

'GIVING SURPLUS A PURPOSE'

ABSTRACT

The 2 aims of this project was to investigate the possibility of using redundant textile material as a new source to design with, and to engage a group of textile students with sustainability and the circular economy.

This practical project will encourage students to 'test' out contemporary theories in relation to sustainability and textiles. The project aims to turn textile material with no commercial value into products that have a commercial value.

KEYWORDS

Textiles; Circular Economy; Surplus; Sustainability; Commercial; Knowledge exchange; Resources.

Collaborators:

IKEA - Sofie Rogers - Sustainability Regional Leader North.

ZWS - Lynn Wilson - Key accounts manager.

ECA Shirley Mclauchlan - Senior Lecturer textile department.

ETC 3rd year textile students ECA.

A practical project exploring The CE (Circular Economy) /Sustainability and what to do with surplus textile material.

Project owner: Shirley Mclauchlan BA (Hons) MA. ETC formed November 2015 (16 textile students ECA textile department).

Slogan credit: Elspeth Coutts/Amelia Busk.

Additional staffing:

Technical support: Fiona Moon/Sally Buxton.

Technical sewing/finishing advice: Lindy Richardson programme leader Textile department.

Artist in residence: Joanna Srokol.

Artist in residence: Nikita Morgan.

BACKGROUND:

My area of research for the past 20 years has been focused around sustainability. Exploring through theory and practice the question of how to work as a commercial textile designer in a sustainable manner?

My current design philosophy is designing 'pieces' that are modern family heirlooms that can be passed from one generation to another using only materials that have already had a first life (namely Ayrshire wool blankets).

My design background involved running my own commercial textile studio where the business model was based on quantity of designs sold. Success was measured in terms of volume of sales. Trends were responded to quickly and excesses seen as part of the normal practice.

Redundant prints, effort and skill were simply part of the design process. Approximately one third of designs were sold at full price. The rest went into further collections and the remainder was classed as unsold, which equals no value.

After many years of exploring sustainability and its relationship to commercial textiles. The opportunity arose in July 2015 to explore the possibility of transferring some 'left over' textile material from the IKEA store in Edinburgh into commercial products.

The project is a practical case study of 'how to give surplus a purpose'.

During the project we will explore the circular economy and industrial symbiosis. Our project cannot exist without the surplus from IKEA. The surplus at this point has no commercial value. It has come to the end of its commercial life so without their intervention it would remain a surplus with zero commercial value.

Key areas to be explored:

- The project questioned "Could surplus material become a viable commercial resource?"
- Over all question was can you still be a commercial textile designer and still be sustainable?
- Additional challenge was how to engage a group of textile design students with the Circular Economy and sustainability?

The student's knowledge and interest with regards to CE and sustainability at the beginning of this project was limited. It was felt that sustainability was a term that was difficult to understand. This was also noted in a recent Circular Economy Feasibility Study Report produced by STAG for ZWS (Shirley Mclauchlan was a researcher on this report).

The report found that the appetite from most institutes was that they wanted to run more CE projects but due to lack of time and knowledge this was difficult. It was felt that more case studies would be of value and encourage more institutes to engage with the CE.

Expertise and contemporary knowledge was constantly on hand given by Shirley Mclauchlan who has past knowledge (over 20 years) of sustainability. Her attendance at ZWS (Zero Waste Scotland) master classes exploring the circular economy and textiles was also an influencing factor.

During 2015-16 ZWS (Zero Waste Scotland) ran a series of master classes and open lectures exploring the circular economy in relation to textiles and fashion (5 classes in total).

Shirley Mclauchlan was selected to attend these classes and lectures, and the knowledge gained from these sessions was exchanged to the ETC (Edinburgh Textile Collective) team, and through informal discussions and seminar groups that the students attended.

The challenge was: *How to turn this resource into commercial products?*



Wrap definition of CE:

A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, and extract the maximum value from them whilst in use. Then recover and regenerate products and materials at the end of each service life. Providing a service based upon delivering performance outputs linked to products or services. The product may be designed for long life, short life or a mix depending upon optimum requirements. Products could also be designed for disassembly, remanufacture and re-use.

