

## **E-Mending Workshop: Healing the broken bonds between people and garments with e-textiles**

### **E-Mending Workshop: Guarire i legami danneggiati tra persone e abiti con gli e-textile**

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#### **Abstract**

The *Abiti Parlanti* workshop series situates within the community mending workshop formats and expands the repairing activity from learning how to repair clothes to how to repair our emotional broken bonds with our clothes. The paper addresses two cases of workshops done with 13 participants and emphasizes the role of tools, the workshop place and the different knowledge types generated during a collective learning process that is augmented with technology. The main question of the workshop series is: can we prolong the use of garments if we could listen to what they want to tell us? The paper draws on the insights gathered from the workshops that bring an added value to used garments by embedding a story into them while putting the wearer into an unusual and new interaction with the garments.

**Keywords:** e-mending, workshop, sustainable fashion, storytelling, e-textiles.

#### **Sommario**

La serie di workshop *Abiti Parlanti* si colloca all'interno dei format dei laboratori di riparazione con la comunità ed estende l'attività dall'apprendimento di come riparare i vestiti a come riparare i nostri legami emotivi danneggiati con i nostri vestiti. Il contributo affronta due casi di workshop realizzati con 13 partecipanti e sottolinea il ruolo degli strumenti, il luogo del workshop e i diversi tipi di conoscenza generati durante un processo di apprendimento collettivo supportato dalla tecnologia. La domanda principale della serie di workshop è: potremmo prolungare l'uso dei capi se potessimo ascoltare ciò che vogliono dirci? Il saggio attinge dalle riflessioni raccolte dai laboratori che apportano un valore aggiunto ai capi usati incorporando una storia in essi e mettendo chi li indossa e vi interagisce in un'interazione insolita e nuova con i capi.

**Parole chiave:** e-mending, workshop, moda sostenibile, narrativa, e-textiles.

#### **Introduction**

Clothes that can be perceived as our second skins are inseparable parts of our everyday life. Although we have an intimate relationship with these extensions of our bodies, we do not give enough care to them and often let them end up in the landfill. This has many systemic reasons, one of which is the loss of value that fast fashion has been continuously contributing (Fletcher, 2010). The system produces clothes made of low-quality materials that can easily be worn out or that do not simply fit anymore the ever-changing fashion norms. Thus, the relation between the wearer and the clothing is established upon a temporary need which after being fulfilled is fed by an easily replaceable new item. Due to the lack of care and knowledge of how to care, the option of repair is not often considered as a solution. Repairing activities can be seen «as unheralded sites of creativity and innovation, knowledge and power, and a neglected ethics of care» (Jackson, 2014, p. 1) enabling us to have more connected bonds with our clothes. This would be possible by bringing *matters of care* (de la Bellacasa, 2011) into play to imagine new ways of relating with nonhumans.

Mending has been a long-standing repairing activity for clothing for almost 2000 years which continued until the mid-twentieth century (Tuft, 202; Gwilt, 2014), and in the last decades together with the rise of sustainable fashion practices, online DIY (Do-It-Yourself) platforms and repair cafés, it has been again the interest of craft communities. The *Abiti Parlanti* workshop series addressed in this paper situates within the community mending workshop formats and expands the repairing activity from learning how to repair clothes to how to repair our emotional broken bonds with our clothes. This paper represents a toolkit and a workshop method conducted in two different settings during the Fashion Revolution week which has a general focus on sustainable fashion practices. The workshop aims at creating an intimate attachment with the clothes that are no longer worn, out of fashion, or simply not interesting anymore. The toolkit that embraces tools, materials and instructions helps participants to stitch touch sensors on the clothes by using conductive yarns to activate sound files embedded into each garment. The workshop has a gradual structure following *what is*, *what if* and *as if* questions to embed voices into clothes and put them into a dialogue with the participants. In the final stage, the participants discuss the role of clothes as a surface that lives with us witnessing our everyday lives, rather than a mere cover that loses its value when it is out of fashion or broken. This paper concentrates on the role of tools, the workshop place and the different knowledge types generated during a collective learning process that is augmented with technology. It addresses a collective learning activity that is based on the «broken world thinking» (Jackson, 2014, p. 1) through repairing our emotional bonds with the material world.

