

# OUTSTANDING SCHOLARSHIP EXEMPLAR

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## Scholarship 2020 Technology

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<b>TOTAL</b>	

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## SCHOLARSHIP REPORT

### Introduction

I started off this project with a very broad approach and a focus of finding an authentic problem to solve that linked to my interests in sustainability. I also wanted to find a client, preferably a voluntary group or organisation in my local community. I chose to focus on ensuring my project was going to truly help my client, because I knew that I would find it more challenging and interesting if I was helping a person or organisation in a truly authentic way, where my work would make a positive change. I started off by looking at different people in the community as potential clients, as it would be more practical to have my client located locally. By researching different people in the community I hoped I would find someone who I could work with in an authentic way and stay true to my interests and values.

After brainstorming possibilities one of the local people/businesses that I contacted was Helensville Hospice as they stay true to my interests and values, to see if they would be interested in being my client, and to see if they had any authentic issues that I could help solve. M [REDACTED] the manager told me, "we often have an abundance of linen problem, and also merino woollens that are in good condition, but have small holes in them, and lots of jeans."

I started brainstorming these 3 groups to generate ideas and select what I was going to focus on. After getting feedback from my stakeholders, I chose to explore solving the abundance of linen problem. I chose this because there seemed to be more options that could be made from them, which would mean I could be more creative and have a better chance of solving this issue.

Helensville Hospice has no current solution to address this problem, other than trying to organise and sell as much of the donated linen as possible. I realised that there is enough challenge and complexity to this issue to warrant an in-depth technology project and develop a prototype that will enable me to be able to use higher level thinking and research. This issue seemed quite basic on the surface, but after looking into it in more detail, it seemed that there was a lot of depth to the nature of this issue that I was not aware of initially. The issue of excess linens is much more complex than just being unable to sell the materials. It links to fashion waste and the circular economy as a whole.

There is a huge issue with fashion waste and fast fashion. 85 percent of all textiles go to the dump each year. The equivalent of one garbage truck full of clothes is burned or dumped in a



landfill every second<sup>1</sup>. This process is slowed down and is reduced by donating unused clothing and materials to second hand shops. The materials donated get sold and their lifetime gets extended. However, this is only successful if the materials actually get sold. There is a problem at Helensville Hospice with materials not being sold. I hope to find a solution to this problem to help reduce fashion waste and to give materials a second life.

This report describes the technological processes used to develop a prototype to solve my clients issue of how to utilize excess Helensville Hospice linens donated. As the project unfolded my prototype evolved into having two major components, one for Hospice customers and one for the volunteers. I have had to do prototyping for both these sections and have had to keep in mind different stakeholders for each section. I have incorporated my NCEA Level 3 design board into my Hospice project. This was beneficial to developing my packaging, branding and making my sewing pack more professional.

## Issue

The issue of the 'abundance of linen problem' extends further than Helensville Hospice. Having lots of excess material highlights how the world needs to wake up to fashion waste and how it links to the circular economy. When Helensville Hospice was telling me about the issues that I could help solve, I saw how these were part of a bigger issue, which intrigued me. I saw how important it was to help Helensville Hospice repurpose and recycle their materials as part of a long term sustainable goal and a step towards a circular economy and a reduction in fast fashion and fashion waste.

This project for Helensville Hospice is truly authentic, because there is an extreme excess of materials and linens that are not being sold. Therefore, it currently does not generate income for Helensville Hospice. There is no current solution to the problem apart from sorting them and selling them. Based on M [REDACTED]'s feedback and my own observations as a volunteer, this is not being done efficiently, and the materials are not often sold.

A circular economy is a systemic approach to economic development designed to benefit businesses, society, and the environment. In contrast to the 'take-make-waste' linear model, a circular economy is regenerative by design and aims to gradually decouple growth from the consumption of finite resources<sup>2</sup>. A step towards the goal of a more circular economy for the fashion industry is recycling and repurposing materials. With my project I hope to help give used materials another life to reduce waste and generate income for Helensville Hospice, which contributes towards a circular economy.

Another step towards a more circular economy for the fashion industry is teaching people how to mend and sew. If more people mended and sewed their own clothes, it would help to reduce fashion waste and give a longer garment lifespan. As part of my project I would like to explore whether I can incorporate teaching people how to sew to support this process to move forward. I

<sup>1</sup>

<https://www.stuff.co.nz/business/industries/116742905/fashions-toll-on-the-environment#:~:text=Fashion%20production%20makes%20up%2010,of%20plastic%20into%20the%20ocean.>

<sup>2</sup>

<https://www.ellenmacarthurfoundation.org/explore/the-circular-economy-in-detail#:~:text=A%20circular%20economy%20is%20a,the%20consumption%20of%20finite%20resources.>

will suggest this to my client and see if this is something that they would be interested in incorporating.

I have explored the issue thoroughly and looked at the many complexities of the situation, which I will address further on in my report. I have also looked into the social and physical environment of Helensville Hospice and looked into how my outcome can address their problem in the most effective way possible.

## Client Summary/Profile

My Client for this project is Helensville Hospice, specifically M ██████████ the Store Manager. I contacted her and asked if she had any problems that I would potentially be able to use for my Scholarship Fabric project. She came back with some problems and I brainstormed solutions. M ██████████'s expectations of me are that I will come up with a solution to the problem and will execute my solution within my own timeframe. My expectations for M ██████████ are that she will give me advice when needed, but will give me a lot of freedom and space for creativity with my solution. I will present my ideas/concepts/outcomes to her when I meet with her, which I will do regularly to discuss the project and its progress. We will meet in the Helensville Hospice store.

I think that M ██████████ will be a really good client, because she is extremely familiar with the shop and demographic of customers that come in and purchase products. She also has insight into what they have tried in the past and what did and didn't work. M ██████████ will be able to give me advice on how to make my solution more effective for their situation.

## Client Interview - M ██████████

Would Helensville Hospice consider being my client for this project?

- *I am thrilled that you have chosen us and we would love to be a part of your project.*

Do you have any problems or issues that need solving?

- *We often have that abundance of 'linen' problem and also merino woolens that are in good condition, but have small holes in them (caused by washing powder!) Lots of jeans.*

## Potential Solution To Problem Identified

My problem involves the excess fabric at the "op shop" that they don't know what to do with, which is not generating money for them, compounded with global knowledge of textile waste and its environmental impact. I initially brainstormed and then researched ideas on how to solve these problems.

Because it is so complex, with many different aspects, it took time to brainstorm different facets of the issue hoping to gain more insight into what was necessary to solve this problem. Some of the different ideas I looked at doing were:

- Using the materials from hospice to sew items for them to sell e.g cushion covers
- Making sewing packs for people to buy from hospice that contained materials from

hospice and all other necessary items. This would be for a simple sewing pattern, which would also teach people how to sew or encourage them to start sewing again.

- Setting up a 'volunteer workforce' where people would get given a pack to sew something and bring it back to hospice for them to sell.
- Finding uses for the materials at hospice through making fabric gift wrap for wrapping purchases like Japanese furoshiki
- making packs of patchwork scraps for people to purchase

My goal was to solve the many different aspects of this issue both the direct problem and the long term challenges associated with this such as fashion waste. I want to solve the concern of excess materials by finding a way for them to be repurposed and sold. I want to make sure that the solution is desirable and will generate income for Helensville Hospice. By repurposing these materials, I am also stopping them from going into landfill which helps to stop textile waste.

Some of the people and companies I looked at when I was researching were Fashion Revolution and the Ellen MacArthur Foundation. Here I found information about the circular economy and the importance of the need for change in the fashion industry.



I chose not to use questionnaires for my stakeholders and client, because I prefer to talk in person or via email as questions arise. This provides a more personal and direct form of communication and in the past it has helped me develop my ideas. This direct feedback and discussion with my client has formed a greater understanding for both parties with what is happening and how everything is progressing.

## Initial Brief

### Context

The UN Sustainable Development Goals also known as “global goals” have been put in place to help create a better world. There are 17 goals that together address the world’s issues and work towards creating a better world by ending poverty, fighting inequality and addressing the urgency of climate change.

A significant issue in the fashion industry today is textile waste. Textile waste is a serious environmental issue, which cannot be ignored any longer. The UN global goals specifically goal 12 (responsible consumption and production) address this issue and have a target to reduce waste generation through prevention, reduction, recycling and reusing materials. This links in with moving from a linear to a circular economy and considering other approaches to how we use garments. Such examples might be moving towards leasing clothes, providing repair services and even buy back options. The textile industry is also one of the biggest polluters and employs millions of people from the growers through the supply chain to retailers.

Fashion Revolution discusses the many issues within the textile industry and promotes the importance of being informed about these issues, “The fashion industry carries on polluting our atmosphere and water sources. Ancient forests are being cut down to create leather and textiles, animals are regularly mistreated, and landfills are piling up with disused clothes. As consumers, it’s still very difficult to find credible information about the working conditions and environmental impacts behind what we buy<sup>3</sup>”

Textile waste is an issue which is complex to solve. This is because there are so many contributors and aspects of the problem meaning there is not one clear solution. The issue of fashion waste is getting worse and the resources on our planet are finite.

### **Conceptual Statement**

Use the United Nations Sustainable Development Goals to solve a local community problem so that textile waste is being reduced from landfill and at the same time generating an income.

### **Constraints**

- Must be completed by the end of term 3
- Must use recycled or donated materials
- Needs to have a community focus
- Not just a one-off project, need to develop a sustainable project which can be continued
- Meets at least 1 UN sustainable goal target and supports at least 3 goals
- Helps people develop new skills

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<sup>3</sup> <https://www.fashionrevolution.org/why-do-we-need-a-fashion-revolution/>

- Generates income for the community group
- The outcome will be of equal or greater value than its current state
- That the project and client are local and within the school zone or catchment area

These constraints helped me to develop my attributes and in turn, my specifications. This helped me to define my project goals and ensure that I was meeting mine and my clients needs.

ATTRIBUTES	SPECIFICATIONS
Must be completed by NCEA deadline	12 Nov 2020
Must use recycled or donated materials	All the materials for the project must be recycled, donated or sustainability focused.
Needs to have a community focus	The project and client must be local and within the school zone or catchment area.  It also must be a charity or voluntary organisation.
Not just a one-off project, need to develop a sustainable project which can be continued	Must be able to be continued by the client with enough knowledge and information to do so
Supports the UN sustainable goals	Meets at least 1 UN sustainable goal target  Supports at least 3 goals
Helps people develop new skills	New skills developed are sewing and upskilling a workforce.
Generates income for the community group	Creating a saleable product
The outcome will be of equal or greater value than its current state	Selling it for more than it costs to produce
Considers good design e.g form and function	Follows Dieter Rams '10 measures of good design'
Minimal waste packaging	Packaging is to be compostable or recyclable (paper)  Have as little waste as possible.

