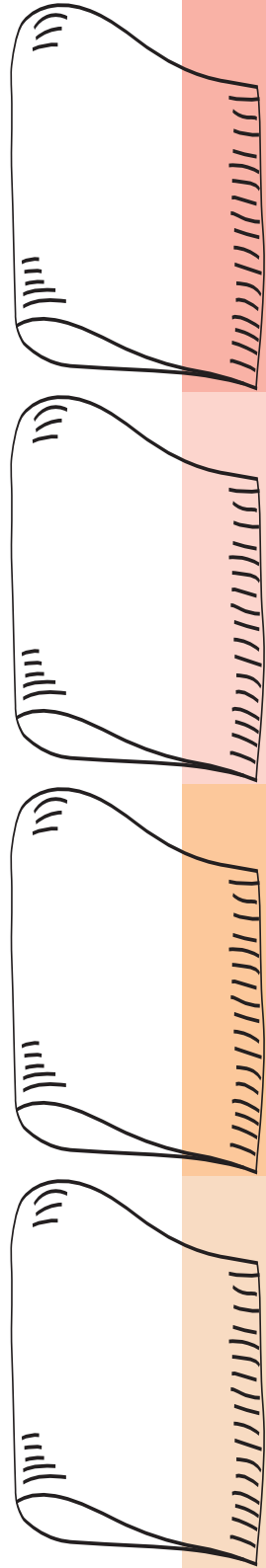
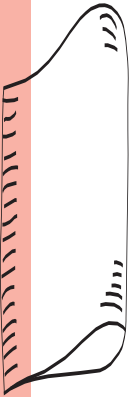


Teeco

REUSING TEXTILE WASTE IN THE
COMMUNITY

BY VANESSA CHAN





CONTENT

PROJECT INTRODUCTION	P. 2
SECONDARY RESEARCH	P. 3
PERSONAL STANCE	P. 4
PRIMARY RESEARCH	P. 5
PROTOTYPING	P. 7
DEVELOPMENT	P. 8
FINAL DESIGN CONCEPT	P. 9
ILLUSTRATED PRODUCT USE	P. 10
MANUFACTURING	P. 11
INSTRUCTION TO USE	P. 13
PRODUCT JOURNEY	P. 14
PRODUCT PHOTOS	P. 15
USER INTERACTION	P. 17
THE POWER OF COMMUNITY	P. 18
PACKAGING	P. 19
CONCLUSION	P. 20

INTRODUCTION

PROJECT ESSENCE

A conscious design that creates a collaborative experience through crafting with post-consumer textile waste to increase the awareness of fast fashion causing climate change and as a way to celebrate the second life of clothes.

THE WASTE CULTURE

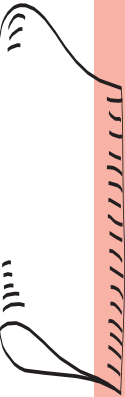
Living in the waste age, we urge to minimise waste and to ease global warming caused by human intervention. Human created the linear consumption for the finite resources we have, developing the “take, make and waste” culture in the society. The materials that we used never really leave the earth, but instead filling up the landfills.

Since the industrial revolution, the amount of greenhouse gases in the environment and global temperature increased drastically. Only until recent years, climate change is identified as a global emergency and the urgency of designing out waste in the economy rises consequently. It is also important for people to be aware that we are already experiencing consequences of our wasteful behaviour.

FROM WASTE TO REPAIR AND REUSE

The fact that people want products to be long lasting meaning that not everything is biodegradable or can be decomposed quickly. In ideal situation, the nature harmonises with a circular economy, which means materials and things should be kept in use for the longest possible or returned to the environment without causing harm. Therefore, I focused on exploring repurposed material, I believe that the meaning of giving objects a second or multiple lives can be very powerful.

Repairing can prolong a product’s life by restoring its functionality or appearance. Design for sustainability is the key aspect of my project, aiming to bring craft and repair culture back into the mainstream, meanwhile finding a balance of repairing and mass manufacturing that supports the economy of the contemporary society.



SECONDARY RESEARCH

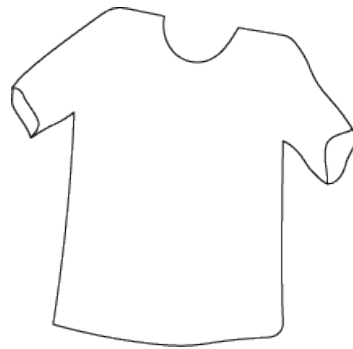
CIRCULAR ECONOMY

Three principles of circular economy driven by design (Ellen MacArthur Foundations):

- Design out waste and pollution,
- Keep products and materials in use at their highest value
- Regenerate natural system.