## 1. Mending workshops

Fast fashion continuously produces garments that «are often bought in multiples and discarded quickly for they have little perceived value» (Fletcher, 2010, p. 262). These products that lost their value mostly end up in landfills; if they are lucky enough, they are recycled. We have become *waste makers* (Packard, 1960), rather than finding solutions for extending the life of the garments. There are different ways and strategies to extend a garment's life cycle. Maintaining it by washing correctly and keeping it with care is the first and fundamental step to giving a longer life to a garment. However, as a result of planned obsolescence, they tear apart quickly. Despite the care we give them, they can still age. Therefore, repairing can be a solution that can fix and enhance the problematic parts of a garment. Moreover, upgrading could be another option, by turning it into new forms to increase its lost value but still prolong its life. If the garment is not anymore wanted, then the last option could be exchanging it with someone who would love to wear it, through swap activities or online platforms.

Many initiatives provide knowledge about alternative ways of caring for garments, one of which is mending. Mending activities can take place both in domestic or workshop settings (Fletcher and Fitzpatrick, 2021). While in a home setting, the activity is mainly self-repairing that happens individually, in a community workshop setting the skills can be shared and mending can be done collectively in a Do-It-Together (DIT) format. One of the collective mending workshop contexts can be found in repair cafés that were first initiated in Amsterdam, in 2009 by Martine Postman to provide citizens with a place to repair their objects together with expert volunteers who have repair skills (Repair Café, 2022). As Durrani (2018, p. 1) mentions, community mending workshops allow participants to have «diversified learning around socio-material and ecological aspects of garments and their use», ranging from methods of mending to the identification of materials and alternatives to garment disposal. Moreover, community mending

workshops generate collective knowledge in a *learning by doing* activity format in which participants do not only share and learn techniques for repairing garments, but also listen to each others' stories. Focusing on the stories of the clothes, the *Local Wisdom* (2018) project by Fletcher uses ethnographic research methods and collects stories of people and their garments as a knowledge archive about how to use garments in a sustainable way. This generates a new type of knowledge that goes beyond the technical explanations of how to maintain a garment towards a storytelling approach and knowledge sharing through narration and images. Furthermore, the artist Michael Swaine carries the mending workshop idea into the streets of San Francisco by setting himself available for people to mend their clothes with his sewing machine. Through his intervention, the artist does not only give service to people but also triggers curiosity to learn about mending. Besides his street intervention, he also developed the *Free Mending Library* (Smith, 2012) concept that shifts the focus from him as an expert that mends clothes for others, to mending together. Moreover, Kucher (2019)'s project *Mend-it* brings a different perspective to collective mending workshop formats by highlighting the role of tools. She created a 3d-printed mending toolkit that can be reproducible in fab-labs and makerspaces in which the workshop takes place with the use of digital fabrication techniques. Her project provides not only the physical tools and space but also lowers the learning curve for new participants who do not have enough skills to mend. This implies an inclusion aspect to this type of workshop by making them accessible for everyone. Besides the community workshops taking place in different locations, such as repair cafés, community places, fab-labs and makerspaces, there are also online spaces where learning and knowledge exchange can happen. For instance, Fixing Fashion Academy (2021) offers an online platform in which different techniques and methods are shared with the community through video tutorials and illustrative guidelines. This type of online learning activity adds a broader level of knowledge sharing and engages many people from different parts of the world.

## **2. Beyond mending toward *healing* the emotional bonds**

Mending workshops and online and offline community platforms offer solutions to the waste problem in fashion, however, these activities require certain skills, time and dedication. In order to take care of a garment, there should be an initial interest of the person. This is possible when an emotional attachment to the garment exists to prolong its life. By focusing on the emotional durability, Chapman (2005) addresses design strategies to have a more emotional relationship with products to increase longevity and product attachment for sustainability. Besides, Haines-Gadd et al. (2018) framed nine different methods to increase the emotional bonding with objects. Some of these methods are based on narration, imagination and conversation. In her book, Bonetti (2019) explains how children can perceive and experience objects as alive while listening to them. Listening to objects can bring us closer to their concerns, one of which is being abandoned. However, not every object has the ability to dialogue with us, or we do not know the ways to listen to them. Therefore, digital technologies play an important role in this type of interaction. Technology embedded objects can have sensors and actuators giving them the possibility to react to environmental stimuli and have a pro-active dialogue with us. Although embedding technologies in daily objects can create an emotional bond with the users, on the other hand, it adds another complexity to the waste problem since it involves many different materials that are difficult to disassemble. Hence, the *Abiti Parlanti* workshop series provides a temporary usage of digital technologies to create a lived moment of a dialogue between garments and people to enhance emotional attachment.

The workshop format goes beyond the community mending workshops and offers a space of experimentation in which the participants experience a different kind of connection with garments. Through this experience, they not only mend the worn-out clothes but also heal the broken emotional bonds with them.

