Jun 25th, 9:00 AM

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Repair as a social design practice: Three case studies in vulnerable households in Chile

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doi.org/10606/drs.2022.218

Abstract: The work presented herein addresses the socio-material implications and spontaneous design actions that emerge from the home repair practices of household objects in low-income areas. Through qualitative research and contextual inquiry from the investigation of their praxis (Cross, 2007), we reassess the principles of planned obsolescence associated with product design and throw-away culture. Within the framework of matters of care of non-human devices that are part of a social assembly, a theoretical discussion develops around certain actions; in particular, repairing everyday household objects, as design solutions. The exploratory methodology of this project is based on literature review and on-site case studies in Villa El Refugio in the commune of Puente Alto, an area in Santiago, Chile where basic actions such as waste collection are scarce. Through observing and analyzing the repair of essential objects for everyday use, we recognize creative actions that activate the relationship between humans and non-humans when altering the social life of objects to extend their use.

Keywords: social design, repair practices, household objects, material culture, sustainability

1. Introduction

There is a wide variety of authors and disciplines in dialogue with design, studying sustainable actions oriented toward the extension of objects’ life cycles, that have addressed repair practices. When considering the concept of spontaneous design, we are not referencing the traditional premise that separates it from professional design, nor that which promotes the idea that “we are all designers” (Papanek, 1975) or that “everybody designs” (Manzini, 2015). Rather, we reference a conscious form of production that springs from the action of repairing artifacts to improve the standard of living in an environment of artificial objects (Margolin, 2005). Repair here is not a subsidiary process of design, but an active way of designing. It develops within design practices located within a framework that defies the usual way of producing and consuming.

In this article, we consider repair as part of a broader framework of caring for objects and species, where there is room for other strategies such as maintenance, recycling, reuse or
storage, as ways of rethinking the expansion of objects designed to be disposed, as well as concrete actions to take distance from obsolescence. Repairing is proposed as an alternative to a logic of production that has partly defined modern design; a transcultural practice that can also highlight the values of creativity and innovation to reinvent other ways of inhabiting contexts of worlds that involve human and non-human structural frameworks (Escobar, 2017); a means to access “convivial tools” (Illich, 2015) as a way of dealing with the mishaps that technology may produce as a force of invalidation or disempowerment when facing problems with device performance. It is worth noting that this concern has also been expressed on initiatives beyond academia. For instance, a company like Patagonia, that proactively highlights its commitment to product care and object repair, and others such as iFixit—which is of less interest for this article—that seek to promote a repair culture as a means of resistance and activism.

Previous approaches on repair in other realities and contexts have been examined from a science, technology and society studies (STS) standpoint, through research on repair and the reconfiguration of our material environment as part of a continuous wearing away (Jackson, 2014), as well as studies that emphasize innovation in these processes, practices, and dynamics (Denis, Mongili and Pontille, 2016), which aim to understand scientific-technological phenomena in its social and environmental context. Other approaches have analyzed repair practices in the intersection between design and technology, with an emphasis on the social aspect (Rosner, Jackson, Hertz, Houston & Rangaswamy, 2013), where the role of innovation is highlighted in smaller scales, underlining that contemporary society assigns less value to this kind of actions that can also occur in decentralized and non-regulated environments (Johnson, 2011).

The emphasis on creativity and innovation is present on analytical works regarding do-it-yourself (DIY) practices, developed by diverse researchers, including Kuznetsov and Paulos (2010), who highlight the value of creativity and learning through collaboration, with meaningful implications in the discipline of design; as well as other authors that reinforce the importance of clearly identifying a problem before decision-making (Maferrer, 2019). Creativity is deemed as an alternative to the prevailing technical soundness in the sphere of product design, and at the same time, as a way of “reflecting in action” (Schön and Rein, 1994). In such sense, Ron Wakkary and Leah Maestri have researched the implications of creativity on acts of repair and reuse, considering the assembling role of design as a flexible activity that can intervene in the repair and reappropriation of objects (Maestri and Wakkary, 2011).

Another issue to consider in a design approach is the failure of objects in the process of wear and tear, which can be attenuated or solved through a repairing action. In the renowned Fast Company magazine, Katharine Schwab—pointing to the discipline’s proceedings—laments the fact that designers forget to include the possibility of repair in the design process, anticipating the product’s failure (Schwab, 2017). In effect, considering its failure is a key aspect of the cycle of a designed product that can be used beyond its limits. In this
sense, Henry Petroski has suggested that the reaction and the anticipation of failure in product development, and the object’s faults in small and large scales, constitute design problems (Petroski, 2011). This issue can be understood through reverse engineering, by incorporating the durability of the object as a designable aspect, and emphasizing the consumption of the good, which considers the user to be an active agent (Brandes, Stich and Wender, 2009). Thus, there have been explorations that have tried to respond to the question of why we preserve or dispose of our durable goods (Odom, Pierce, Stolterman & Blevis, 2009), within the framework of studies on Sustainable Interaction Design (SID).