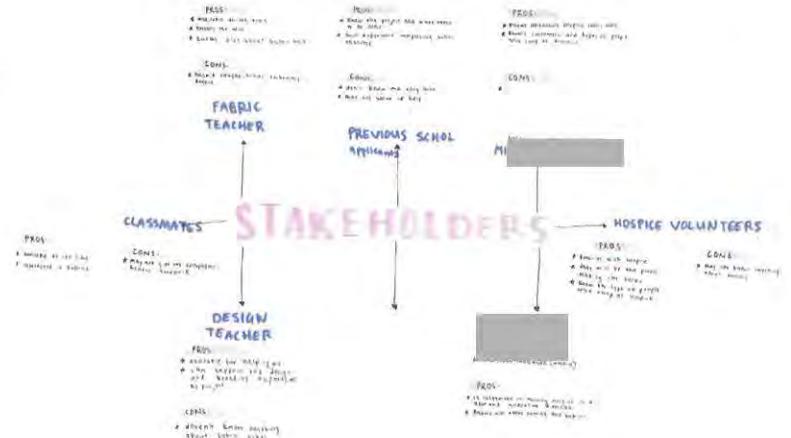
Have more than 1 use (instructions and packaging combined)

As I did research and developed my prototype, I reviewed and added to my specifications as new ideas and aspects of my project arose.

## Stakeholders

There are many different key stakeholders for my project. Each has helped me in different ways. Throughout my project, I have continued to get feedback from different stakeholders depending on what the question and area I am looking at. Stakeholders help refine and improve my outcome, and help to consider things that I may not have thought off.

Stakeholders are a vital aspect of a successful project. By communicating regularly with my stakeholders it ensures that I will meet my brief and all of my clients needs. Stakeholder feedback has really helped me in many aspects of my project, such as which client to work with and with the development of my solution.



## Development

I spent time exploring different solutions to the problem through brainstorming and getting feedback from my client and stakeholders. This resulted in my decision to design a sewing pack that people can buy and make themselves from Helensville Hospice. I would design the pack, create a pattern and instructions then Helensville Hospice would sell the packs to generate income.

I have chosen to do this because I think it the most suitable outcome and it solves the problem and meets my project goals successfully. It meets the surface issues and the deeper issues of my project. This decision came about from getting stakeholder feedback and evaluating their responses on different ideas I came up with such as sewing cushion covers and cutlery bags.

The materials used in the pack would be donations made to Helensville Hospice which would help solve their 'abundance of linen' problem. It will also generate income which they aren't currently achieving. It also helps solve deeper issues as it is stopping materials from going to landfill and is repurposing them giving them a longer life cycle which is a step towards a circular



economy. This aligns with Sustainable Development Goal 12 (Responsible Consumption and Production) It is also teaching people how to sew which is also encouraging people to mend clothes helping to move towards a circular economy and to reduce the issues around fast fashion.

## What Is Good Design?

When designing my sewing packs I needed to consider what makes 'good design'. Good design is the balance between form and function. This ensures that the design is not only appealing but is functional and is used for what it is intended. The balance between the two depends on the outcome which makes it fit for purpose. For example, good design of a tote bag is when function is prioritised as it is the main purpose of the tote bag. Whereas, for promotion and branding form is prioritised as it is important that it is eye catching. For packaging there needs to be an equal balance between the two as it needs to be equally functional and aesthetic. There are many different attributes that contribute to ensuring something is good design. According to Dieter Rams, good design is<sup>4</sup>:

1. Is innovative
2. Makes a product useful
3. Is aesthetic
4. Makes a product understandable
5. Is unobtrusive
6. Is honest
7. Is long lasting
8. Is thorough to the last detail
9. Is environmentally friendly
10. Involves as little design as possible

I have looked at these different attributes and considered them all when designing my outcome to ensure that my outcome is a good design by Dieter Rams measure. One aspect of my project where I looked at the 10 aspects and tried to ensure my product was meeting these measures was my packaging.

When designing my sewing pack, I will consider these 10 attributes as well as ensuring it is practical and something that people want and would use. The outcome of the pack would also need to be achievable for the customer to make, so someone can feel confident about being able to make it when they buy it. The pack also needs to be easy to understand and have clear instructions as well as look good. It is important to make sure that the pack is "fit for purpose". The pack would also need to contain all materials necessary as the purpose of the pack is to

<sup>4</sup> <https://www.interaction-design.org/literature/article/dieter-rams-10-timeless-commandments-for-good-design>

make it easier for people to make and sew something themselves an experienced sewer.

In my situation, good design would be an equal balance between form and function. Function is important as the pack needs to be practical and easy to follow, and the outcome needs to be something that people want to make and use. The sewing pack also has to have good form as it needs to be intriguing and make people notice and want it. For my project to be successful overall, people need to buy the product so I need to use Dieter Rams as a measure of quality design.

Considering and researching good design, is essential to my development and design process. It will help me gain insight into what I need to consider when designing my product and ensuring it is fit for purpose.

## Analysis Of Technologist Planning Practice

When planning my project, I looked at different people and companies and how they plan. This was a good indication of the best way to plan my project. I also looked at how Helensville Hospice plans as they are the organisation I am working with on this project. Helensville Hospice is a not for profit organisation that uses the Hospice shops as fundraisers for their charitable purposes. M [REDACTED] is the manager of the Helensville shop. She runs this shop and reports to an area manager who looks after a group of the West Auckland shops. M [REDACTED] organises the volunteers who help at the shop, planning what activities they do to assist in the shop. Largely it is managing the inflow of donated goods, sorting and pricing them and putting them on display, serving customers and disposal of unsalable items (recycling them as much as possible, e.g. giving fabric to local mechanics to use as rags).

There are many different ways that technologists plan. This varies depending on the type of project and the industry. I have looked at how fashion designers, graphic designers and small business owners plan to ensure I was planning effectively for all aspects of my project but I also need to use planning tools that work for me.

Fashion designers often plan using a range plan<sup>5</sup>. A range plan is an overview of your collection with all of the design and financial parameters set out. The plan outlines the specifics of your collection from how many styles you will have to what fabrics and colourways will be used. Range plans usually include:

- Total number of garments
- Illustrations or flat drawings of every garment
- Proportion of different garment types
- Specific garment styles
- Different fabrics and colourways for each garment
- Cost price per garment

<sup>5</sup> <https://www.the-sustainable-fashion-collective.com/2015/06/11/what-is-a-range-plan-for-fashion-designers>

- Selling price per garment
- Order quantities per style
- Sizes
- Manufacturer details
- Timelines
- Milestones

Graphic designers usually plan using the project plan<sup>6</sup> which is a detailed description of what is required for each section of the project. Graphic designers often have a series of jobs they are working on at one time so it is important that they plan their projects effectively. There are many different sections that Graphic designers use within their planning, some of which are:

- Project definition
- Project variables
- List of milestones and jobs to be done
- Project budgets
- Supplementary plans
- Project approval

Graphic designers also use Gantt Charts as it is an effective way of managing their projects.

I looked into Gantt charts and how they operate. A Gantt chart is a type of bar chart that illustrates a project schedule. This is a very effective planning tool but I think that it would only be successful if you actually knew how long each step would take you. As I do not know how long each process will take me, I have decided to not use a gantt chart but have decided to use parts of this planning technique. I have sectioned off my report into a series of headings and checklists and have organised it into 3 milestones. This way I can keep track of where I'm upto and not have to have it confined into individual timeframes for my project.

When deciding what planning tools I was going to use, I researched different design and technology planning methods, but I also researched business planning tools. I interviewed my Dad (who owns and operates a small business) and asked him how he plans and runs his business. The main part of the planning in my Dad's business is stock forecasting. He needs to

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<sup>6</sup> <https://www.thegraphicdesignschool.com/blog/professional-design-practice-lesson-3-project-planning>

make sure that he has enough stock and needs to predict when the best time to order more is. He also needs to plan his cash flow for when orders are paid for and stock is ordered to ensure that he doesn't get caught out. Talking to him about this made me realise that materials donations are irregular and that I need to talk to my client about that and make a plan for how they are going to manage it.

## Analysis Of Planning Tools I Have Used

I implemented different aspects of all of these planning techniques when planning my project. Looking into these planning techniques helped me figure out how I needed to plan my project in the most effective way possible. I have used a variety of different planning tools. Some of these were a diary, brainstorms and checklists which were reviewed at milestone times. I spent a lot of time planning and, at times, I may have over planned my project. This is based on the knowledge of my tendency to have everything very organised and structured. However, this helped me because I knew where I was up to and what I still needed to complete. I looked at the pros and cons of each of the planning tools and worked out a balance between them, which I believe, resulted in successful planning of my project.

### Diary

**Pros:** Using a calendar diary was a really good tool when planning how to use my time wisely. I could visualise how much time I had to complete each section of my project and plan when I was going to complete each section. This was very helpful for me to track my progress. Using a calendar diary was also very easy to keep updated and to not forget to keep track of.

**Cons:** Using this planning tool was very helpful, however it lacked some vital components that I needed for planning. It was hard to differentiate between what I had completed and what I had planned to complete and where I was in my timeline overall. Often I misinterpreted the amount of time needed to complete a section which resulted in me falling behind my schedule.

### Checklists

**Pros:** Checklists helped me to see what I had done and plan what I needed to do. This helped me stay on track and know where I was at in the completion of my project.

**Cons:** I could see where I was at but I couldn't plan what I was going to do when and how long it would take me. I also didn't know where I was at with how much time I needed to complete tasks and if I was on schedule.

### Reviewed Checklists At Milestone Times

I reviewed my checklists regularly and kept them updated. At each milestone I went over my checklists and diary to plan out the next section in more detail. This helped me to keep on top of my planning and to do it in sections so it didn't feel as overwhelming.

## Brainstorms

**Pros:** I made brainstorms for different sections of my project when I was coming up with ideas. This helped me to organise them and to expand on my ideas. It also helped me to keep all my ideas for different aspects of my project organised.

**Cons:** In a brainstorm it is hard to go into extreme detail as it is normally the first step in idea generating. This meant that I had to use other forms of planning and had to spend time expanding on my different ideas after my brainstorm.

## Research Existing Products

### Sewing Packs

I researched existing sewing packs and was only able to find one company who were making sewing packs. The company is called 'The Sewing Revival' and they have a variety of different packs for different people and abilities. In their sewing packs, the pattern is drawn onto the fabric and is ready to be cut out and sewn. The pack contains all necessary fabric pieces, other components of the item, step by step instructions and coloured photographs. Their packs do not include thread and are needed to be sewn with a sewing machine. Some designs have different fabric options you can choose from. There are currently 6 different sewing packs available which are: pajamas, creative pack, wrap skirt, shoulder bag, cushion cover and a makeup bag.



#### PROS

- Everything you need is included
- Patterns are for useful items
- Patterns are suitable for a range of people as they are reasonably generic items

#### CONS

- Little to no variety and choice of materials for each design
- Expensive

I also looked at other similar items to sewing packs to see what they included and how they wrote their instructions. I looked at some embroidery and applique packs which gave me a few different ideas on aspects I did and didn't want to include in my product. On some of the packs it was clear on what the pack was for but others were confusing. From this, I decided it was very important to ensure my packaging was clear on what my product is and contains. I didn't like the use of plastic bags as packaging as it doesn't fit in with my sustainability goals and created unnecessary waste. The use of plastic bags also made it very confusing to see the difference between what the packaging information was and what the contents inside were. For my packaging, I want to ensure that there is a distinct difference between the packaging contents and the branding.