Considerations:

From the outset of this project considerations regarding sustainability were considered from carbon foot print incurred during the collection of the material to assembly methods including packaging and branding materials.

The 'surplus 'material was collected and transported to ECA efficiently. The materials were printed with low chemical dye stuffs. Printing was efficient with minimal waste.

Technical analysis from ECA technicians:

All used water-based binders and pigments.

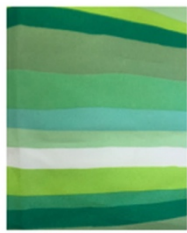
There's very little to choose from when it comes to printing bases (i.e. no solvents) with very little waste going back down the sink.

The students were able to tailor the amount of printing, so there hasn't been masses of wasted prints. Conscious of waste has been recognised and passed on to other year groups.

By sampling on the actual material this has greatly improved their understanding of the technical limitations of the fabrics (again minimizing waste).

Fundraising Materials Record 3rd Textiles

Starting Weight – 185kg



1. 250x80 cm
423.26g



2. 90x45 cm
53.46g



3. 100x50 cm
99.64g



4. 152x121 cm
411.55g



5. 151x122 cm
490.87g



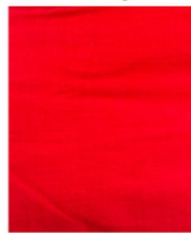
6. 90x45 cm
42g



7. 100x50 cm
142.99g



8. (162x50)x4
(400x200) cm
1.45kg



9. 45x140 cm
1.99 kg



10. 45x140 cm
163.27g



11. 145x240 cm
773.95kg



12. (45x45)x2
(80x50)x2
(200x200)cm
105.58g

Table 1: Time Line

<i>Activity</i>	<i>Date</i>
Project Introduction.	November 2015
Research carried out concepts presented to ECA staff.	20 th November 2015
Initial presentation to IKEA/ZWS/ECA staff.	1 st December 2015
Re group re examine more research planning, market research and REFINEMENT of concept and design.	Review December 201 5
Sampling technical exploration.	January 2016
Maklab/Kalopsia presentations regards CE.	February 2016
Continued refinement and concept testing.	February 2016
Final presentation to IKEA/ZWS/ECA. Students compiled and presented via powerpoint their brand, product and future intentions. Feedback was given from IKEA and ZWS.	18 th March 2016
ECA - Engage with Industry event - Scottish Exchange connection presentation arranged.	26 th March 2016
STAG Industry engagement - Scottish	29 th March 2016

Exchange connection made.	
Making/commercial outlets found.	April/May 2016
Exhibition - Meet the Makers – EICC.	21 st April 2016
Exhibition Maklab exhibition Glasgow.	May 2016
September summer leave continued outlets.	May - September 2016
IKEA event tbc	September/October 2016

TASK:

Initial task was to 'make use' and add value to some of the excess textile material that was left over after it had been placed in the bargain area of IKEA. The material had come to the end of its commercial life. At this stage the fabric had no actual commercial value and would have either gone to a charity or school. But this involves organizing and incurs time so this doesn't always happen that often. The ETC (Edinburgh Textile Collective) were responsible for arranging the collection minimizing the time input from IKEA. In order to make this work for IKEA ETC had to be responsible for this arrangement.

ECA DESIGN BRIEF:

Your task is to design a range of products that can be sold, exhibited and used on the basis of your 3rd year fund raising from the left over fabric from IKEA.

This collection will be made from end of cycle IKEA interior textile material.

You will be responsible for the collection of the material the method of measuring the waste and the designing and the production of the products.

Consider the term up cycling, also known as creative reuse, is the process of transforming by-products, waste materials, useless and/or unwanted products into new materials or products of better quality or for better environmental value.

Consider the circular economy as an alternative business model. As well as designing you are also being tasked with the collecting, recording, measuring, marketing and selling of your new product range.