Jonathan Chapman, on a similar direction, holds an interesting point of view when locating controversy by challenging an “emotionally lasting” design that steers away from a less hopeful sustainability discourse, to address the psychological effects produced between patterns of consumption and waste, as well as between people and objects (Chapman, 2015).

These points of view suggest that devices should be considered “matters of care” — as everything we do to maintain, sustain, continue and repair our world— (Puig de la Bellacasa, 2011) on a structural framework also comprised by users, practices, and spaces. This highlights their condition as socio-technical assembly and reinforces their transformational capacity in the face of the social, cultural and economic effects that facilitate the material condition (Calvillo and Mesa del Castillo, 2018). Among the contributions to these design matters, there are only a few studies in Chile on the role of these maintenance and repair practices and their implications on design and their socio-material context. An approach to consumption goods as objects of care is set forth by Chilean sociologist Martín Tironi, on his research on the role of repair practices in the work developed by maintenance technicians of the public bicycle system in Paris. Said research highlights the value of faults as instruments to inquire into the object’s past as well as its social life (Tironi, 2015). More recently, the article Descartar o acumular: he ahí el dilema (Discard or Accumulate: Herein Lies the Dilemma) tackles the minimalist trend of organizing household items to achieve an ethic of care and conservation as part of an ecology of goods (Errázuriz, Greene, Berczeller, 2020).

However, specific studies exploring these practices and object trajectories have not been carried out in vulnerable areas, where repairing becomes an essential need because object deterioration has a more worrying and erosive effect.

Therefore, what we suggest here is not an inquiry on the excessive consumption of goods or the presence of “obese houses” that some authors have suggested, regarding the accumulation and mess of domestic objects (Löfgren, 2017), but rather an alternative view toward the lack of material resources as a condition that allows for the activation of design strategies to extend the lifespan of objects and avoid their elimination. In vulnerable areas, where repairing is not an option but a need, objects that are placed on an intimate dimension generate different meanings and values bound to the emotional and affective realm, through repair.
2. Towards considering the object’s life cycle from context

Context is what gives meaning to material existence, where the world becomes visible and tangible to design practices. The material not only consists of the conditions or data that are available in any given or conditioned moment, placed in an exhibiting environment (Trías, 2004), given that evidence also is presented as experience; thus, objects—in the words of Hannah Arendt—stabilize human life and allow the reinforcement of people’s identity by relating to the same chair or table (Arendt, 2001).

Repair practices entail an interaction process where objects can also alter the state of things, beyond being a mere backcloth or something non-human: they can also encourage, provide resources, impact, make possible, etc. (Latour, 2005, 106-107) or just be an obstacle between subjects and the world (Flusser, 2002). At the same time, repairing can be recognized as a creative activity, since it is a practice that can sustain innovation through intervening the trajectory of an object that also has agency.

Thus, and refuting Tim Brown’s (ideologist of IDEO) opinion that “design has become way too important to be left in the hands of designers” (Brown, 2009, p. 8), we believe that it is not enough to create new devices and launch them into the market using a certain replicable methodology. Good design—following Flusser and Latour—does not only have to do with chairs, toilets, or services that improve the experience in a hospital, for instance, but something that separates us from the world and at the same time allows us to move closer to it. In this way, design participates in the creation and repair of “matters of concern” (objects) that have a material existence and that confront us on a structural framework in which actors (subjects and objects) configure certain practices and social facts that can make us come together in a common interest or in a division (lack of interest) from the designed objects.

The subject-designer’s self-care allows viewpoints to expand based on self-reflection. The designer makes models of goods and services—from which he learns to detach—to leave them in someone else’s hands. However, their own creation builds discourses around the practices of design themselves. In this sense, we suggest that there are similarities and intersections between the repair method applied by users when the object fails, and the previous design process carried out by a designer, which clashes with the designed object when a better performance of its function and life cycle is expected.