Researching existing products has helped me design my outcome because I have analysed an existing company where they have a similar product and outcome. I have been able to look at the pros and cons of their design and ensure that I can incorporate some of the features that were valuable to ensure my design is effective as it can be. Looking at the other sewing packs was also beneficial because I could see how other types of sewing packs were packaged, labeled, how the instructions were written and what they included in their packs.

## Concepts

When deciding what the outcome of my sewing pack would be, I came up with different concepts and I evaluated the stakeholder feedback to conclude which design would be most suitable. I also considered how this helps solve the problem of the abundance of linen that hospice has and how each concept meets my project goals and specifications. My stakeholders were very helpful with this area of my project as they all had different ideas for directions my project could go.

### Volunteer Workforce Pack

The volunteer workforce would be where people in the community would collect a pack to make an item such a tote bag for items purchased at Helensville Hospice. When the volunteers have made the items they would bring them back and Helensville hospice would sell or use them. This would help solve the abundance of linen problem and also generate money for Helensville hospice as they would be selling the finished items.

### Cutlery Kits

The cutlery kits would be another volunteer pack for people in the community to collect and make. They would bring it back and it would be sold with cutlery donated to Helensville Hospice. This again would solve the abundance of linen problem as the materials from Helensville Hospice would be used to make the cutlery kit. It would also help sell cutlery, which Helensville Hospice has lots of. This again generates money for Helensville hospice as they would be selling the finished items.

### Tote Bag Kit

This pack would be an easy sewing pack where the customer would be making a tote bag. Tote Bags are generic and practical so this would be able to be purchased, made and used by many different customers. This would help solve the abundance of linen problem as the materials from Helensville Hospice would be sold in the sewing pack. Again it would generate money for

Helensville Hospice. Tote bags are also linked to sustainability as they encourage reduction in single use bags.

#### Apron Kit

This pack would be a bit more advanced than the tote bag. The customer would be making an apron. Like the tote bag aprons are generic and practical so this would be able to be purchased and used by many different customers. It would work the same way as the tote bag sewing pack where all the materials are included in the pack. However, with aprons there is an issue around size as it is harder to make them one size fits all. The pattern would need to be adaptable for different sized people.

#### Patchwork Packs

Patchwork packs would be made out of scraps from projects and would be sorted into colour boxes. When there is enough in each box it would go into a bag to be sold. This would solve the abundance of linen problems as the materials from Helensville Hospice would be used to make the patchwork packs. This would also generate money for Helensville hospice as they would be selling the otherwise wasted materials. However, this would be of interest to fewer people as for these packs to be used, the customer would need to be interested in patchworking.

#### Fabric Gift Wraps

At the counter there would be an option to have a purchase wrapped for \$2 and be given a card demonstrating how to tie fabric gift wraps in the Japanese Furoshiki technique. This would solve the abundance of linen problems as the materials from Helensville Hospice would be used to make the fabric gift wraps. This would also generate money for Helensville hospice as they would be selling the otherwise wasted and unused materials. Fabric gift wraps also reward further sustainability as it encourages the use of reusable fabric wraps and the reduction in single use wrapping for gifts and items.

I sought feedback from my stakeholders and evaluated this as well as considering which concept fits the specifications of my brief best. Based on this I have decided to design a sewing pack for making a tote bag. I believe it is most suited to meeting my brief and all of my project goals. I feel like it is easy enough for everyone to make and practical enough for everyone to use. I will find this out better when I do testing and trialing of my prototype pack.

My different stakeholders all had different reasons why this was the best choice as they all have different perspectives. My fabrics teacher suggested this was a good concept as tote bags are easy to sew which will mean that the sewing packs are more available to a larger audience. My client M ██████ suggested that tote bags are a great concept as they will use a good amount of material for the pattern. She said that will be both big enough to make a difference in the abundance of linen problem, and small enough so the donated material pieces will be able to be used. Another of my stakeholders commented that creating tote bags linked to sustainability and reducing single use items such as plastic bags. They said that this linked to my idea well and would be very desirable for customers.

With producing a sewing pack, there are two main components that need to be designed. The sewing pack needs to be put together by the volunteers in preparation to be sold, and it needs

to be bought and sewn by customers. For these processes to be successful, my prototype will need to be in two parts, the customer pack and the volunteer pack. This will ensure that I design all necessary processes towards the production of the sewing packs, and the customer making the product.

## Product Research

When designing my pattern for my tote bag I looked at and analysed different existing items. I looked at three tote bags I had at home and liked different aspects of.

TOTE BAG 1	TOTE BAG 2	TOTE BAG 3
		
		
Bag shape	Corners	Straps
With tote bag 1, I liked the bag shape. The 2 other tote bags have a very square shape whereas, with tote bag 1 it is rectangular so it is easier to fit more things in and is a more functional shape. I liked this aspect of this bag and based the shape of my design off this.	With tote bag 2, I liked that the corners opened out giving a supportive base on the bag. Tote bag 1 did not have any corners and tote bag 3 had very thick corners. I liked the corners on tote bag 2 because they are easy to sew and give the bag more space and strength making it more functional.	On tote bag 3, I liked the thick straps. They made the bag feel stronger and made it more comfortable to carry. The straps on the other 2 tote bags were very thin and felt uncomfortable to carry. I decided to incorporate a thick strap on the bag to make it more functional and strong.

I combined my favourite aspects of each bag to design my tote bag. When thinking about what

good design for a tote bag is I looked at these existing items and researched what the most important aspects of a tote bag are, which helped me design my pattern. I looked at Dieter Rams 10 principles of good design, and particularly considered, makes a product useful "a product is bought to be used... good design emphasizes the usefulness of the product whilst disregarding anything that could possibly distract from it." I found that function is a priority to form for tote bags as tote bags are a functional item which people use to carry items. Ensuring they are functional is a priority otherwise they are not fit for purpose. I have ensured that my tote bag pattern will be functional by ensuring that the size and shape of the bag is suitable for carrying items in. Comfort is also an important aspect of a good tote bag as people need to carry them, often with quite heavy items in them. To ensure the bag is comfortable I have considered strap width and length. The bag also needs to be strong enough to hold items without breaking. Form is also an important component to consider when ensuring my product is good design e.g use of coloured prints and cohesive colours on packaging, will attract people and create interest for this product. Looking at these existing items has given me insight into which aspects of a tote bag should be a priority to consider in my design to ensure it is fit for purpose.

I talked to my client M ██████ at Helensville Hospice, and she gave me feedback on her opinion of what the most important aspects of a tote bag are. She said she values the function and comfort of the bag over the aesthetic. She agreed with me on which elements of each tote bag I thought were most practical, and we agreed on the different elements that I should incorporate into my bag. This helped me to design the pattern for my first tote bag as I knew what components of tote bag design I wanted to include.

## Fitness For Purpose In The Broadest Sense

To help with my design I needed to consider 'fitness for purpose in the broadest sense'. The Technology Glossary defines fitness for purpose in the broadest sense as 'Fitness for purpose in its broadest sense extends the context to the practices involved in the development of the outcome, including such things as the sustainability of resources used, treatment of the people involved in manufacture, ethical nature of testing practices, cultural appropriateness of trialling procedures, determination of life cycle, and ultimate disposal<sup>7</sup>'.' This is essential to ensure that my outcome is functional and will meet the needs of my client.

### Acceptability Of Ideas

My ideas need to be socially, culturally and technologically acceptable and I need to consider this in all aspects of my project, such as my concept for the solution, the execution of my idea and the overall outcome.

In my project, I need to make sure that my outcome is socially acceptable. One of the things I had to particularly be careful of to ensure my outcome is socially acceptable was my word choice and branding images of the sewing pack. Because my client is a Hospice shop, I needed to carefully design my branding to make sure it wasn't insensitive towards families who are supported by Hospice. When getting feedback from my client M ██████, on what to name my sewing pack she made this apparent to me and advised me on word choice for the name. For

<sup>7</sup> <https://technology.tki.org.nz/Glossary>

example, 're-live' or 're-born' would not be acceptable as a name for the sewing pack. To ensure that my design is socially acceptable I also need to determine that there are no offensive prints or symbols on the materials such as a swastika or any nudity or swear words. In my volunteer pack I will include a suitable materials chart where it will instruct the volunteers to check the print and to check that the colours are suitable together when selecting fabrics. This will ensure that there are no mistakes made due to being unaware of the issue.

At this stage I'm not aware of any cultural or social issues around material (other than material pattern design being inappropriate such as nudity, swear words and gang insignia). In New Zealand, being culturally and socially acceptable intertwines because we are a bicultural country and need to consider Te Ao Maori. If fabric came in with a Maori design on it, Hospice volunteers may need to check with the local Iwi to see if it is culturally appropriate to use this material in this context. This is to avoid cultural appropriation of the design, and to also check if the pattern and type of material is acceptable to be used for a tote bag. I have consulted [REDACTED] the Head Of Faculty for Maori at my school, in regards to the use of specific Maori materials for tote bags as there are cultural practices to take into consideration, and she didn't see that there would be any issues around using particular materials around items near food.

#### Sustainability Of Resources

Sustainability is a very important value for me, so throughout the development of my item I have considered sustainability in every aspect possible. My project is sustainable because I am focussing on new ways to extend the life cycle of the materials donated to Hospice. I have incorporated sustainability into my design of my tote bag by ensuring that it is strong and practical enough to endure common use and not break which helps create a longer life cycle.



The packaging of the sewing packs has been carefully designed so there is extremely little waste, as almost a whole A3 piece of card is used and the instructions are stuck on the inside so that the packaging is not single use purely for holding the materials together but has multiple uses and is not designed to be discarded. The label has been designed to hold the package together and contain all necessary information like the branding, information, contents and material swatches so the customer knows what material is inside the pack. All materials used for packaging are compostable or recyclable and have been designed in a way which ensures that the resources are not being wasted.

#### Ethical Nature Of Testing

To ensure my product meets my brief and considers sustainability in all aspects of my project, my testing of the design must also follow this. To ensure that my testing and prototyping of the product is ethical and sustainable I have used recycled materials in my prototyping. The materials used for prototyping my bag design were donated to Helensville Hospice, and

therefore I am already giving them an extended garment lifecycle making it ethical. I also am able to continue using the prototype bags as they are good quality.

With my packaging and label prototyping I used recycled and previously used card from the Art Department at my school to make miniature versions of my packaging when designing it. This ensured my use of materials was sustainable and not wasteful. My full size prototype is also going to be used again as it is the example pack to be used for feedback and for Helensville Hospice volunteers when making up the sewing packs. My prototype will be used over and over again and it will not be wasted.

I have also looked at ethical considerations around getting my classmates to use valuable class time for testing and trialing, and have ensured that I am not interrupting anything important and that they are trialing at an appropriate time not to interfere with prior commitments.

#### Determination Of Life-cycle And Maintenance And Ultimate Disposal Of Prototype

Initially I expected my prototype to be in two sections, however, I have realised that there are now three elements to prototype. These are, the bag, the volunteer instructions, and the customer instructions. I have prototyped all three sections and considered the life cycle accordingly.