### **3. *Abiti Parlanti*: e-mending workshop format and the toolkit**

In the *Abiti Parlanti* workshop series, the aim is to enhance the emotional durability of garments by integrating sensors and actuators in them for a temporary period in a collective making process. The workshops are part of a research project FABRIC(A) that explores new modalities of crafting e-textiles (electronic textiles) and hybrid textile making processes. The workshops took place in Italy during two Fashion Revolution events which every year bring many people together for the awareness of sustainable fashion on the day when the Rana Plaza, a fashion factory in Bangladesh collapsed. The workshop format aims at bringing an additional value to used garments by embedding a story of the wearer, the maker or the farmer who harvests its source material. It puts the wearer into an unusual interaction with the garment by making it talk. Through experiencing this interaction, the participants can link themselves with their garments and try to empathize with them as if they are living entities. To do so, the workshop adopts the *object theatre* (Buur and Friis, 2015) technique in which the participants perform with the garment and make the garment talk. Technology here functions as an enabler that makes the dialogue between the wearer and the garment possible. Therefore, the workshop format is called e-mending, referring to the e-textile practice that explores new tangible and body-based interaction modalities by combining electronics with textiles. The e-mending toolkit includes conductive yarns, a microprocessor (Bare Conductive Touch Board), instructions on how to stitch and some basic tools like embroidery hoops and needles. Each workshop has three steps answering the following questions: what is, what if and as if. During the workshop, the participants move from the garment's story to a real-like interaction in which the garment itself tells its own story. In the performative stage, the technology works as an augmentation of the imagination by making the garments talk. By simply touching the e-mended parts of the garment, the microprocessor activates a sound file that was recorded by the participants.

#### *First Edition*

The first workshop was conducted on the occasion of the Fashion Revolution event, in Turin by the author of this paper. The workshop took place in a meeting room of a conference building. Three participants were previously asked to bring their garments that were not worn anymore. Following a short presentation about e-textiles, the participants were asked to present the garments that they brought to the workshop. After this introduction session, they started writing down a lived story related to the garment and drew an emblem that could stand for this memory. Consequently, they came up with a sentence or a sound that the garment would reveal representing this memory. After the ideation process, the participants started embroidering the emblems onto their garments, deciding where to put them based on the interaction that they imagined. After completing the embroidery process, the sounds were recorded and the sound files were put into the microprocessor (Bare Conductive Touch Board) that was attached to the garments. In the final stage, the garments were worn by the participants connected to the processor and a speaker. Each participant performed his/her interaction with the garment in front of the other participants. In this performative moment, the sounds of garments listened

collectively and a discussion was made on the value of clothes and how they could be participative actors in our daily lives. At the end of the workshop, the microprocessor which made the garment talk was taken away so that the garments remained with the emblems on them as a tangible memory of the experience lived during the workshop.

### *Second Edition*

The second workshop took place at the Fashion Revolution event, in Bergamo and was conducted by the author of this paper. In this workshop, a café in the city centre was chosen as a location. The aim of this workshop was to mend second-hand garments that were brought by the workshop organizer. Ten participants joined the workshop. The workshop started with the selection of the garments by the participants. Each participant picked a random garment from the pile of second-hand clothes. After this first encounter, the participants wrote fictional stories by speculating on some physical aspects of the garments, such as the label, the style, the stains or tears, etc. The stories ranged from narrations of how they were produced to how they were abandoned. After this story writing stage, based on the stories they stitched emblems on the garments by using conductive yarns. Some participants chose to mend the broken parts of the garments with conductive yarns. After stitching the emblems, the participants recorded their own voices as if the garment was talking and saying a phrase about their stories. The sound files of the voices were put into the microprocessor that was connected to the each garment's emblem. In the last stage, the participants performed in front of others while touching and listening to the garments that were hung in a cloth hanger. This collective listening was followed by a discussion on second-hand clothing and how we could enhance the value of these products.

## 4. Results

In the first workshop, besides a collective reflection session in which the participants expressed their comments about the workshop and the lived experienced, they were asked to fill in a questionnaire about the value of the garments they brought with them. The questionnaire was done before and after the workshop, asking participants to rank the material and emotional value of the garments.