In this way, studying repair practices is relevant from a design standpoint, since it could postulate certain values related to environmental care; here, in the context of case studies of object repairs in public social housing known as blocks. In these low-income buildings, where the limits between houses become indefinite and a logic of sustainable design emerges, suggesting that it is possible to rethink and re-signify objects without an academic foundation sustaining its method. This examination consists of a study of several cases of object repair by people who inhabit a set of apartments located at Villa El Refugio, a small sector in Puente Alto that is mostly made up of social houses built in the 1990s, which were
assigned as housing subsidy to low-income families. The research was conducted in two of these houses within two buildings, each inhabited by more than 100 people, with an interior courtyard and 24 forty-square-meter apartments. Each household has a dining room, a bathroom, and two small bedrooms.

It is worth mentioning that the research is oriented towards design anthropology (Gunn, 2013), a qualitative ethnographic focus concerned with an inductive, procedural, and contextual understanding of design, practices, and discourses involved in the process of reparation and upkeep. To carry out this investigation, we conducted case studies in four stages: 1) in situ context observation by socializing with different people, to identify the main actors in the community and their roles in the reparation and upkeep of the artificial environment, as well as to delve into the role of collaboration as a response to precarity and the deterioration of goods; 2) photographic and audiovisual record of the examined homes and objects through daily follow-ups during two weeks, as an ethnographic method; 3) semi-structured interviews with the repairers to look into the role of reparation practices in the private space of the home; 4) identification, record, and analysis of the repaired domestic objects, to explore reparation strategies, values, and meanings given by people in the biography of these home goods.

The interest in repair as a way of granting durability to objects is regarded highly in low-income sectors, where the possibilities of replacing objects can be a problem, a matter of care (Boradkar, 2010). In low-income areas like the one studied, it is common to witness everyday habits associated with this lack of options, where repairing everyday goods is necessary to avoid unwanted
purchases. Thus, repair is installed as a relevant design strategy to extend an object’s life cycle and look after shared memory between people that inhabit a common space.

3. Repair as an act of everyday design

Design seeks to humanize the artificial and technical domain of life, since it facilitates human’s interaction with objects in the social space, “giving sense and meaning to practical solutions, not only to satisfy their needs but to transform their habitat” (Aberlaez, 2019, p. 15). The act of repairing a device allows to address design as a practice that can be understood as a process; a flexible project-based activity based on an act of constant iteration. Thus, repairing can produce non-definitive results, being provisional solutions mediated by the use and failure of objects in their performance threshold. When considering the act of repairing as an activity that interacts with design, or as part of the design practice (Cross, 2007), we can rethink the discipline to consider it a process that is not necessarily oriented towards a definite solution, a solved issue. Thus, interventions made by the user can be considered small iterations that readapt objects to the conditions of their environment, which is also in a state of constant transformation.

Three case studies that reveal the potential of domestic devices when intervening their life cycle are presented hereunder. The repair cases make us reconsider these practices, when value is added to some of their possibilities: the development of design strategies that alleviate the wear of everyday objects, the democratization of the design practice when promoting collective creative actions, and finally, the intrinsic ability of objects, as non-human agents, to prolong their life cycle and social trajectory when being reconfigured (Appadurai, 1988).

The social households in study are located on three-story buildings in a state of clear deterioration, where objects visibly reflect the passage of time. The most deteriorated installations inside the apartments are the sanitary fixtures in the bathroom, besides the kitchen, this is another area exposed to hygiene problems. The toilet, shower, and sink look more decayed due to humidity or precarious pipelines. For this reason, the inhabitants, who often surpass their accommodation capacity, are forced to develop creative strategies to solve constant problems with damaged devices as Camila, an inhabitant of these households, remarks: “there is always something to do”. (Camila, personal communication, October 19, 2018).

4. Emergency Repair

Eleven people live in Joaquín’s 40-square-meter apartment. The overcrowding conditions are evident, and material wear is one of the consequences. None of the sanitary fixtures of the bathroom are working properly: the shower does not have a water handle, the sink faucet is not working, there is no handle to flush the toilet, and the seat cover is missing. For

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¹ To protect the confidentiality of the research participants, only their names will be used.
these reasons, Joaquín has intervened it on several occasions. To fix the toilet flush, Joaquín took the strap of an old MP4 player and tied it to the stopper that holds back water inside the tank. However, after flushing the toilet, the strap went back into the tank, submerging completely. When testing the repair results, Joaquín observed this new problem and used a hair elastic to attach it to the strap. The connector extended its reach, allowing the strap to go back into the tank without soaking. Afterwards, he had to repair the toilet seat, which was a problem for the children especially, since they could not sit on the toilet, suffering occasional urinary infections, as told by one of their mothers (Natalia, personal communication, May 24th, 2018). In the beginning, she preferred buying new seats, but these did not last more than two or three months, so Joaquín, her husband, chose to repair it: he pierced the cover and the attachment with a hot nail, solving to the problem. In this way, the toilet repair required, in terms of design, a process of creation, testing and iteration, under the imperative of solving a problem in an urgent situation.