FAST FASHION

Overall, the fashion industry is responsible for 8-10% of global emissions, thus reducing the fashion industry's carbon footprint is key to limiting global warming. The prevailing consumerist fashion style normalise our access and engagement with fashion primarily by exchanging money for product, as well as discarding outdated clothing at a rapid rate.



CONSUMERISM

Consumerism refers to the pleasure of buying, and very often, we throw away the old items to make space and excuse for replace it with the newer model. In order to stop throwing away something that is still in its complete good condition, we need to learn to love the object itself instead of the action of buying.

Materials in machine made products are often devalued due to the quick manufacturing process and mass production, in which propagate the settled culture of fast fashion. Meanwhile, people appreciate handmade products, however such products are less affordable and people rather stick with mass manufactured ones. Consequently, consumerist fashion creates the cycle of rapid production and self-justification for buying new products, end up generating more materials going to the landfill.

PERSONAL STANCE

Growing up in a family with background in tailoring has influenced my design choices. I find that education is critical in developing eco-friendly habits, it is the most effective to learn at the young age, which is also how I grow my interest in making things from 'waste'.

Understanding how clothes are made absolutely helped me learn to love and take care of my garment. The practice of repairing and tailoring is more common and accessible in the past, since buying new or extra clothes could be expensive to many people. Therefore, people who wear repaired clothes might be seen as a lower class in the society. While such impression remains within today's society, the high cost of repairing services has pushed people away from repairing clothes because it costs less to buy new clothes than to get a repair service, eventually foment the wasting habit.

I was inspired by the idea of honouring our belongings to create less waste and encouraging people to take a moment to 'thank' garments for their fleeting use before throwing them away. Material appreciation helps building our relationship with objects and conveys the love to our garments. Combining the inspirations and research, I hope to emphasise sentimental value and embracing flaws in repurposed materials.



PRIMARY RESEARCH

ART AND CRAFT THERAPY

Art therapy is a long-standing mental health practice that helps to reduce stress and anxiety. Through creating, no matter the skill level, we engage our mind, body and spirit in a restorative way.



REPAIR WORKSHOP

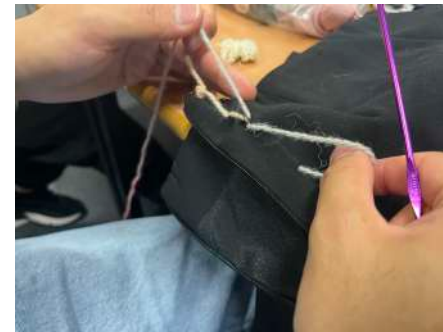


VISIBLE MENDING

When it comes to repair, most people look for an invisible mend, however, a mend is often not totally invisible. Visible mending becomes another option where people elevate and emphasize the mend with creative stitches and patches. It signifies the strong life of garment and powerful ability of a mend, at the same time, celebrates the art of mending. Each repair implies a story, showing the journey of the garment, those stories can be passed on from the first owner to the next person, with or without words. Secondhand and repaired clothes with visible mending convey the importance of honouring the effort of fixing clothes and can encourage people taking extra care of it.



VISIBLE MENDING WORKSHOP



My research finds that large percentage of people do try repair their clothes when they can, especially for jackets and jeans. Yet, clothes still get worn out and thrown eventually. T-shirt is the type of clothes most people have excess and change often, this leads me to explore the ways of reusing clothes that are worn out before it gets recycled.

MATERIAL EXPLORATION

With my personal experience in making T-shirt yarn, I continue this idea and explored different ways of reusing old clothes. For example, shredding cotton T-shirts to make stuffings, laser cutting T-shirts to make precisely cut yarn and knitting the material on the machine.