#### *Life cycle of customer kit*

Because my prototype of the package for the customer kit is going to be given another life ie. Being the sample package for Helensville Hospice to use when making up packs, the lifecycle of the pack is very long and will only be disposed of when it falls apart and is unable to be fixed, where it will be composted or recycled. I have found the prototype of the label sleeve has ripped in the corner from lots of use taking it on and off the box. However, with the real product the label sleeve will not be taken on and off regularly as it only needs to be put on for the box to be able to be sold and taken off when the product is being made so this is not an issue. If the label slips aren't strong enough, then I will reevaluate my design and make changes so that they are strong enough.

#### *Life cycle and maintenance of bag*

The bag is made of recycled materials, so it is already prolonging the garment life cycle of the material. It has also been designed to be strong and durable so that the bag can withstand lots of use and last for a very long time. Because the tote bag is sewn by the customer, I hope that the person who bought the bag will be able to fix it if there are any rips or holes throughout the lifetime of the bag, further extending the life cycle of the bag. I hope that the consumer disposes of the bag responsibly when it comes to the end of its life, or makes it into something else, even if it is rags for cleaning.

### *Life cycle of the volunteer kit*

The volunteer kit prototype has been designed so it is able to be used continuously throughout the production of sewing packs at Helensville Hospice. The parts of my prototype that potentially could change due to volunteer feedback I ensured were able to be changed without having to create a new prototype. For example, the instructions were typed up and the packaging folding instructions were drawn on in pencil. This way I was able to be sustainable with my resources and only have to make one prototype for the volunteer kit. By doing so, I was able to prolong the life cycle of the prototype to be functional until it ultimately becomes too worn and is unable to be used, where it can be composted or recycled accordingly.

### **Health And Safety**

Health and safety is an important aspect for ensuring that my product is fit for purpose in the broadest sense. I have taken this into consideration in the making of my prototype and in designing my product to ensure that health and safety is considered at all times. With the making of my prototype I followed basic safety procedures such as ensuring my hair was tied up when using the sewing machine, and that the iron was turned off when I wasn't directly using it. I also monitored posture, lighting, length of time at the machine and extended periods of time looking at the blue light of a screen.

I also ensured that health and safety was considered in the designing of my tote bag as I ensured that I designed it in a way which is the most durable and comfortable with strap length and strength and durability of the bag. I also looked at how health and safety could be implemented in the volunteer pack to make sure that when the volunteers created the packs they were as safe as possible. I have created templates so that it is simple for the volunteers to cut out the materials reducing risk of danger around cutting out of materials.

I have also considered the health and safety of materials that have been donated and have made it very clear that only suitable materials are to be used and any that are not clean or sanitary are not to be used for health and safety purposes. Helensville Hospice also has health and safety procedures in place to ensure that materials that are sorted and used are done in a way which is suitable for volunteers to stay safe doing so, that keeps volunteers safe from interacting with soiled and other insanitary materials.

There were other things that I considered but were not relevant to my project, such as cultural appropriateness of trialing processes. This wasn't relevant to me as I struggled to find any reasons why tote bags made out of recycled materials could come across as socially unacceptable (apart from material pattern design being inappropriate such as nudity, swear words and gang insignia) and therefore my trialing process would not have any cultural or social complications. However, I did consider that my classmates had volunteered to sew my prototype packs so I ensured that they were not using valuable class time and that there was no coercion in volunteering to trial my sewing packs.

### **Milestone 1 Review/plan**

I did not achieve as much as I thought I would have and in the order I had planned for milestone

1. It took me much longer than expected to find and select my client. This set me back from my ideal timeframe. I wanted my project to authentically make a difference and I needed something that would keep me interested for the whole year. Because of these very clear goals, selecting my client was much more difficult than I expected. I also spent more time than expected planning my project and figuring out what I needed to do for each section. This meant that in milestone 1 I did not achieve what I expected I would. However, I reflected on that and reorganised my planning to evolve with this change.

I was also set back by the first lockdown in March. However, this gave me time to find my client and start working on idea generation. The lockdown made me realise that this year was going to be very difficult with meeting my client and stakeholders in person. Because of this I decided that it was very important that my client was local as this would be much easier and made more sense with my project goals. I also wanted to work in the community and to help a charity group or organisation. Lockdown put a lot of strain on charity organisations such as Hospice as they were unable to receive donations during lockdown and after lockdown with hygiene and needing donations to not be touched for 72 hours to ensure there was no trace of the virus. This difficulty for the organisation made me want to help them in any way I could so I looked into Helensville Hospice being my client.

## Research Suitable Materials

The materials I will be using will be donated to Helensville Hospice. They have a variety of materials available, which are all part of the problem. Some types of materials are bedding - such as sheets, duvets and pillows, pieces of material and an assortment of different fabrics.

However, the main type of material in the 'abundance of linen' problem is sheets and bedding. There is a complexity of this, as it could be culturally inappropriate to use old bed sheets in many ways, particularly for items that will be near food. As I am creating a sewing pack to make tote bags, it could be inappropriate to use bed sheets as the material because tote bags are often used for carrying food. For some people. This may be culturally inappropriate however I have discussed this with [REDACTED] and she didn't see any cultural reasons why there would be any problems with using donated materials, including bed linen as long as it is mentioned on the packaging somewhere. To ensure that there are no complications around cultural appropriateness with this, I will discuss with my client to see if she would like to use appropriate bedding materials in the pack and mention it on the packaging or avoid this all together.

Because the sheets have been donated, there are many complexities and issues with the source of the material being unknown. This could be unsafe for the customer. Customers also may not be comfortable with purchasing items made of old bed sheets. There could be remnants of bodily fluids such as urine or blood making it insanitary. There is also the possibility that there are bed bugs in the material, which could be transported into the customers home. However, Hospice already has their own safety procedures in place to cover and avoid these complexities.

The second main issue with this project is that for it to be successful, the product needs to sell. This means that the product needs to be practical, functional, affordable and desirable. Designing something that meets all these attributes and reaches the target audience effectively

is difficult because there is such a range of people that shop in Hospice shops. When pinpointing my target audience I brainstormed and researched the social and physical environment of Helensville Hospice to figure out what sort of product would be most effective for selling to customers of Helensville Hospice. The majority of Helensville Hospice customers are local people who are interested in recycling, reusing and repurposing materials and items. I think that my product will be suitable for this target audience as it is repurposing materials.

Another complexity to this project is the limited, varied and infrequent supply of materials. It is not possible to give exact material specifications for this project, as all the materials donated to Hospice need to be used. The ideal fabric for the sewing packs would ideally be something durable like denim or a thick sewing material. However, ensuring that suitable materials are found and selected for being used in the sewing packs is a complexity. A solution to this problem is having the volunteer pack contain a suitable materials chart so they know what to look for and use and what to avoid.

The main complexities of my project are cultural appropriateness of materials (some of the materials are bed linens) and the fact that the products need to be sold for this project to be successful. The majority of the 'abundance of linen' problem is excess bed sheets.

## Research Material Testing (continued)

Normally, I would complete material research and testing. This is where I would research and undertake testing and trialing of my materials such as strength, light fastness, colour fastness, abrasion and durability to see which material is most suitable for my design. However, in my situation this isn't possible because my project is based around using the donated materials at Hospice so I was unable to specify exactly what material I use. I looked at the materials currently available and have taken that into consideration when designing my outcome. There is a lot of uncertainty with the regularity of materials being donated to Helensville Hospice which made it very difficult to design an outcome that is flexible for this variation.

I looked at the materials donated to Helensville Hospice and found that the majority of the materials would be suitable for a tote bag. This is because they are generally a suitable thickness for a sewing machine and because a tote bag isn't clothing there is less specifications in what type of material is needed. Because I can't guarantee which materials are going to be available and can't choose which materials are available, as part of my volunteer pack I am going to help the volunteers identify suitable materials to use for the pack by making a flowchart. This will help ensure that suitable materials are chosen.



## Suitable Processes For Prototyping Research

For my prototyping process for each section (sample, volunteer pack, customer pack, packaging) I am going to research existing products, evaluate them, idea generate, create

concepts, get feedback, prototype and test and trial. By following this process I will ensure that my outcome is the most suitable for its intended purpose.

## Prototyping

I am linking this project with the work I am doing in NCEA Level 3 Design which has helped develop and explore my idea further. Particularly my brand, packaging and logo which has been particularly valuable when developing the promotional aspects of my sewing pack and making it look professional. L3 design is different to Technology in the sense that in design you need to show development with your ideas but don't need to get feedback through the process, whereas, in Technology you show development of your ideas by incorporating stakeholder feedback consistently throughout the project. However, throughout my design process I still got feedback from my Design Teacher and my Technology Teacher even though it wasn't required for me to get feedback on my designs from a level 3 Design point of view.

For the packaging design of the customer sewing packs, I talked to M [redacted] at Helensville Hospice and she said that the packaging would need to be affordable and available as they are a charity organisation. Because sustainability is one of my values and it links to my brief and the sustainable development goals, I wanted to consider this too. Helensville Hospice has a lot of paper bags from when people donate items. M [redacted] suggested that I could use the paper bags they have at hospice as the packaging. This would be beneficial for Helensville Hospice as they already have the paper bags and they were free. However, this would not add value to the 'form' of the design as it would not be as appealing as other options. I looked at Dieter Rams's 10 principles for good design and decided it was important to ensure that my product was good design in every aspect including aesthetic packaging. This will also add more value to the design and make it more appealing which will encourage customers to engage with the product, creating more interest and potential sales.



For the packaging I spent time designing, modelling and evaluating different options based on feedback and have concluded that I will use an A3 piece of card and fold it into a box for the packaging. This is very appealing, functional and comes at a low cost. I chose to do this because I think that the packaging is a very important part of the design and by making sure it is very appealing it will add value and appeal to the product, increasing the sales.



For my instructions, I have designed my packaging box to open out and have the instructions printed on the inside of the packaging so the packaging is not just waste. The packaging is made out of an A3 piece of card and only a very small section of the card isn't used. This meets one of my specifications as I have created a minimal waste packaging design.

With my prototyping, I have prototyped all aspects of my project as it was the best way to check that everything fitted together well. I have prototyped my volunteer kit (and all the aspects included with that) by making all the different parts and testing it as a whole in its intended environment. I have prototyped the customer kit (and all the aspects included with that) such as packaging, instructions, materials and pattern. By making up each section of my project I could see what the final product was going to look like exactly and could evaluate and change the design to ensure all aspects work together effectively. Because there are so many different parts of my project, this prototyping method is the most successful as I need to test the interaction of all the continents and the only way to do that is to prototype it all. I have prototyped the customer kit first as I needed to have this finalised before I could make my volunteer kit.

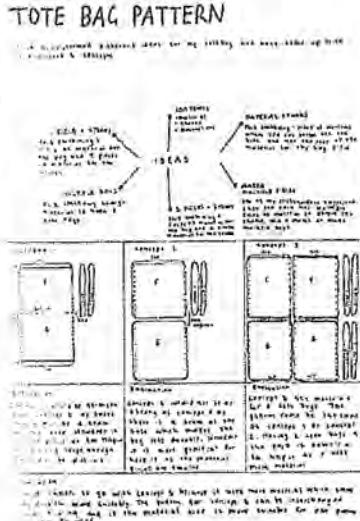
## Prototyping Process - Customer Kit

## Prototype 1

When constructing the prototype for my bag I considered 2 different methods.