You will be working collectively and individually.

The group raised awareness of surplus visually within the Textile department and vocally in their many discussions in and around the workshops.

Table 2: Learning outcomes for assessment Design Externality 3 major 2015/16

Learning Outcome 1	<i>EVALUATE:</i> demonstrate a recognition of the professional context for the discipline and apply appropriate professional practices.
Learning Outcome 2	<i>REFLECT:</i> demonstrate the ability to reflect on your personal position and potential direction within the professional context and plan appropriate future activity.
Learning Outcome 3	<i>COMMUNICATE:</i> communicate proposals, concepts and responses, using a variety of appropriate methods.

Students explored the circular economy and sustainability. Discussions were had through out the project. Complex theories were simplified and put into practice. Contemporary research theories were passed onto the students after each of the following ZWS master classes and open lectures.

Prototype
s



Group discussion



Table 3: ZWS master classes: Dundee, Glasgow, Edinburgh.

Name	Class
Fioen van Balgooi Mark Shayler	Disassembly Master Class. “Can the CE save the Textile Industry?”
Professor Rebecca Early and Dr. Kate Goldsworthy	Designing product speeds for the CE.
Dr. Alison Gwilt	Zero waste pattern cutting.

The master classes enabled ETC to explore contemporary research and understand how this knowledge could be translated into their design thinking and design practice.

Final event: Master class in Sustainable Business Models - July 2016.

Sustainable Business Model Master class with EIFF with Claire Bergkamp (head of sustainability and ethical trade - Stella McCartney).

Discussions at this event urged all fashion businesses to find out more about where their raw resources

come from and try to build permanent relationships with their suppliers instead of 'flitting' about looking for a cheaper deal. The benefits of building a good relationship has many benefits. This can be added to the provenance of ETC's product profile.

After each master class Shirley Mclauchlan discussed via informal seminars key topics which the students then incorporated into their design work.

Key factors:

- Disassembly - single fabrics better than multiple in terms of technology at present for taking apart.
- Marketing the products authenticity can add value to the provenance of a product which is important. Dr. Martin shoes - Mark Shayler.
- Professor Rebecca Early/Dr. Kate Goldsworthy - Designing the right product for the right speed i.e. fast fashion and slow fashion.
- Alison Gault - pattern cutting and learning the key areas of wear and tear in a product can increase its longevity.

KNOWLEDGE

Prior to project:

- Engagement with subject poor.
- Negative reaction in general.
- Some were interested but didn't know how to relate it to their studies and life.
- Knowledge was only related to high street.
- Some were embarrassed as to how little they knew.

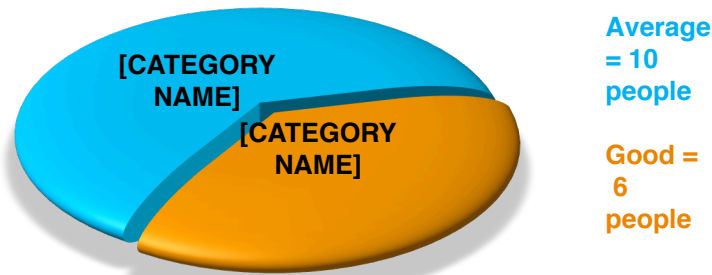
Knowledge and interest in sustainability prior to project:



Poor = 14

Average = 2

Knowledge and understanding of sustainability after project:



- Sustainability knowledge improved.
- Discussions with peers' and other family friends.
- Better understanding as I am involved and can make a difference.
- More positive reaction as to how to act and change.
- Empowered to discuss their collection, skills and what they were attempting to do.
- Greater understanding of: market research, commercial costing of textile products, finance, planning, selling, packaging, planning, team work, quality control.
- Understanding what the skill time involved in taking a product to market.