Three months after the repair, the toilet was still working properly. Even though the interventions seem improvised, they come from a process of observation and problem detection, followed by a trial-and-error stage that ends in an effective repair. In this iteration process, the act of design is intertwined with the users’ everyday routines. They are familiar with the deterioration of their devices, which turns into an opportunity to extend their useful course.

![Figure 2. Toilet repaired by Joaquín. Source: personal file.](image)

On the other hand, a resignification process also takes place. In the case of the toilet flush, the hair elastic enters a new life cycle that emerges as a result of the conditions of the
context. On instances where lack of economic resources takes precedence, the faults of industrially produced devices stimulate the wit and creativity of the user, to reactivate them in the domestic space. To carry out the repair, Joaquín had to understand the logic of the toilet’s mechanism and make design decisions from there to restore its original function, as well as to extend its social life.

These everyday situations show the importance of design and its direct influence on people’s daily lives. They also allow us to recognize the emergency scenarios in which families are forced to reconfigure their objects due to the faults that arise over time. The environmental issue we currently face is indisputable, and design as a discipline should be the forerunner of a culture that promotes taking care of all things. Repairing emerges in various contexts and for different reasons, yet in territories inhabited by people who live in economic and material scarcity, it is practised by necessity. Repairing activates understandings and methodologies that are similar to design’s praxis. However, it involves a more flexible and organic concept of objects that considers their evolution over time and discards the notion of a final result. For repairers, the product never reaches its completion, given that it is always exposed to deterioration and malfunction. This, in turn, opens the possibility of evolving through repairing.

4.1 Intervening on precariousness

At Natalia’s house, most devices have been repaired. The family’s space is in poor condition, where significantly damaged objects must be continuously intervened to extend their life cycles. The family’s financial situation does not allow for extra expenses, so purchasing new, good quality items is unfeasible. In this survival context, repair practices take on a key role, activating the creativity of the people that perform them.

One of the repairs that was fixing the fabric curtains, which had lost their attachments, allowing the light to pass through. At the beginning, Natalia tied them with threads, but this solution often failed. She started trying other possible solutions, asking her neighbor, José, to build her a wooden stand, but this did not work either. The last attempt was building a plaster and pulp wall stand to hold the curtain rod. This has now been functional for a year. Natalia narrates this proudly, because it was her idea (Natalia, personal communication, May 24th., 2018). Inside the apartment, we see that most of the repairs are temporary solutions. The poor quality of their items has transformed the people that live in this home into a family of repairers who are constantly rethinking their objects according to their pressing needs. When there is neglect on the part of designers who work with a market logic, users themselves must make use of their inventive abilities to improve the function of certain objects that had been conceived as finished products.
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Although the families purchase these low-quality products and live with damaged and useless objects, they are aware of a variety of options when repairing. They are able to turn damaged objects into their own allies; to be rearranged and reused. With Natalia’s curtain rod, for instance, there was an attempt to fix it using leftover wood kept under the staircase of the communal patio of the building: a space used as storage for furniture scraps and unused objects. A vast majority of neighbors deposit objects on this common area, presuming they may someday be used as repairing devices.

4.2 Codesigning and re-signifying

The dining room table in Carolina’s apartment has been a part of her family’s history. Ever since she has lived with her partner, they have owned this piece together, which they received as a present from their parents. She highlights the value and importance that this table has had in her family for years: “At the beginning, the table was under-used: it was just the two of us using it. But it started to fill up with life, and we were able to accommodate all our children. Today, we use it fully” (Carolina, personal communication, June 7th, 2018).

This household item is not only used for eating: it is the single table of the house, the only one they have. The children study and do their homework at it, and their parents use it for domestic activities. Carolina makes empanadas and bakes cakes to generate some income, and she uses the table to prepare them. She notes the table’s resistance and functional capacity. Despite being worn away it is still considered necessary and they do not want to get rid of it. The table has been repaired several times, yet it resists the possibility of being
discarded: “My son repaired it last time and did it very well because it works even though it does not look very good” (Carolina, personal communication, June 7th, 2018). The repair consisted of adding a bracket that was screwed to one of the legs, to stop it from detaching. As Carolina mentions, the repair worked, preventing further weakening of the table, making it firmer. In aesthetic terms, the intervention does not hide the repair with details or finishes, it rather focuses on improving functionality. Thus, the table’s life cycle acquires new signifiers. For instance, the family has more attachment to it. It is associated with their family memory, making the table’s formal characteristics and aesthetic qualities secondary as the urgency of fixing it becomes more predominant.