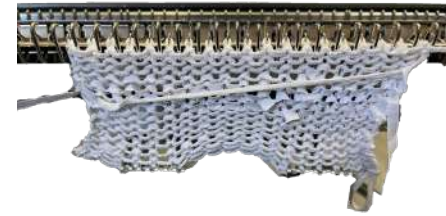
Shredding fabric



Laser cutting T-shirt into yarn



Knitting with T-shirt yarn on a knitting machine



Knitted piece and application



PROTOTYPING

T-SHIRT YARN CUTTER

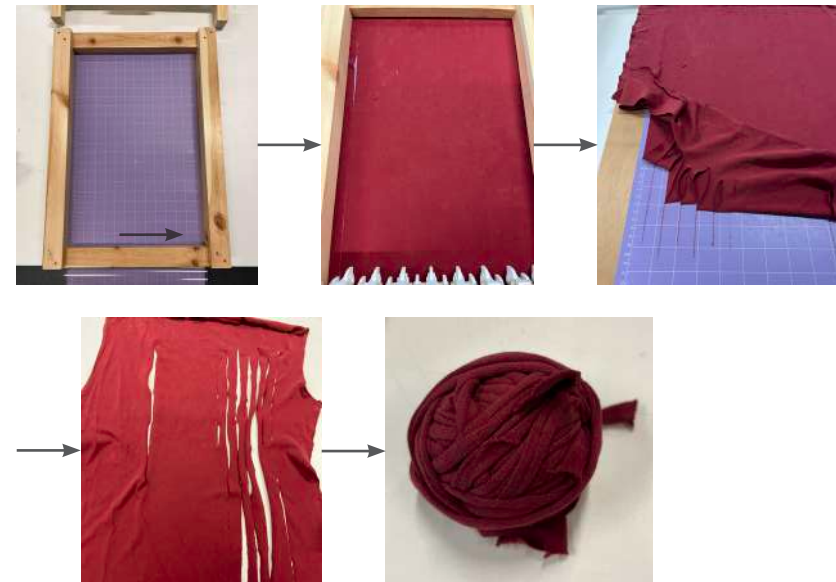
This cutter is designed for cutting old T-shirts into yarn more precisely and introducing the making of T-shirt yarn to the public. Considering the complexity in the making and understanding of this prototype, I shifted my idea to creating an object that T-shirt yarn can be applied to and encourages the practice of reusing old clothes.



3D printed parts of the casing for blades



The cutting process



DEVELOPMENT

Reflecting from the research and explorations, designing for a user interactive product and the user experience from cutting to the crafting process appears to be critical, considering that people often gain satisfaction from creating something new.

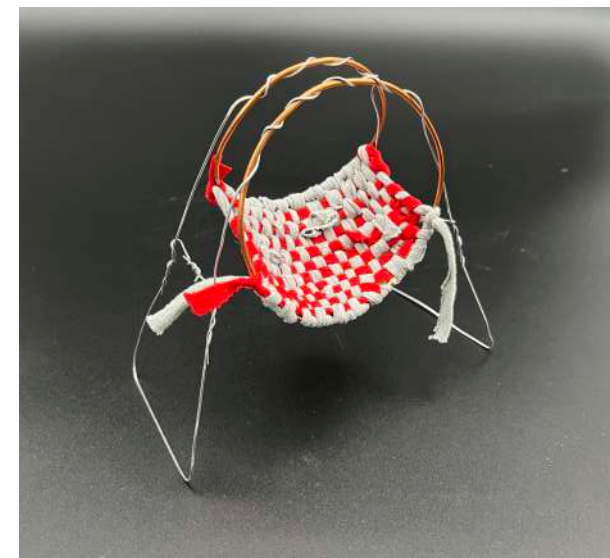
Key objectives of the design:

- Reusing old clothes, targeting clothes that are too old to be worn, which cannot be donated.
- Using T-shirt yarn as the method of reusing textile waste.
- A furniture that requires people to craft with repurposed fabric material.
- Adding value to old garments and give them a second life.

I started coming up ideas for home furnitures because post-consumer textile waste comes directly from households. I wished to incorporate the concept of respecting the material and organising the things we already own. This weaved storage box prototype was made to communicate the idea of taking domestic textile waste and transforming waste to something useful. Having the storage box also encourages the habit of keeping an organised wardrobe.

The reason to changing from a storage box to a chair is it gives the opportunity of the product being a public furniture and used in the community. The interactive aspect creates experiential value, where people gain fulfilment by finishing the chair with repurposed materials.