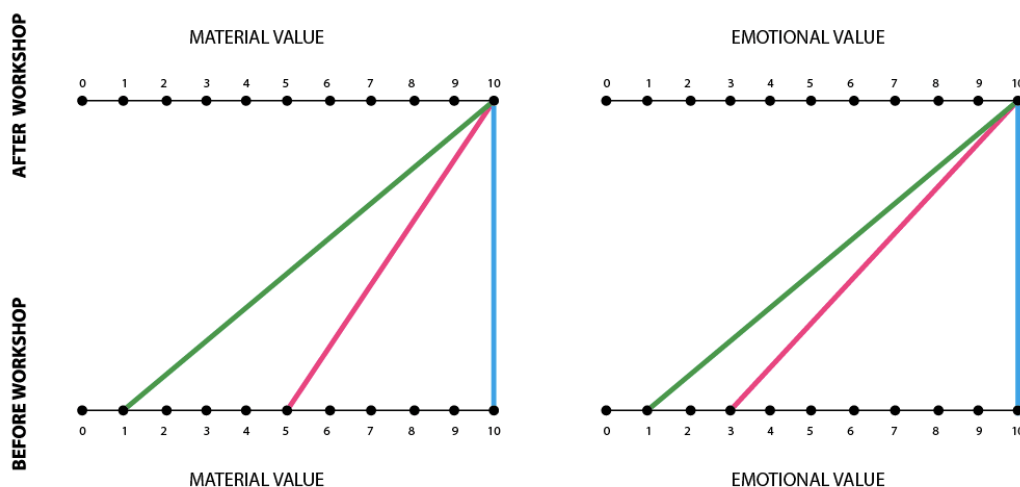


Fig. 1: Before and after workshop evaluations of the participants about the garments they brought to the workshop (illustrated by Ugur Yavuz, 2022).

As seen in Fig. 1, two participants valued their garments with a low grade for both emotional and material before the workshop, and they gave the highest mark to both category after the workshop. Besides, one participant was already having a very high connection with the garment, therefore for that participant both values have not changed and stayed with the highest mark. In the second workshop, since the participant did not bring their own garments, the questionnaire was asking if they would change their attitude on how they treat their garments. Six of them answered it absolutely yes, one said yes, while three of them were saying probably yes. Another question was about the learnings of the workshop, and the answers were varying between: respect to clothing, the importance of the story of the garment, consciousness on tactile qualities of the garments, humanized use of technology and awareness on sustainability.

## 5. Reflections

These two workshop formats are examples of an experimental collective learning and sharing process that took place in two different locations. In these workshops, the participants collectively create knowledge by interacting with materials, technology and each other in a physical space. The creativity of the participants in such workshops can be triggered «by carefully considering the places, spaces, props and materials» (Sanders, 2018) that are set and prepared. This reflection section addresses the entanglements of these elements in a collaborative learning process and how they affect the learning outcomes.

Gherardi (2008) highlights the importance of the space in which a practice takes place while generating situated knowledge. The space embraces many situations and can trigger different interaction modalities based on the physical setting, ranging from the position of tables to the type of artefacts placed in the context. In the *Abiti Parlanti* workshop series, while the first workshop location was a meeting room in a conference building, the second workshop took place in a café in the city centre. In the first workshop, the participants sit around a big table and this allowed them to have a more collective working setting. They could share materials and be able to see other participants' works. However, the general ambient of the room was similar to a formal work meeting context, therefore it did not provide an intimate environment that would help participants act freely, especially in the performative stage when they interacted with their garments. On the other hand, although the big table created a collective working environment, one-to-one conversations often did not happen, since when one person was talking, all the others could listen to and answer. In the second workshop, the workshop location was a café used for co-working activities. This place had smaller tables, and the participants worked in pairs allowing them to have one-to-one exchanges and dialogues. Since the place was a café environment, the discussion and the performative part took place with more ease. The participants were in a familiar setting of a daily life environment. In both workshops, the locations were temporarily used as a pop-up workshop which happened only once in that context. The conference room and the café transformed into a mending workshop space for a temporary period. The *Abiti Parlanti* workshop series stayed as a one-time event that raised awareness of how to take care of garments and brought an unconventional way of thinking about the human-garment relationship that is often limited and defined by consumerism. Durrani (2018, p. 18) says that pop-up mending workshops «are often unable to create communal ties», therefore the continuation of such workshops would help the participants establish a collective self-sustaining learning practice as a community activity. Chatzidakis *et al.* (2020, p. 49) stress the importance of the role of the public spaces for «building caring communities», which can range from

indoor to outdoor or online to offline places.