- Designing the pattern, designing the instructions and then prototyping
  - Designing the pattern, making the prototype, and then writing the instructions

I got feedback from my materials teacher (one of my stakeholders) on what the best way to do this process was, and she suggested that I design my pattern for what size the materials need to be, and have a brief idea of which order to construct the bag in before I make it. Then during and after I've made it to write my instructions. She suggested this because the best way to get accurate instructions is to write them while constructing the prototype. This way I was able to describe each step accurately making it easier for customers to understand. I took this advice and followed that construction process. It turned out to be very successful and my instructions were very clear and easy to follow as I found out when I trialled my instructions.



I designed my tote bag by looking at existing items and referring back to what M [REDACTED] and I discussed about different elements that should be included in the design. I designed my pattern and spoke to M [REDACTED] again to discuss what she thought of the design. M [REDACTED] loved the shape of the tote bag, she said it was very functional for carrying items as it was rectangular meaning books and taller items would sit better. She suggested that I could "add a small pocket inside the bag so that people can put their keys, phone and other important items in it so they don't get lost in their bag." Another volunteer at Helensville Hospice

suggested that I could "have a small inner pouch for keys that is able to fit inside the bag but tie onto the straps of the bag so it doesn't complicate the pattern."

I took these suggestions into consideration but decided that I was not going to incorporate this idea into my design because it would complicate the pattern and make the sewing pack more advanced which would limit the target audience. When I explained this to M [REDACTED] she agreed with me when I pointed out it would complicate the pattern and said that the most important thing is having a simple pattern so that more people are able to make the tote bags.

I completed my first design and constructed my initial prototype so it could be tested and so I could create the instructions.



### Evaluation Of Prototype 1

I got my Mum to test my prototype when she went to the supermarket so I could get feedback on how strong and suitable the bag was. Her feedback was that it wasn't strong enough and that it did not fit enough stuff in to be functional. She also said there was a lot of weight on the base of the bag putting pressure on the material. The bag could not also hold very much weight and the seams were not strong enough to be practical.



I took her advice and made changes to my design. The important functional aspects of a tote bag are size, shape, strap width and strength. The size and shape of prototype 1 was functional and met the requirements for a good quality tote bag, the strap width also was comfortable and practical. The strength of the bag was not functional and there was a lot of pressure on the seams. There was also a lot of pressure on the base of the bag.

To solve these problems, I decided to make a second prototype and to change aspects of my design to make it more fit for purpose.

## Prototype 2

In the second tote bag prototype, I was focusing on making the seams and base stronger and able to fit more in. I changed my pattern to fix these issues. The changes I made were:

- Changing the side seams to french seams, so that they were stronger. French seams are not hard to sew, they are significantly stronger and the finishing is really nice. They are also more durable and can't fray meaning the bag will last longer and be more sustainable.
- Adding a base to the bag which puts less pressure on 1 singular point of material and gives more space in the bag. It is very simple to do as you sew a small seam on each of the corners of the bag but gives the bag better weight distribution and creates more space in the bag.



## Evaluation Of Prototype 2

The second tote bag prototype was more practical making it more fit for purpose than the first one. My Mum trialled it again and she noticed a significant difference in the practicality of the bag. She noticed a difference in strength and space available, commenting that she felt less strain on the straps of the bag as the weight was more evenly distributed. She also said that the finishing of the bag with the french seams made the bag seam tidier and more professional. I took this prototype to M [redacted] for feedback and she said she was very pleased with the design and thinks that it is functional and achievable for people to sew.

Another one of my stakeholders, my technology teacher, suggested that I use 2 different pieces of material for the bag as it would be easier for hospice to find smaller pieces of material. However, I decided not to do this because there would have to be a seam along the bottom which would make the bag less durable and strong. I needed to prioritise the strength of the bag to ensure it is functional.

## Packaging Prototyping

For the packaging, I looked back at my specifications and thought of ways that I could make it as sustainable as possible. I decided that I could stick my instructions on the inside of the box which would mean my packaging wasn't just waste and it has multiple uses. I wanted it to not be wasteful prototyping, I made up small models of many different net shapes before making a larger model or my chosen packaging design. I did this because I wanted to see how the different boxes functioned and to figure out from that how big and what design to make my real package. For my small models I used A4 pieces of card and I was able to see how the different designs functioned and how to make different shapes.

### Packaging Concepts



FINAL DESIGN

From prototyping my concepts, I got feedback from my stakeholders and was advised to use packaging design number four by my technology teacher. She said, "I liked the ease and simplicity of the 4th one. It is very eye-catching and will be easy for the volunteers to replicate". I also got feedback from another one of my stakeholders, who also suggested design number 4 because "it will be easier to package up, as the other



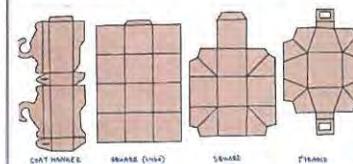
### PACKAGING

**INITIAL IDEA**  
For packaging, I wanted it to be something easy and sustainable. My teacher, Michelle (my tutor) suggested that I use recycled cardboard and paper bags. Last year, we had done a project on paper bags and I thought that paper packaging was perfect for what I wanted to do.

**EVALUATION**  
I did some research and idea generating about packaging and found that almost all packaging has products inside. Most of these are given away with as soon as they are packed. I wanted to make sure that my packaging would be useful for a longer time. I didn't want people to throw it away as soon as they got it. I could come up with a few different designs.



**IDEA DEVELOPMENT**  
I did more research into packaging and came up with the idea of having my instructions on the inside of the box. This way, the instructions will be stuck inside the packaging so that people can get them out as soon as they open it. I wanted to make sure that the box was sturdy enough to hold the weight of the bag. I also considered different box sizes to see what design worked best for my bag.

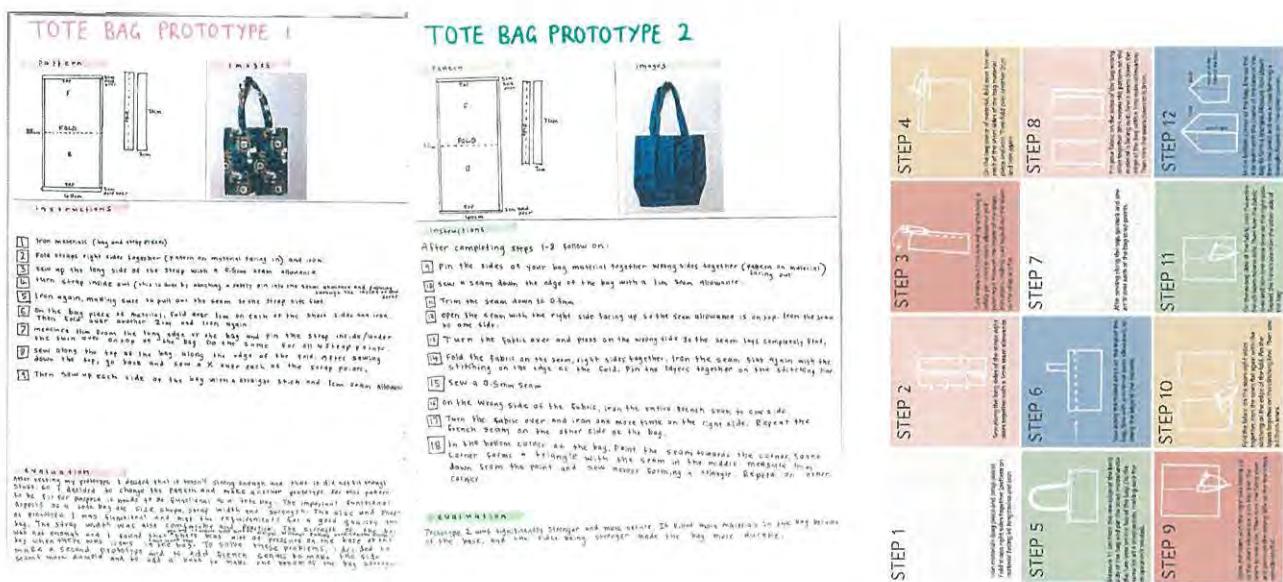


**EVALUATION**  
I did more research on each of the different box sizes to try which one going to be most suitable for my design. I chose a square box. This way, I could fit more materials inside. Then, after prototyping, I found that the square box was the easiest to fold and fit all the materials in. I also found that the square box shape took all the materials for 2 bags and even kept some extra as there was waste in the corners around the bag.

designs are more complicated". I have evaluated my feedback, and have chosen design number 4 to use for my packaging. I made a larger model using an A3 piece of card to trial a larger model. When I put the materials inside the box, by pure luck it was the perfect size for the materials needed for 2 tote bags. This gave me the idea to have my sewing packs contain 2 tote bags which actually suits my project goals better and meets my brief more accurately.

## Instructions Prototyping

I developed my instructions for prototype 1 while sewing my bag. I then changed my instructions while developing prototype 2. This was because I changed my pattern and also did testing and trailing meaning that I had changes to make to the instructions.



## Trialling The Customer Kit Prototype

I trialled my prototype customer kit on 2 of my stakeholders. I wanted to get feedback on the instructions so I could clear up anything that didn't make sense. I also wanted feedback on the pattern and if it was too difficult for beginners.

Stakeholder 1 found the difficulty of the pattern achievable and said it was because my instructions were easy to follow. They gave me feedback on a few sections of the instructions where I could make it a little bit clearer on what to do.

Stakeholder 2 found that the pattern "worked well and wasn't difficult to follow." They also said that the final product was designed well and they complemented the shape, and strength of the bag with the seams and base.

Neither of my stakeholders had sewn french seams before, and managed to sew them perfectly on the first try. French seams can be difficult for people to understand how to sew so I'm very glad that they both understood how to sew them. This is also a good indication that my sewing pack is beginner level and will be achievable with little sewing experience. After getting their feedback, I edited my instructions (predominantly my diagrams) to be a little clearer in the areas where they suggested.

Because they both managed to sew the bag successfully with the instructions as they were, I decided I didn't need to do a second trial as I made changes to my instructions based on feedback to help ensure my instructions were easy to understand. I edited my diagrams for steps 3, step 6 and step 7 to have arrows. This was suggested by both of my stakeholders who tested the instructions as it helps to clarify what the step is instructing. I also changed wording for step 12 to make more sense after consulting with my stakeholder. After these changes, I can be confident that my instructions are clear and achievable and that customers will be satisfied with my pack.

I took my final prototype of my customer kit to my client M [redacted] at Helensville Hospice for feedback. She suggested that in my sewing pack instead of having 2 tote bags the same size I could have them different sizes, so one could be large and one could be small. I thought that this was a great idea and decided to incorporate this feedback into my design. I looked at the size of the tote bag and redesigned my pattern so that I kept the same scale and dimensions but made another one slightly bigger. I considered making the other tote bag smaller than my current prototype but I think that if I made a smaller bag it wouldn't be functional as it wouldn't be useful. This is because generally tote bags are for carrying groceries or shopping in so if it was too small it wouldn't be functional as a tote bag.