Prototypes that contribute to my final design:



DESIGN CONCEPT

RENDER OF FINAL DESIGN

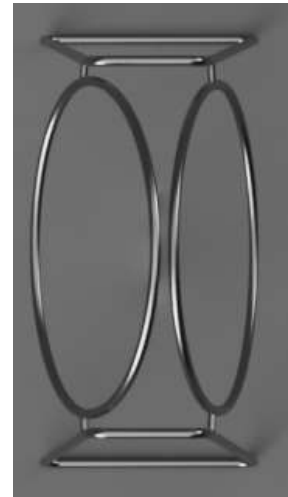


Front view



I find that the asymmetrical design look visually interesting and it signals the front orientation of the chair with the bottom of the larger hoop closer to the ground.

Top view



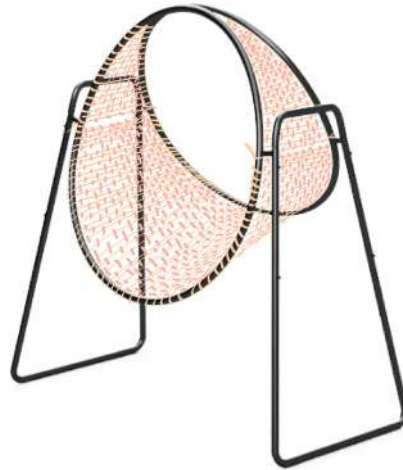
Side view



ILLUSTRATED DEMONSTRATION OF PRODUCT USE



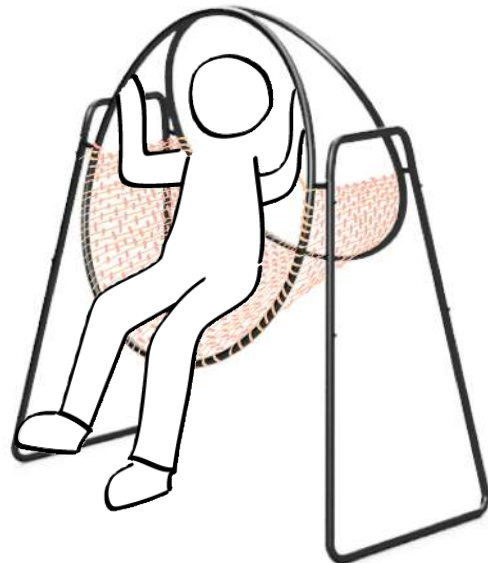
Weaved seat



Weaved seat and top



Weaved seat and back



The chair is designed to be weaved with t-shirt yarn made from old clothes, in response to the problem of global emissions caused by the fashion industry, as well as keeping materials in use at their highest value. It is intended to be co-designed with the user and is only a completed piece when people weave with their own material to make the seat. The process of cutting old t-shirt to make yarn and weaving signifies the transformation of old clothes turning from waste to treasure. It is important that the chair is completed collaboratively for the design to be effective in raising awareness of the prevailing climate issue by opening conversations on the topic of sustainability. Hence, encouraging people to live in a conscious lifestyle and be mindful of the things we own.

MANUFACTURING PROCESS

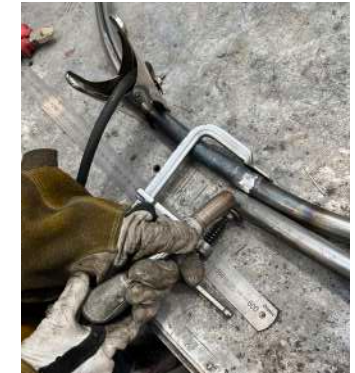
Forming:

Metal tubes bended in tube bending machine and tube rolling machine for the different shaped components.



Joining:

Arc welding is used for joining metal parts and adding hooks around the hoops. Welding is used for attaching the hooks instead of glueing with epoxy for a stronger joint.



The way the hooks are placed on the hoop is designed that they will not be seen or felt when the seat is weaved on it. The hooks are 3cm apart, far enough for the yarn to go between and each hook can hold 2 - 3 layers of the yarn for the weaving to be wide enough to fill the seat.



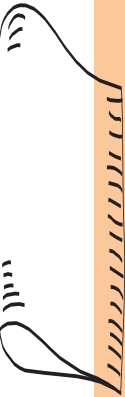
Finishing:

The metal is sand blasted and powder coated in matt laquer. Clear powder coating is chosen to keep the natural aesthetics and create a juxtapose of the metal to the woven seat, as the grey finish complements the colours of the fabric that can add to the chair.