In each workshop, an e-mending toolkit was prepared and given to the participants (Fig.2). The materials and tools were put into a textile bag with the logo of the workshop. The kit consists of a 3D printed embroidery hoop, a spool of conductive yarn, a spool of normal yarn and instruction cards that allow participants to write a story about the garment, sketch a visual emblem related to the story and learn some basic stitching techniques. The toolkit is used together with a microprocessor (Bare Conductive Touch Board) that is attached to the garments with cables to turn the stitched emblems into touch sensors. Durrani (2018, p. 3) underlines the importance of materiality that goes beyond being a mere tool for executing work, but also can be seen as «qual elements making up a practice». Therefore, the toolkit becomes a part of the practice that makes the participants feel guided not only by the workshop conductor but also in an autonomous way by using the tools and following the instructions. Technology has also an important role in the toolkit creating a magic moment when the touch sensors are connected to the microprocessor. The digitally augmented garments can be perceived as *enchanted objects* (Rose, 2014) that start talking to the participants. This unique lived experience is part of the learning process in which the participants are immersed in a fictional situation.



Fig. 2: *Abiti Parlanti* toolkit with e-mending materials (Ugur Yavuz, 2020).

Another important artefact that has an agency in the workshop is the garment. While in the first workshop, the participants worked with their own clothes, in the second workshop they were engaged with second-hand clothes that were brought by the workshop organizers. In the first workshop, the participants told their own stories about the garments, therefore there was a personal level of interaction. They tried to remember the moments in which they were wearing the garments and designed an emblem for this memory to be embroidered on the garment. Based on the story, they decided to insert different sounds, ranging from songs to noises. The sounds had mainly the role of reminding the moment as if the textile absorbed the sound of the lived experience. Therefore, the garments did not talk in words but show how they witnessed the memory with their wearer through playing the sounds of the past moments. In the second workshop, the participants invented stories about the garments that they did not know before. Therefore, they started touching and looking around the garments in order to find clues, and signs to construct a fictional story of where they came from. In this activity,

most of the participants were mainly discovering the properties of the clothing by the sense of touch. In the end, most of the participants came up with stories that brought awareness to the clothing waste problem. They wrote short phrases that the garments would tell their future users or humanity to be more responsible. Some participants mended broken parts of the garments, while some participants embroidered emblems corresponding to the story that they wrote. During both workshops, it was a collaborative creative process emerged through a dialogue between the participants and the garments. Therefore, we could say that the garments as well participated in the creative process.

The workshops followed a structure of three different stages: what is, what if and as if (Craft, 2013) generating situated knowledge learned through embodied interaction between the garments and the participants. In the *what is* stage the participants analyse the garments, whether through recalling their memories, reading the labels of the garments, or exploring through touch. After this stage of finding out what the garment is, they pass to a fictional stage asking *what if*. They are triggered by the question of what if the garments could talk. This helps them enter a creative mindset in which they need to combine the facts that they gathered in the first stage with fictional elements. Following this imaginative process in the *as if* stage, the participants act as if the garments talk, by interacting with them through performing with the garments in front of other participants. In the first workshop, the participants wore their garments and interacted with them using their whole bodies. In this case, since the garment was worn, there was also a strong link with the body that brought the interaction into a more intimate dimension. While in the second workshop the garments were hung on a hanger and were activated through touching by hand and the interaction happened from distance. Gherardi (2008) says that knowledge obtained through practice can be situated in the body, in the dynamics of interactions, in language and in a physical context. Therefore, in the workshops the role of the body engaging with different elements, such as garments, tools and space was crucial. Besides, according to Durrani (2018), this kind of workshops can generate multiple learning outcomes, such as material learning, communal learning, and environmental learning. In the *Abiti Parlanti* workshop series, the participants do not only learn explicit knowledge about sustainable fashion, but they obtain embodied and situated knowledge that is generated through the lived experience and the interaction between humans and non-humans.

## Conclusions

The *Abiti Parlanti* workshop series is an example of collaborative learning activity that is enhanced with technology in order to raise awareness of clothing waste. The main question of this workshop is: can we prolong the use of garments if we could listen to what they want to tell us? The workshop aims at bringing an additional value to used garments by embedding a story and putting the wearer into a new interaction with the garment. By experiencing this performative moment, the participants could develop a more intimate attachment with the garments and try to put themselves into the place of the garments as if they are living. This shift in perceiving a garment as a living entity brings the focus to *care* not only for the garment itself but also for ourselves and the planet we live in. In the workshops, technology functions as an enabler that makes the dialogue between the wearer and garment possible and brings the participants into the *as if* stage in which an embodied and situated knowing happens. While mending these garments by embedding stories into them, the participants can also repair their emotional bonds with these artefacts. This workshop format can also be applied not only for enhancing connection between participants and their garments, but also for building new connection



with other types of objects, such as old toys with children (Ugur Yavuz, 2021). Involving different age groups to this type of workshop can also bring new perspectives and can enrich the shared learnings through the collective imagination.

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