All of the above was gained during this project as well as contemporary knowledge of current sustainability. The ETC team were asked to write a report regards their over all experience during and after this project. Actual quotes from the students:

Feedback from students in relation to 'Giving Surplus a Purpose':

- "As a team we showed that we could work together and gained extensive industry experience."
- "Knowledge now has made me question manufacturing in Britain. As well as learning about sustainability I learnt lots of new skills e.g. laser cutting sewing finishes."
- "It was great to put some of the skills we learnt into practice."
- "I didn't realise that the surplus material was of such a high quality."
- "The material from IKEA was new it had not been used."
- "We found out that by asking companies are very generous."
- "I now have a much better understanding of running a small business."
- "New technique learnt regards piping for cushions it makes it look more professional."
- "Enjoyed the team spirit."

- “Exciting to see what material we got each week.”
- “Since doing this project I used re cycled material for my next project.”
- “I will question the materials I chose to work with next year.”
- “Exciting to see how good design can change a plain piece of material into something special.”
- “Differently widened my mind regards resources.”
- “Awareness of sustainable markets.”

Exchanging knowledge:

- “I have been excited to tell my friends and family about how we are turning waste material into products.”
- “My mum wants to take some products into her work to sell as she has been telling her work mates about us.”
- “Now knowing more about CE I feel empowered to discuss with friend’s back home.”
- “Being able to discuss problems regards the CE and finding solutions really positive.”
- “I feel bolder and more confident regards discussing sustainability.”
- “More conscious of our environment.”

Negative:

- “Having made the products we needed more time to sell product.”
- “Quality control was vital for selling.”
- “We needed more time to put into practice all that we now know.”
- “The amount of surplus other companies must produce is frightening.”
- “The effect textile waste can have on the environment is vast!”
- “Difficult to know what type of fabric we were going to get each week.”
- “We need to do more to help our environment one project is not enough.”

Surprising extra findings:

- Students now also questioned their buying habits regards clothing which as a result of their new knowledge has changed. They are now more aware of mass production and are limiting the amount they purchase.
- They learnt about compromise working as a collective.
- Good design can add value and longevity to a product.
- Working collectively minimises work load.

- Better knowledge of what is involved in making.
- Awareness of the possibility of a new business.
- Buy less of everything be more mindful of waste generally.
- Enormity of how much waste is about.
- What was waste was not what I thought it was?
- Adapted design can be enjoyable.
- Confidence in what they achieved.
- Awareness of consumer habits.
- Personal responsibility was recognized.

Recognition of the value of working with 'surplus' material. An attempt to change design thinking in relation to textiles and trends. Further research is needed to explore working with surplus i.e. where to find a steady flow - MCC, (Make Circles Collective) a collective exploring the potential that this application can have for both designer and manufacture. In order to encourage designers to work with excess they need to know where to find resources. The work being done by MCC is addressing this problem for both designer and manufacturer through the view to designing a app that can link both quickly and easily.

Most of all pride in what they had achieved as a group of 16 individuals. This team work will be an invaluable asset for their future careers.

The legacy of this project can continue with some of these individuals who may now act as mentors for the phase 2 of ETC.

Sample
product



TIME SCHEDULE:

While it was difficult to analysis hours spent on specific tasks of this it was also noted that the actual time spent on making was the same as the time needed to be spent on promotion and selling products (vital knowledge for future business ventures).

Table 4: Time spent

Month	Time
November	2 days per week x 4 = 8 days.
December	2 days per week x 2 = 4 days.
January	1 day per week x 4 = 4 days.
February	1 day per week x 4 = 4 days.
March	1 day per week x 4 = 4 days.
April	1 day per week x 2 = days.
	Total = 26 days per student plus own time.

Success:

The students initially were asked to design and make an arrange of products that could be sold in a commercial outlet to date they have their collection in:

- Scottish Exchange <http://www.scottishdesignexchange.com>
- Maklab Glasgow <http://maklab.co.uk/>
- Exhibited at EICC April 2016.They have sold their products at pop up fairs in Edinburgh (Cowgate).

ECA project time:

Students expressed that they enjoyed making and working on this project for the same hourly rate as they received from waitressing or retail work (£7.50 per hour).