Before powder coating

Powder coated

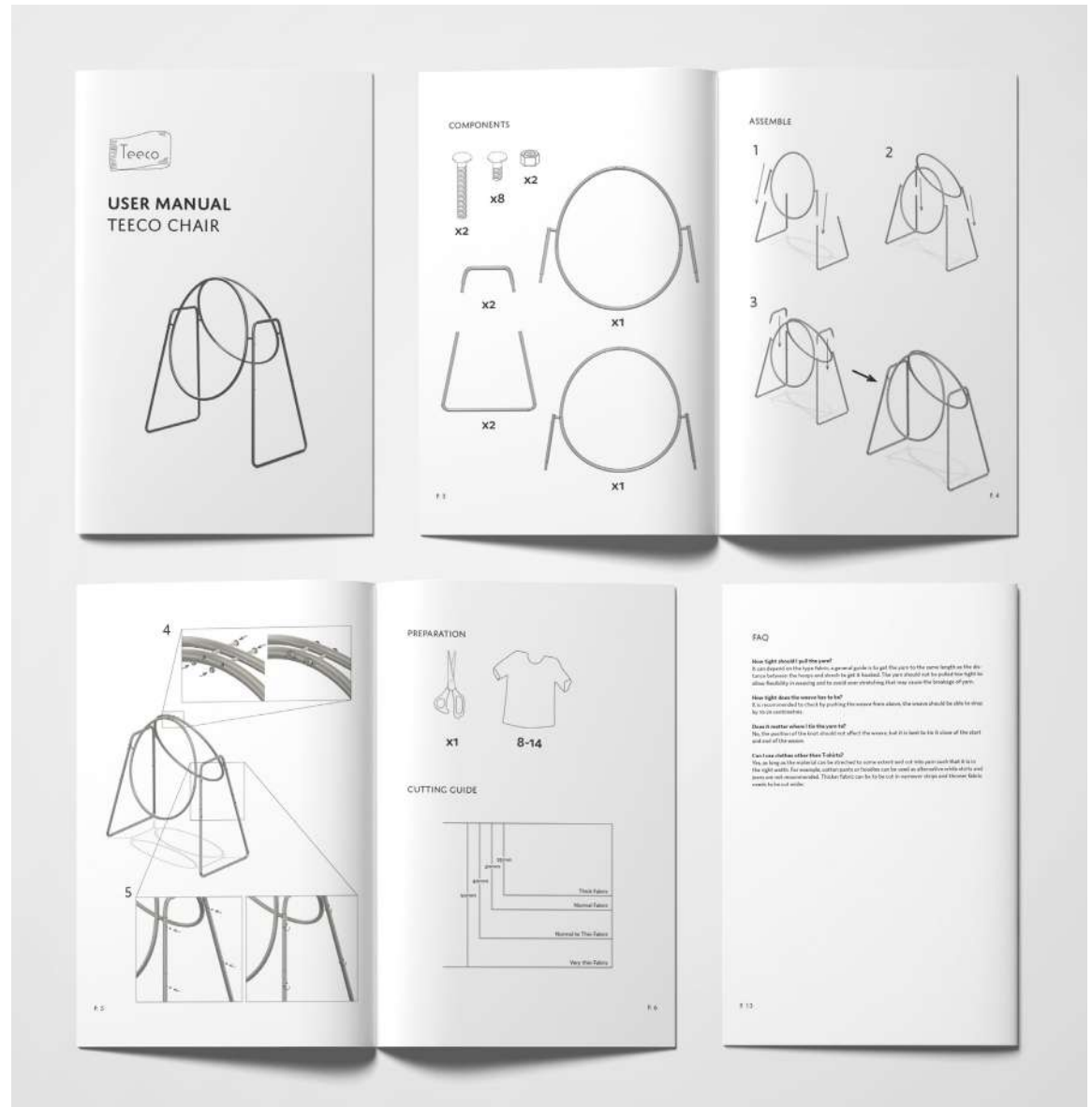


INSTRUCTION TO USE

A user manual is designed along with the physical artefact, with instructions for assembling, cutting t-shirt yarn, weaving and disassembling, paired with QR codes linked to tutorial videos.