Figure 4. Dining table repaired by the whole family. Source: personal file.

The shared family repair carried out by Carolina’s son shows their resistance to the table’s obsolescence and the use of available tools to mend it. Even though they wish they could buy new furniture, repairing is appreciated in terms of durability, beyond appearance. The table has been intervened at least five times, and Carolina and her husband have also repaired it before. This has generated a cooperative dynamic, where the interventions of different family members come together. Given the impossibility of purchasing a replacement for economic reasons, plus an emotional attachment to the piece, they require the product to function to its maximum capacity. This tension between the emotional attachment to the object and the desire to purchase something new—that has not
deteriorated— is controversial among the neighbors, since these objects become part of the collective memory.

5. Final considerations

Through the case studies of repair in vulnerable contexts, we recognize the value that these practices have in certain aspects of the social and community life in these sectors. The urgency of having to repair deeply influences the decision-making process behind each repair and the degree of improvisation in them, which are mediated by matters of interest for design. For example, in the case of the toilet, where its damage is notorious and urgent, the repair process has activated ingenious strategies. Given that there was an imperative need to fix it with few resources available, the user was forced to rethink the function of other objects to make use of them in the repair. Even though the solution might seem temporary and improvised, a cycle that is similar to the project-based activity of design is present. There is an initial investigation stage, to then test and come up with a solution that modifies the original product.

The purpose of repair is to extend the use and durability of an object, confronting the design and raw material of a product that are oriented towards obsolescence. At this intersection, the case studies have allowed us to find similarities between design and repair methods, considering the strategies of production and innovation present in the repairing act, in environmental and social terms. Previous knowledge of different trades or specific techniques are not significantly impactful in the decision to repair. We see this in Natalia’s house, where all the inhabitants have become repairers, despite having no technical training. Furthermore, repair practices and the need to maintain and take care of objects activate aid and cooperation networks among family members, neighbors, and friends. It also prompts, for example, the use of common spaces to store damaged objects that would be potentially useful for other repairs.

In the case of Natalia’s curtain rod, the interventions are notoriously exposed and have an unfinished look, but the repair for her is nonetheless a cause of pride. The sustained deterioration in their surroundings and the pressing need to deal with a product’s faults also activate collective behaviors and lifestyles that defy current consumption practices, and open multiple possibilities for the future of the objects and worn materials.

Repair restores the social life of objects and makes way for meaning grounded on shared collective memory and closer bonds between family members and communities, despite overcrowding problems and lack of financial means. People in vulnerable positions reveal the urgency of having to rethink how to relate with household objects, and the need to move towards a design model oriented towards satisfying social needs beyond class distinctions. On the other hand, repair can contribute to opening the way we understand and practice design in professionally recognized settings. The repair culture at the Villa El Refugio blocks is an emerging tendency that points to the revaluation of these type of practices— previously more present for the utmost care of the objects—even when we are
immersed in a culture that tends to ignore these practices, fostering an obsession with information and data to the detriment of the care of objects (Han, 2022).

As a contribution to social design, these quotidian practices in vulnerable sectors allow us to understand in what way ordinary consumption influences the trajectory of objects, affecting the disposition to replace products and encouraging their upkeep. This compels us to rethink design from a broader and more inclusive perspective. It leads us to reinforce more sustainable and conscious lifestyles where constant acquisition tends to be present in increasingly smaller households. As a critique of the idea of constant renovation, these non-disciplinary practices—which develop on the fringes of design culture—allow everyday objects to assimilate into new fields of meaning that resist their disaffection and disposal. The possibility of a quotidian redesign of an already designed world makes sense in certain territories, whose cultural, economic, and social specificity encourages spontaneous creativity that subverts the traditional logic of using and tossing objects. The study of these practices rooted in low-income areas suggests, or at least manifests, the presence of “design after design” (Redström, 2008), which is evidenced in the way in which users intervene designed products to reuse and re-signify them while trying to ensure that the intervened object does not change its appearance which guarantees its permanence.

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Pedro Álvarez Caselli is a designer and holds a master’s degree and a PhD in History. At present, he works as a Professor in undergraduate and postgraduate studies at Pontificia Universidad Católica de Chile and is a consultant for various companies. He also works as a researcher in topics related to graphic design and brands history, technology, industrial property and material culture.

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