## Evaluation Of Prototyping - Customer Kit

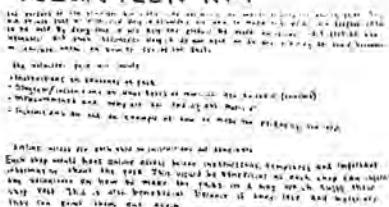
The prototyping of the customer kits went really well as I was able to make a physical tote bag and evaluate the design and remodel it to be more functional. Writing the instructions while making the tote bag was beneficial as I was able to describe each step more accurately as it was 'in the moment'. I also took photos at each step which meant that my photos and instructions lined up. The trialling of my customer pack was also successful as my stakeholders were able to follow my instructions and complete the bags without any assistance.

Prototyping for the packaging was beneficial as I was able to make the boxes and see how they functioned and how much space was in each design. I also was able to see how they were all made and think about how practical it would be for the volunteers to make up. When designing my packaging I also had to consider how it would be made up by volunteers as the packaging would need to be affordable for hospice and easy to produce by volunteers.

## Prototyping Process - Volunteer Kit

The purpose of the volunteer kit is to provide information for how

### VOLUNTEER KIT

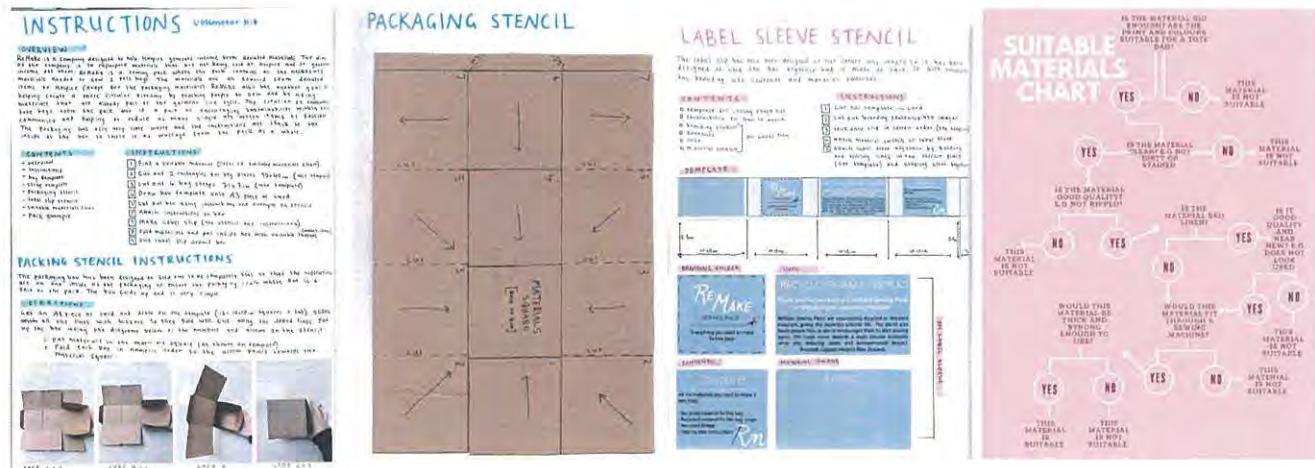


to put together the sewing packs. This will ensure that all Helensville Hospice volunteers are able to make the packs and prepare them to be sold. This generates income for hospice and meets my project goal. By doing this, it will help the product be more successful. If I provide the volunteer kit then Helensville Hospice do not need to do any training for their volunteers to educate them on how to set up the packs.

I constructed my volunteer kit by brainstorming different things that I needed to include in the kit to figure out what I need to make. I then started to design and prototype the different parts of the kit. I made these up and took them to Helensville Hospice to test out and see if there were any changes that needed to be made. I also got stakeholder feedback from my client M [REDACTED] which helped me to develop my kit further.

The volunteer pack will include:

- Instructions on contents of pack
- Diagram/instructions on what types of materials are suitable (swatches)
- Measurements and template for cutting out material
- Instructions on and an example of, how to make the packaging and label



## Trialling The Volunteer Kit

I took my prototype of the volunteer kit to Helensville Hospice to get feedback from M [REDACTED] and to trial it with the volunteers. They gave me very valuable feedback on different aspects of the volunteer kit.

I received feedback on the volunteer pack construction instructions.

*"With the volunteer pack instructions, make the font big enough for the volunteers to be able to read as the majority of volunteers are elderly and/or have glasses"* This was a very valid point that I hadn't taken into consideration when writing up my instructions for my prototype as I had

hand written them. I took this into consideration and have decided to type up the instructions for clarity and to enlarge the text.

*"Break up all the information in the volunteer pack into smaller paragraphs so it's easier to read and people are less likely to get lost"* When typing up the instructions I will separate the information accordingly.

*"Can the template be printed onto the A3 card for the box so the volunteers don't need to draw on the template?"* This was a good point, however, there would be costs involved with printing this onto the packaging card. I have pitched this idea to M [REDACTED] and have told her that it is up to her for what her priorities are between cost and practicality.

This feedback has been an important aspect of developing my final prototype and has ensured that my prototype is fit for purpose and is able to be constructed by volunteers. Some of the feedback I received I would have not considered so this trialling process has helped ensure I develop my outcome so it is suitable and ready to be sold.

## Evaluation Of Prototyping - Volunteer Kit

For the volunteer kit prototype, I modelled up the different parts of the kit (packaging stencil, label slip stencil, suitable materials chart) and trialled it with the volunteers at Helensville Hospice. They gave me very valuable feedback and I made changes to the kit accordingly. Trialing the pack and getting feedback on how functional the pack was ensured that the volunteer pack is going to be successful. The only way to know if the pack is going to work or not is by trialing it. Getting feedback directly from the volunteers while they were trialing the kit was also beneficial as I was able to get feedback from them directly and see where they got stuck or when they were giving me feedback for certain parts I was able to see it in context.

## Evaluation Of Prototyping For The Bag, Customer Kit And Volunteer Kit

With my prototyping the bag, I wasn't able to do traditional prototyping such as durability and strength testing of materials because I have very little control over what materials are able to be used for the sewing packs. However, I was able to prototype the design of my bag and adapt it and accordingly. I could also trial the positioning of logos for the packaging of the customer kit, review instructions, and choose colours while also completing constructive testing of all three prototypes.

The prototyping for the bag was beneficial and successful as I was able to test it and make changes based on feedback from my stakeholders. I was also able to construct my instructions during the prototyping of the bag pattern.

The prototyping of the packaging was also beneficial as I was able to see how big it was and this made me consider having the pack contain 2 tote bags. If I had not prototyped my pack I wouldn't have considered this and therefore wouldn't have developed my idea to incorporate

this. Having two tote bags in the pack suits my brief more as it contains more materials and therefore meets my brief more effectively.

## Planning - Milestone 2 Review

Milestone 2 took significantly more time than I expected to complete. This was partially because of the inconvenience in the timeline of the second lockdown. I had planned to do prototype testing during this time so I had to push it back until after we had come out of alert level 2 to be able to visit my client in person. This pushed me back in my timeline greatly and condensed the rest of my project into a short period of time.

I think I should have planned to do my prototyping earlier on as this would have given me more time to change and get feedback on my prototype. However, even though this happened later than planned, I was still able to implement necessary feedback and improve my prototype to be fit for purpose in the broadest sense.

## Final Brief

I looked at my initial brief and made changes based on my prototyping and project development. As my project unfolded I also further developed my attributes and specifications. Changes from my initial brief to final brief are highlighted in yellow.

### Context

The UN Sustainable Development Goals also known as “global goals” have been put in place to help create a better world. There are 17 goals that together address the world’s issues and work towards creating a better world by ending poverty, fighting inequality and addressing the urgency of climate change.

A significant issue in the fashion industry today is textile waste. Textile waste is a serious environmental issue which cannot be ignored any longer. The UN global goals specifically goal 12 (responsible consumption and production) address this issue and have a target to reduce waste generation through prevention, reduction, recycling and reusing materials. This links in with moving from a linear to a circular economy and considering other approaches to how we use garments. Such examples might be moving towards leasing clothes, providing repair services and even buy back options. The textile industry is also one of the biggest polluters and employs millions of people from the growers through the supply chain to retailers.

Fashion revolution discusses the many issues within the textile industry and promotes the importance of being informed about these issues, “The fashion industry carries on polluting our atmosphere and water sources. Ancient forests are being cut down to create leather and textiles, animals are regularly mistreated, and landfills are piling up with disused clothes. As consumers, it’s still very difficult to find credible information about the working conditions and environmental impacts behind what we buy<sup>8</sup>”

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<sup>8</sup> <https://www.fashionrevolution.org/why-do-we-need-a-fashion-revolution/>

Textile waste is an issue which is complex to solve. This is because there are so many contributors and aspects of the problem meaning there is not 1 clear solution. The issue of fashion waste is getting worse, and as the resources on our planet are finite.

### **Conceptual Statement**

Use the United Nations Sustainable Development Goals to solve a local community problem so that textile waste is being reduced from landfill and at the same time generating an income.

Helensville Hospice has so much stuff that gets donated that they are unable to sell for various reasons. The main part of the problem is that there is so much material donated that they can't sort through, label and organize it to be sold. A solution to this 'abundance of linen' problem needs to be found. The solution needs to be more environmentally friendly and more economical. This excess material does not currently generate any income for hospice, so the solution needs to generate income for hospice.

### **Constraints**

- Must be completed by the end of term 3
- Must use recycled or donated materials
- Needs to have a community focus
- Not just a one-off project, need to develop a sustainable project which can be continued
- Meets at least 1 UN sustainable goal target and supports at least 3 goals
- Helps people develop new skills
- Generates income for the community group
- The outcome will be of equal or greater value than its current state
- That the project and client are local and within the school zone or catchment area

These constraints helped me to develop my attributes and in turn, my specifications. This helped me to define my project goals and ensure that I was meeting mine and my clients needs.

### **Project**

ATTRIBUTES	SPECIFICATIONS
Must be completed by NCEA deadline	12 Nov 2020

Needs to have a community focus	The project and client must be local and within the school zone or catchment area.  It also must be a charity or voluntary organisation.
Supports the UN sustainable goals	Meets at least 1 UN sustainable goal target and supports at least 3 goals
Generates income for the community group	Creating a saleable product
The outcome will be of equal or greater value than its current state	Selling it for more than it costs

#### Customer Pack

ATTRIBUTES	SPECIFICATIONS
Must use recycled or donated materials	All the materials for the project must be recycled, donated or sustainability focused.
Helps people develop new skills	Sewing skills are developed
Considers good design e.g form and function	Follows Dieter Rams' 10 measures of good design
Minimal waste packaging	Packaging is to be compostable or recyclable (paper)  Have as little waste as possible.  Have more than 1 use (instructions and packaging combined)
Clear on what it is and what material it contains	Label slip around outside of the box will have clear branding and space for material swatches

#### Volunteer Pack

ATTRIBUTES	SPECIFICATIONS
Not just a one-off project, need to develop a sustainable project which can be continued	Must be able to be continued by the client with enough knowledge and information to do so
Helps people develop new skills	Upskilling a workforce in new skills

Able to be used in multiple Hospice Shops	All information is scanned or typed up online so it is easily transferable throughout different shops
Able to be followed by someone who has no training on how to make the packs	Very clear instructions, diagrams and templates on each aspect of the pack

## Prototype in The Intended Environment

Testing my prototype in the intended environment was very complicated as there are so many different parts to my project. True testing of my prototype in the intended environment for the customer pack would be giving packs to Helensville Hospice shoppers and asking them to trial them and give me feedback. This is complicated because I cannot guarantee I would be able to get back in touch with the customers or guarantee if they would trial it and give me accurate feedback. Because of this, I have decided to do a 3 month trial period at Helensville Hospice where I monitor the sales and feedback from the sewing packs and have regular meetings with M [REDACTED] to discuss the progress. Because my sewing packs are new at Hospice I can guarantee that customers will talk to the volunteers about them and will give feedback as they are a hospice run project. I will be able to use this feedback and change my design in the future.

