms or second-hand product selling applications like Letgo. Baby products such as clothes, strollers, cradles, carriages, shoes and toys can be used only for a couple of months. For example, P10 said that she is giving away some clothes which are too small even though the baby has not worn them yet. A couple of babies are growing with the same clothes which are circulated by freecycle or exchanges between friends or relatives.

One of the parents' concerns while exchanging second-hand products is hygiene. However, a small stain on the products is not a big problem for them as long as they are washed and ironed before the usage. The materials of baby products need to be chosen, considering the easy cleaning and health of the baby to provide hygiene and health.

Another concern is safety; P7 has a lousy experience when her baby fell from its bed. Having proper protection bars and not being so high from the floor is significant criteria. Adjustable railing for baby beds might be useful for changing the height of the railing according to the baby. Also, parents usually use exterior safety equipment in the house for sharp edges and dangerous pulling and pushing activities of babies. Designers might take into account the compatibility of safety equipment and furniture to prolong the life cycle of the product at the same time.

As explained, on the one side users are exploring their own ways to give away and receive second-hand baby products via freecycle groups and online shopping platforms. On the other side, some companies in the baby products sector attempt to run their business based on leasing systems rather than selling. Petersen and Riisberg (2017) discuss the example of a baby and toddler products leasing company in Denmark named VIGGA which position its service as an intelligent and practical option for the family and a better and sustainable way of consumption compared to traditional forms. Petersen and Riisberg (2017) explain that the company set its business model based on that products could be circulated between five and eight times among the subscribers and there is a special effort for hygiene and material and aesthetic longevity of the baby clothes.

REPURPOSERS

Some of the users of the online freecycle platform collect unwanted materials to produce something new mostly for personal art projects or creative works. We gather the examples of unwanted materials mentioned in the interviews as empty glass bottles, toilet paper rolls, plastic bottle lids, shoe boxes, pieces of MDF and ripped jeans. Users of the platform consider the freecycle platform as a source for material for their creative projects. Usually, they can not buy these products from a store because they are categorized as waste and people throw them away. Generally, they need a high amount of materials for the projects and they can not save them one by one for themselves because it would take so much time. However, they can find people on the platform who collect them.

Users with creative projects may use the unwanted materials for different purposes. For example, one participant uses glass bottles for paint on them and uses it as a decorative product (Figure 4) while another participant gets a piece of MDF to make a decorative board as putting different stickers on it (Figure 4).

Figure 4: Decorated MDF, bottle and broken table

As we can see from the examples, people might use unwanted materials for creative purposes and produce something new. They can have a personal art project for

their home decoration or for DIY projects as well as they might use them for collective works like doing creative projects with kids in the kindergarten.

Most of the participants state that only usable products should be shared on the freecycle. On the contrary, we discover that unusable objects are desirable for specific usage cases. People can share a broken object for redesign, repair or at least use as a spare part. They emphasize they cannot predict what is useful for people and point that even broken objects might be useful for someone else. For example, P4 stated that they found a broken table near garbage on the street, which did not look usable and repairable. They took the broken table and after repairing it, they used it as a decoration place (Figure 4).

P9 states that, having a broken object might be a stimulant. It might turn to a project and increase creativity and productivity. Also, P8 stated that interior design students need a broken chair to redesign and repair the scope of their lectures. In this case, the broken object becomes a desirable object as P8 states. After all, in freecycle platforms, participants collect the unwanted materials to use for personal art projects and creative works or reuse broken products to produce something else.

We stated that doing a minor intervention is the biggest driver for prolonged usage of a second hand. It helps to personalize the product, therefore creates an emotional bond between the object and user. Users need to be encouraged to make changes in the product without spending a lot of money and effort. As Agguirre (2010) stated, designers can not predict how the user transforms the product but they can suggest how it might repurpose by using labels or tags on the new products. In addition to that, materials can be chosen to be processed at home easily. Also, furniture might be designed as a DIY project and primary parts of the furniture can be sold separately to create intervention possibilities.

In the literature, we discussed extending the life cycle of the product and the circular economy. For example, one of the Stahel's (1994) strategies is extending the usage time through reusing, repairing and upgrading the products. Thus designers can make it easier to perform repurposing activities and encourage others to reuse, repair or upgrade the products which are flowing between different users.

CONCLUSION

In this research, we try to understand product' journey in the freecycle community. In the finding section, we stated four types of user cases: students who have temporary housing, adults in the context of permanent housing, families with babies and reusers who use objects for creative projects. While analyzing the findings in the discussion section, we proposed design recommendations that lead designers to think of the usage scales in terms of circularity. This thinking process might trigger the designers to provide creative solutions by rethinking their products capacity to have multiple lives. Designers, researchers and companies who are interested in circularity might consider the following implications of the study:

- Users: The users can be encouraged to improve and appropriate ready-made products according to their needs. Because second-hand products are more open to intervention compared to brand new products, a system based on the circulation of objects can empower users to have active and creative roles.
- Designers: We think that the designer has a significant role in the circular economy and life cycles of the product. If designers consider that the products are handed over, exchanged and shared between different types of users, they can make design decisions according to those various usage scenarios like second-hand usage. Designers might apply this strategy for extension of the life cycle.
- Companies: Since users are willing to own second-hand objects, new consumption practices that offer circulation of objects can be adopted quickly. Leasing the product can be a new business model based on sustainability. For example, families with babies and students appreciate temporal usage. Therefore rental companies may consider focusing on leasing baby equipment and furniture.

We would like to declare that even though we have limited participants, we could reach valuable insights related to the products' journey. We believe that this research can contribute to the work of designers and researchers who focus on circular economy and long lasting products and the companies that provide multiple ownership in regard to expectations of different users. For further studies, researchers might focus on one of the usage cases for a deeper understanding of each case. Especially, baby products in circulation might be a fruitful research area.

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