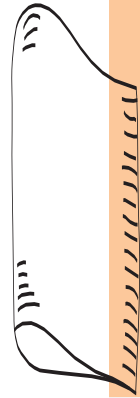
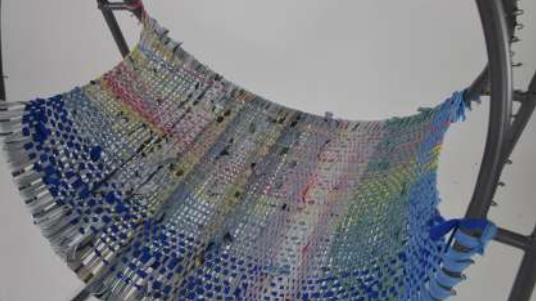
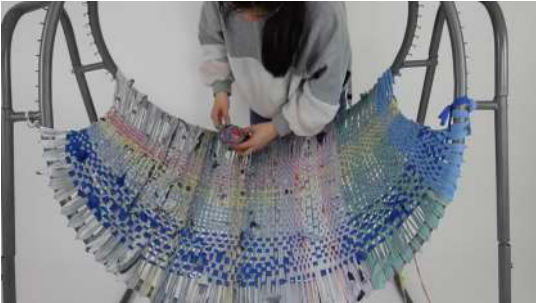
It shows the components of the product, materials and tools needed for making, and with a cutting guide. The suggested weaving method and examples of weaving pattern are provided for reference. The demonstration of product use is visually led mainly with illustrations to keep a clean aesthetics throughout and to make it easier to understand than in words.

FAQs is included for providing answers to common questions people have for the product and the solutions to problems that users may encounter during the crafting process.

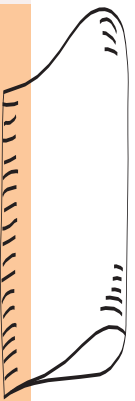


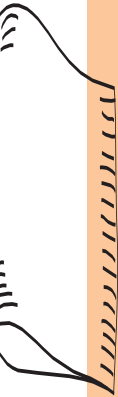
PRODUCT JOURNEY

The new journey of the material begins with cutting, the flaws and holes can be hidden by making T-shirts into yarn. The weaving process redefines the material use and gives the material another life. The journey may still continue even when the material is taken off the seat, the woven fabric can be used as a rug or for other purposes.



TEECO CHAIR





USER INTERACTION

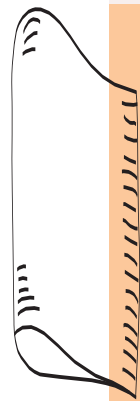
The look of the chair is similar to a hammock chair, people sit from the front and immerse in the weaving around the body, to enjoy a moment of embracing the reused garment.

With an open top of the chair, it urges people to hold onto it and lean back. The motion look very much like sitting on a swinging chair, which delivers the playfulness of the design and arouse youthfulness in people.