For the testing of the prototype volunteer pack in its intended environment, I was unable to do true testing either. This is because it would involve having volunteers make up packs along with other daily and weekly tasks so I could evaluate how long it would take for them to make the packs and how many get made each week compared to how many get sold each week. Because I was unable to do authentic testing of the prototype in the intended environment, I will also monitor the volunteer packs for the three month trial period and will adapt the pack as needed from the feedback and data gained from the trial. However, I discussed it with a couple of volunteers and they think that it may take a lot of time to make up the packs, especially in the beginning when volunteers are still unsure on how to put them together. They gave me some suggestions on how I could make this easier for them, which I have taken into consideration and have passed onto M [REDACTED] to evaluate whether it will be beneficial enough to pay the extra costs of printing a template onto the box or if it is worth the time spent by volunteers drawing the template on to save money.

I gave customer packs to two of my stakeholders to take home to complete and give me feedback. I have done this because it is a simulation of how the pack will actually be made up by customers and it was authentic as it was as close to testing the prototype in the intended environment as I could get. I think that this trialing process is beneficial because it is representative of the real purpose of my product and my stakeholders are testing it in an environment which is the same environment customers will be making up the packs.

I was unable to do an authentic test of the volunteer pack in its intended environment but I still did trial the volunteer pack at Helensville Hospice with volunteers. I was able to see if the prototype was successful and get feedback which was beneficial as the volunteers at Helensville Hospice are my intended audience for the volunteer pack. This was as close to

testing the prototype in its intended environment as I was able to get, but was still an authentic trial of my prototype where I gained valuable feedback.

## Planning - Milestone 3 Review

Because of COVID19, I had to adapt my milestone 3 timeline as well as my timeline for milestone 2 as I was unable to trial my prototype at Helensville Hospice with the volunteers for a period of time when coming out of alert level 2. This took much longer than expected, but I did manage to trial my prototype, just later than I had planned for. I completed the rest of my milestone 3 but it was very close to the deadline and I had to juggle deadlines in both technology and design, but I managed to complete both intime.

## Final Evaluations

### Evaluation - Planning

The main planning methods I used throughout my project were a calendar diary and checklists. Using the diary I was able to plan out which tasks I was going to do each week and keep an overall idea of my timeframe. Using checklists in conjunction to this was beneficial because I was able to use the checklists to allocate tasks to my diary. Checklists also helped me to separate different sections of the project into tasks which made it easier to organise and achieve. These planning methods worked well together but they were missing vital organisational aspects that I think would have helped my project planning. Often throughout my project I was stuck on what to do and didn't know where I was upto with my project as a whole. I think that if I had used something like a Kanban board to organise tasks for my project then it would have been easier.

I think I may have overplanned certain aspects of my project and under planned others. With tasks such as brainstorming and idea generating I may have overplanned and spent too much time doing. Other aspects, like planning out my timeline I under planned as I did not do this effectively. I did not know how long each aspect of my project would take so I only set out vague guidelines and goals for myself in the form of milestones. I think that if I had set out clearer goals for completing different aspects of my project and broke down the sections, then it would have been much easier to keep track of where I was at and what I needed to do to keep moving forward. Again, the use of a kanban board would have helped in this situation.

In the beginning of the year when I was doing my main project planning, I was also unaware that COVID-19 would have such an impact on our school year. It was very hard to plan as there was so much uncertainty with when we would be in lockdown and when we would be at school. This impacted my planning and project timeline greatly as I had to adapt and prioritise tasks at different times. This often differed to my timeline as I needed to make the most of being able to interact in person with my client and do my prototyping and testing and trialing while being able to meet with my stakeholders in person. I tried to reallocate tasks accordingly as it came up but

it was hard to manage tasks while having so much uncertainty.

## Evaluation of Conceptual Statement

I have met my conceptual statement from my brief, and in turn have met my project goals. In the conceptual statement of my final brief, I discuss helping to reduce fashion waste and creating a more circular economy. I have definitely incorporated this into my project, and have ensured that my project makes a difference not only for Helensville Hospice, but bigger issues associated with waste and sustainability, which links to the Sustainable Development Goals. My project also works towards goal 12 target 12.5 - By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. My project has targeted repurposing donated materials which links directly to this target.

## Evaluation - Prototype

I have trialled and received feedback on all aspects of my prototype continuously throughout the design and construction process, making changes accordingly. My final prototype for the tote bag pattern, customer kit and volunteer kit are all fit for purpose in the broadest sense, they meet my brief, have good form and function, and are suitable for my client.

I received feedback from my client on the different aspects of my final prototype for the customer kit. Her overall feedback of the product was "This is definitely sellable, doable, great for the planet, and a great solution for our excess linen"

Instructions	Packaging	Label
		
"Love the colours they all fit together so nicely and suit the product well"	"The packaging is really modern and easy to read I really love it"	"I love the font on the label sleeve and the way it looks with the white writing"

My final prototype is able to be adapted and improved based on the trialing of the packs at Helensville Hospice. I will trial them for 3 months, every month having a meeting with M [redacted] to talk about how they are going and make any necessary changes to the design. This trial period will allow me to get feedback regularly and have a long enough timeframe to test the product effectively. If the sewing pack is very successful, I can discuss with M [redacted] the possibility of

expanding the project, maybe even turning it into a business so it is able to have multiple different types of packs such as having a pack for aprons or cushion covers.

### Evaluation - Specifications of customer and volunteer kits

#### General

ATTRIBUTES	SPECIFICATIONS	Justification
Must be completed by NCEA deadline	12 Nov 2020	My project and report were completed on time and my report submitted. My timeline for my project changed due to having to adapt with COVID-19 but I managed to have everything completed by my deadline.
Needs to have a community focus	The project and client must be local and within the school zone or catchment area.  It also must be a charity or voluntary organisation.	This specification was met as my client was Helensville Hospice which is located 1.6km from school. It is also a charity and voluntary organisation.
Supports the UN sustainable goals	Meets at least 1 UN sustainable goal target and supports at least 3 goals	Meets UN goal 12 (responsible consumption and production) by reducing waste generation through, recycling and reusing materials, supports goals 11 (sustainable cities and communities) as this is a community based project , 13 (climate action) as this is helping the environment by reducing waste and 9 (industry, innovation and infrastructure) because this project has looked at a problem and come up with an innovative solution that links to the greater context of fashion waste.

Generates income for the community group	Creating a saleable product	<p>My sewing packs are able to be sold at Helensville Hospice to generate income for their charity from materials that were otherwise not generating any income.</p> <p>My client M [REDACTED] commented that "This is definitely sellable, doable, great for the planet, and a great solution for our excess linen" These sewing packs will also help encourage people to buy more donated materials from hospice shops for other projects, also generating income for Helensville Hospice.</p>
The outcome will be of equal or greater value than its current state	Selling it for more than it costs	<p>Hospice are now able to sell the materials that they were otherwise unable to sell as they did not have a successful way or doing so. This results in my outcome being of greater value than the current state. In my volunteer pack, I have also made a suitable materials flow chart which is simple to follow and can be used for sorting through all the material in general. This will help volunteers sort through the materials even if it is not for the sewing packs and will help them tackle the abundance of linen problem. The sewing packs also encourage effective organisation of materials as hopefully they will sell really well and be in high demand which will mean Helensville Hospice will sell lots of materials regularly. This makes my outcome of</p>

		greater value than its current state.
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## Customer Pack

ATTRIBUTES	SPECIFICATIONS	
Must use recycled or donated materials	All the materials for the project must be recycled, donated or sustainability focused.	The fabrics for the sewing pack are all donated and repurposed. The packaging is sustainable as it is paper and is not single use as the instructions are part of the packaging. The label sleeve is also paper making all of the packaging sustainability focused, recyclable and compostable in certain conditions. The materials in the sewing pack are also repurposed which has extended the garment life cycle.
Helps people develop new skills	Sewing skills are developed	My outcome teaches people how to sew or encourages people to start sewing again. This a vital part of moving forwards and creating a more sustainable fashion industry where repurposing and mending is a priority.
Considers good design e.g form and function	Follows Dieter Rams' 10 measures of good design	The balance between form and function has been evaluated and implemented in suitable places. Function has been prioritised in the bag pattern and form and function have been prioritised equally in instruction and packaging design and construction.
Minimal waste packaging	Packaging is to be compostable or recyclable	All contents are either compostable, recyclable or

	(paper)  Have as little waste as possible.  Have more than 1 use (instructions and packaging combined)	reusable. The packaging is card, instructions are paper, label slip is card, branding, contents and information is printed on paper. The box and tote bag are reusable.
Sewing pack is clear on what it contains	Branding, contents, and other important information is displayed on outside of packaging	Label slip around outside of the box has branding, contents and space for material swatches. It is clear, simplified and easy to understand.

#### Volunteer Pack

ATTRIBUTES	SPECIFICATIONS	
Not just a one-off project, need to develop a sustainable project which can be continued	Must be able to be continued by the client with enough knowledge and information to do so	A detailed volunteer pack has been constructed and all aspects of the design have been considered.  Contents of pack: <ul style="list-style-type: none"> <li>- Instructions on contents of pack</li> <li>- Diagram/instructions on what types of materials are suitable (swatches)</li> <li>- Measurements and template for cutting out material</li> <li>- Instructions on and an example of, how to make the packaging and label</li> </ul>
Helps people develop new skills	Upskilling a workforce in new skills	The volunteers learn new skills by making up the packs, such as material selection, pattern cutting and box construction. The volunteer kit has helped the volunteers develop new skills

		which they will implement into different aspects of their shop. The volunteers have already commented on multiple uses for the packaging design within Helensville Hospice such as lucky dip boxes.
Able to be used in multiple Hospice Shops	All information is scanned or typed up online so it is easily transferable throughout different shops	The volunteer pack has been designed online and on paper so packs can be shared online and other aspects can be delivered on paper. The pack is transferable across different hospice shops as it has not specifically been designed for Helensville Hospice volunteers. I have tested the volunteer pack on some of my other stakeholders to check that it is understandable for different types of people in different environments.
Able to be followed by someone who has no training on how to make the packs	Very clear instructions, diagrams and templates on each aspect of the pack	All aspects of the volunteer pack are very clear and have been tested multiple times to see if the instructions are clear enough by a variety of different people of different ages and skills. I tested this with the volunteers at Helensville Hospice and they were fully capable of putting together the packs by following my instructions.