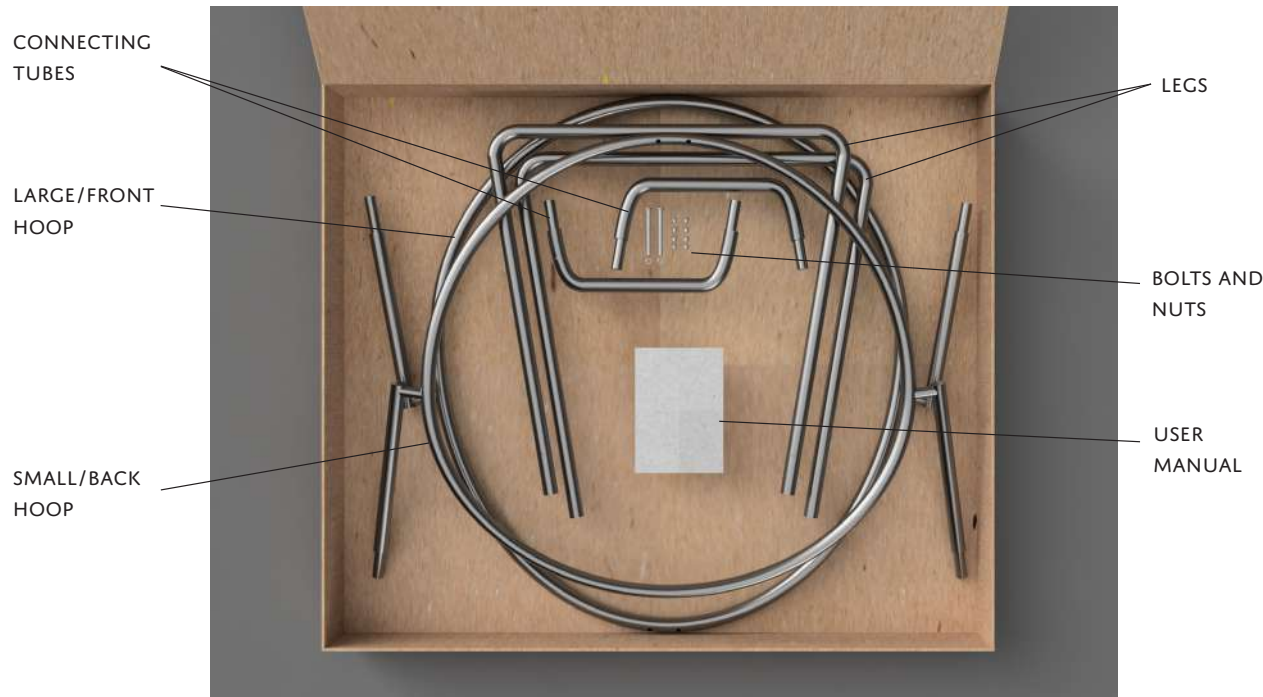


THE POWER OF COMMUNITY

The TEECO chair is only complete when people weave together to make the seat. Considering that one person may not have the amount of old clothes enough for making the chair, gathering materials through communities and working collaboratively is an ideal solution to this. I wish to encourage people to live a conscious lifestyle and be mindful through the weaving process, which can be seen as a ceremonial gesture of giving old clothes a second life. The shared experience gained from co-creating elevates the design, and with the product being installed in a community space, it creates an opportunity for discussions on sustainability and once again highlight the power of community.



PACKAGING



Box size: 1000 x 1200 x 130 mm
Net weight of product: 11.2 kg

Packaging material:

- B Flute Corrugated Boards in 150 GSM Test Paper (recycled material) for exterior
- Moulded Pulp Containers for interior

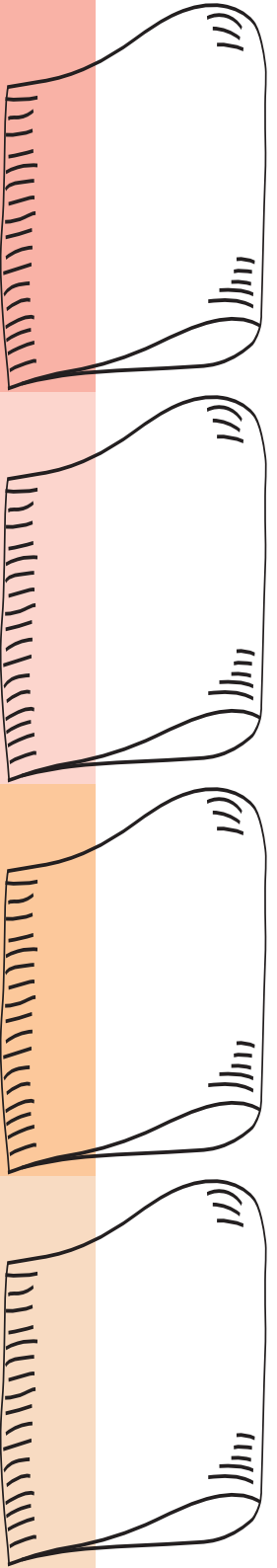
The major reason for designing the product in components instead of joining the parts together in one piece is to allow flat packed packaging for easier transportation. As each individual piece is made with tube material, they can be easily flat packed and the packaging size is minimised by layering. Sustainable materials are also considered for the packaging to avoid creating new waste and to echo the theme of this project.

CONCLUSION

In modern society, people yearn for fast and convenient ways to fulfil daily wants and needs, with the climate threats approaching, it urges the need for immediate responses and actions in order to maintain a sustainable society for living. Rapid industrial production, unconscious acts and the wasteful culture were major problems of global warming. While there is not one solution alone that can solve the problem, spreading the message through education in conserving the environment and the repair culture as a whole is critical.

Clothing are things that meant to last long, building a stronger bonding with the garments we own creates a valuable sentimental value and encourages us to keep them for longer. Giving our garment a second life is an opportunity to connect with the objects and materials around us and begin the practice of reusing materials and waste less.

With the design of the TEECO Chair, I hope to provide one of the many solutions to reuse textile for the longest possible time and more importantly, to influence the public to see the beauty in repurposed materials.



 vandicraftdesign@gmail.com

 [vandicraft_design](https://www.instagram.com/vandicraft_design)

 vanessachan.myportfolio.com