## Evaluation - Fitness For Purpose In The Broadest Sense

### Acceptability Of Ideas

I have looked at different ways that my project could be socially and culturally inappropriate and

have ensured to avoid any areas where this may be an issue. My client and I managed the potential issue of the name and branding being socially insensitive towards families supported by Hospice care. We discussed this straight away and came up with ideas on how to avoid this before it became an issue. We were very careful to avoid any terms that may be misinterpreted or misused because of the social and physical environment of my client being a Hospice organisation.

I have managed the issue of materials potentially being socially inappropriate by giving clear instructions on which materials are suitable for the tote bags and which materials are not acceptable via the suitable materials chart. This has also managed the issue of potentially using bedding in a way which is socially inappropriate. However, [REDACTED] has clarified that it is not culturally inappropriate to use bedding materials for tote bags as long as it is mentioned somewhere on the label.

The only social and cultural issues associated with material pattern my project are cultural appropriation of materials and socially unacceptable prints. This is avoided by giving clear instructions on what suitable materials are and noting that specific Maori designs or patterns may need to be consulted by the local Iwi before using.

### Sustainability Of Resources

Sustainability is a very important value to me and I have considered this in every aspect of my project. From client and project choice, product choice and design (reusable tote bag), packaging design, and skill set learned from the producing and making product I have incorporated sustainability. I have been very conscious of the sustainability of my prototyping and trialing process throughout the designing and construction of my product. I have considered the Sustainable development Goals throughout my project and have incorporated them in different aspects of my project.

### Ethical Nature Of the Testing

For my project, I wasn't working with anything that is controversial in any way except for the potential choice of socially inappropriate material. Because of this, my testing and prototyping didn't have any ethical complications. The only ethical complications for my testing and trialing was ensuring that my stakeholders that were testing my prototype were not wasting any valuable class, work or volunteer time. They each managed this and ensured that this wasn't interfering with their personal commitments.

### Determination of life-cycle and maintenance and ultimate disposal of prototype

I considered the life-cycle and disposal of my prototype from the beginning. I planned that my final prototype of my packaging would become the example kit for the volunteer pack as I was going to need to make an example customer pack for this anyway. By reusing my prototype for this, I am saving materials. This circularity of the design has given my prototype an extended lifecycle and when it is needed to be ultimately disposed of the materials can be composted or recycled.

## Health And Safety

I considered and managed the health and safety of different aspects of my project continuously. This includes, health and safety of the hygiene of the materials for customers and volunteers which I managed by making the suitable materials chart to avoid using unsafe or unhygienic materials. Helensville Hospice already has their own health and safety systems in place which combined with the suitable materials chart keeps everyone safe. I managed the health and safety of my prototyping by ensuring I was following safety protocols of safe sewing machine and iron usage, posture and lighting. I also implemented health and safety into my tote bag design when I prioritised wide handles and a supportive base to distribute weight evenly and created a more comfortable bag. This protects the customer from hurting themselves when using the tote bag and makes it more comfortable. When my mum trialled the second prototype she noticed a significant difference in the support and comfort in the use of the bag, which shows that health and safety of the customer has been a priority throughout the prototyping process.

## Modifications

Prototyping is necessary in order to design and construct effectively and allow it to be fit for purpose. However, even with prototyping there is no guarantee that it will be for purpose in the intended environment. Testing the prototype is the only way to see how effective the outcome is. What I have produced is a prototype for the bag pattern, customer kit and volunteer kit which means that after testing it in the intended environment there will still be improvements that can be made. As a result there are modifications that I would make to all three aspects of my outcome.

For the tote bag pattern, I will evaluate the feedback from customers at Helensville Hospice during my 3 month trial period, and see if the pattern is already too complicated, or if I am able to add in more complex components like pockets, to modify the design to be slightly more complicated. If I am able to modify the design I will and will also consider modifying other aspects as well. For example, whether or not to add a stronger base to the bag such as, a piece of strong material or recycled plastic at the bottom of the bag. I would also consider modifying the straps to make them even wider and potentially thicker. After more testing and trialling I will see if the strap points are durable enough for heavy items and will consider developing these to be more durable.

I would consider modifying the customer kit to be simpler so it is easier to construct by volunteers. During my testing of the volunteer kit, one of the volunteers pointed out that this is very time consuming to make up the packs so I could potentially consider simplifying the packaging. However, I don't want to change the customer kit too much because the design of the packaging is very unique, effective and interesting. I think it is a really important aspect of the pack so if there is a way to keep it the way it is but make the construction faster for volunteers that would be ideal.

Modifications to the volunteer kit would be simplifying it. There is a hard balance between making it simple but still detailed enough for it to be understood by everyone. This is complicated as I need the volunteer kit to be very detailed so it is easily understandable but also simple enough so volunteers want to make up the packs and not see it as being too difficult or time consuming. I could modify the volunteer pack and investigate ways to make the construction process faster such as getting the cutting out template printed onto the card. I also would investigate and test different methods of sticking the instructions down to see how I could make it faster to construct. However, there is a balance between making it easier and more cost effective. Because this is a voluntary organisation, I have been very conscious with costs and have tried to ensure that the costs of the sewing pack production are minimal.

## Critical Reflection And The Overall Conclusion

As this report shows, over the past year, I have applied technological processes to develop a prototype to solve my clients issue of how to utilize the excess linens donated to them. I have developed an outcome that is fit for purpose, meets the brief's specifications and is a good design combining form and function accordingly.

One of the challenges with this project was adapting around COVID19. Because it was so uncertain, it was really hard to progress as a lot of my project needed to be approached in a different order to ensure I was using my time during the lower alert levels wisely. This also meant that I didn't have as much time in person with my client for discussion and testing and trialing as I expected. This was not only because of the lockdowns but was because Helensville Hospice wasn't able to be open until alert level 1 so I wasn't able to go and trial as often as I wanted to as there were only select periods of time where this was able to happen.

For me, another struggle was selecting my client and project. This took a significantly longer time than I had planned for. I suspect this was because I was very particular with which type of project I wanted to because I was very set on wanting to work on a truly authentic project where I would be able to truly explore ideas and go through the design process. I am very pleased with the client and project that I chose. I know that this project will make a difference in Helensville Hospice and that M [REDACTED] is genuinely pleased with the outcome.

Combining this project with my Level 3 Design was extremely beneficial as I was able to develop both of my outcomes on a greater level as I had deeper thinking behind the whole project. The projects crossed over with a really good balance which enabled me to develop aspects of my design board and technology project in different directions in order to meet my different briefs. Combining them together was greatly beneficial to both projects as I was able to develop my design board with purpose and meaning behind each idea. My technology project has a much more professional and modern design for my packaging and branding than it would have if I hadn't combined the two together. It was also beneficial for my time management this year, as it enabled me to work smarter and with depth.

I have also considered some new directions I could take my project such as making multiple patterns for other sewing packs like aprons and organising events where the sewing packs are made up or are sewn. By creating multiple sewing pack patterns it will reach a larger target audience and will make better use of a variety of different sized materials. I would ensure that

the patterns for the other sewing packs are suitable for a large range of people, like the tote bags. This means that there is a greater chance of more people purchasing the packs, which uses more materials from Helensville Hospice and also generates more income.

I could additionally extend my project by creating volunteer working bee events where volunteers package up sewing packs so they can be distributed effectively across the different shops. This would mean that large amounts of the packs would be produced in a short amount of time. One issue of making up the sewing pack is that it takes a lot of time to put them together. By creating a large scale event, they can be made up in bulk. The event would also educate people on how to construct the packs which would make the process quicker for regular volunteers. It would also help promote the product which could help Helensville Hospice gain new volunteers or customers for the packs.

My project could also be extended by creating an event where there is a mass volunteer bee of making items. This would be using the sewing pack patterns to sew ready made tote bags which would be sold with purchases at Helensville Hospice. This would extend my project on another level and would help to use materials donated to Helensville Hospice and would generate income for their organization.

I could also potentially extend the project to be a stand alone company that is not run by Hospice. The company would still use recycled and donated materials from Hospice and other organisations where material is needed to be repurposed and sold. The company would either donate a certain percentage of income from each product to Hospice or would come to an arrangement for any purchasing materials. The company could also have its own material donation collection points where members of the public that are not located near Hospice shops could donate materials to. This would increase material donations, enabling the company to grow and expand. By being a standalone company, it would reach a greater target audience as it wouldn't just reach people who shop in hospice shops.

I have learnt so much throughout the process of completing this project. I have been able to push myself creatively to come up with an authentic solution to Helensville Hospice's 'abundance of linen' problem. I have also created a sustainable and minimal waste packaging solution with an innovative way of combining the packaging, instructions and branding. This project was incredibly rewarding and I am very excited about the outcome of this project and to see how I can expand it in the future. I will ensure I continue an ongoing working relationship with Helensville Hospice and I intend to keep developing the product in conjunction with them. It is very rewarding knowing that I have met a genuine need in the community and that this project has helped Helensville Hospice solve their 'abundance of linen problem.'

## Outstanding Scholarship Exemplar 2020

<b>Subject</b>	Technology (Soft Materials)		<b>Standard</b>	93601	<b>Total score</b>	19
<b>Q</b>	<b>Score</b>	<b>Annotation</b>				
Synthesis and Integration-	07	<p>Tote bag construction kits have been developed for a real and prevailing authentic issue that exists within society. Requirements and attributes are informed by ongoing research to establish and refine the parameters of the brief in the broadest sense.</p> <p>The appropriate knowledge was extracted and presented in a concise and efficient manner. The candidate commentary throughout the submission clearly communicates the technological process undertaken.</p> <p>The project flows easily demonstrating good design thinking.</p> <p>A well thought out and developed prototype is underpinned and informed by key stakeholder interactions. Demonstrating a level of optimisation and simplicity leading to a level of refinement that is highlighted by the range of technological experiences undertaken by the candidate.</p> <p>The ongoing testing and knowledge that has been integrated within the project demonstrated the required elements of synthesis and polish that led to a prototype that is seen as good design.</p>				
Justification	06	<p>A combination of very good essay structure and the prudent use of imagery provides visual connections to support the ongoing commentary. This is aided by evidence that is always relevant and with limited repetition of content.</p> <p>The candidate has removed irrelevant content associated with other Achievement Standards that fall outside the Scholarship criteria from a larger body of work. This allows the candidate to communicate convincingly, and enhances the seamless technological practice undertaken to include the justification of their prototype whilst also demonstrating the complexities and constraints of how the developed prototype was resolved and reviewed throughout the project in an organised manner.</p> <p>The result of this allowed the candidate to justify both their technological practice, decision-making and the effectiveness of the prototype.</p> <p>The candidate has provided a clear and justified narrative that further enhances the markers' perception of the product.</p>				
Critical reflection	06	<p>In this report it is evident that the candidate has critically reflected on their own technological practice.</p> <p>Good use of external technologists and experts is evident during the prototype development. Stakeholder interactions took place as required throughout which assisted with design decisions.</p> <p>This candidate demonstrated that they were able to independently integrate knowledge gained from their technological experiences. This is evidenced by the application of skills and knowledge as relevant from this context to develop the iterations during the refinement of the prototype. Extrapolation is demonstrated through the development of the idea to meet the needs of the problem in a considered manner.</p> <p>There is limited critical reflection within the report.</p>				