Noted was that the motivation was greater when they felt that this was their collective/business so the hours exceeded the above and did not feel like work as they were benefiting from this extra work. This was also the case when selecting a charity to donate to. The pride they had when it was recognised that their chosen charity would value from this project (in monetary terms and publicity in terms of raising awareness). Charity selected The Rock Trust an Edinburgh based charity helping homeless youths <http://www.rocktrust.org>.

Conclusions:

- Better understanding of sustainability.
- Contemporary research has been exchanged in a timely manner.
- Practical methods of exploring the CE have been explored.
- Additional Knowledge gained in: marketing, finance, presentation visually/orally, costing, PR commercial aspects of working in textiles production.
- Teamwork explored practically.
- Business skills gained.
- Engagement of subject with a wider audience.
- Pride and confidence unmeasurable.

Table 5: Facts and Figures

Material and function	Amount
Material collected.	35kg
Used for product.	15kg
Used for sampling	10kg
Given to other.	5kg
Left for phase 2.	5kg

ETC turned 35 kg of textile material that had no commercial value into £1000 value of products.

Future from IKEA's perspective:

- We would be happy to continue these donations to ECA.
- We would be happy for the students to display their work in IKEA Edinburgh September 2016 tbc.
- Interested in the possibility of this becoming a model for other institutes to follow.
- Delighted in the learning that they saw from the students from the initial presentation to the quality of the products and the professionalism of the ETC team.

Findings:

What we considered waste can also be seen as surplus. The term waste has a negative connotation but using the statement 'giving surplus a purpose' suggests purpose and is a positive response to excess.

It is human nature to always order a little bit more. Better to have too much than too little. So if we can reuse this surplus and see it as a resource this will encourage us to be more sustainable.

Surplus can be a valuable resource. As ETC explored when they designed their product range. They managed to use the IKEA excess material as the main source when designing their product range. They printed onto the IKEA material working with a selected colour palette. They transformed plain excess material into a contemporary print collection targeted at an audience that had an interest in sustainability. All areas of the products provenance were visible and considered from initial design source to after life of the product.

ECA findings:

The learning and sharing that has happened during this project is unmeasurable. The many conversations the students and staff have had since under taking this project is also unmeasurable. It has reached a wider audience than ever imagined.

The positive energy and knowledge gained not just in terms of sustainability is invaluable.

At present ETC have their products on sale at:

- Scottish Exchange <http://www.scottishdesignexchange.com>.
- Maklab Glasgow <http://maklab.co.uk/>.
- IKEA exhibition planned for October 2016.



Price List

Backpack

£48.50

Cushion (Both sizes)

£35.00

Reversible Tote Bag

£15.00

Conclusion:

Originally the project was a practical introduction into working with 'surplus' material in relation to sustainability. What was actually explored and learned was more far reaching than initial expectations.

Knowledge was learnt, transferred and shared within and beyond the ECA textile studios.

Students have been made aware of not just current sustainable practices but they were also able to apply this knowledge to commercial business practice.

The group felt empowered not only in the designing and making of their products, but they also felt pride in the knowledge and skills that they were learning which enabled them to seek out commercial outlets for their products.

The knowledge they have acquired has given them a more rounded view of the circular economy in relation to textiles in a commercial environment. They now have a better understanding of sustainability and as a group they have explored this as an alternative to the traditional sourcing of textiles.

Importantly the students learnt that it was not enough to just to expect the public to buy a product because it has the word 'sustainable' on it's label. The concept and design must also be of a high standard.

The energy and dedication shown by the students during the project has been unmeasurable. The project now has the potential for further research into sustainable practices.

Future:

- The introduction of Social enterprise business.
- Work with FreshSight to explore it's potential.
- A business model for other institutes to explore.
- An exhibition night in the Edinburgh IKEA Store (October 2016)
- Future mentoring scheme for ECA 3rd/4th textile students.
- SBI Presentation with the view to working out with ECA business school PhD students.
- Future design school course introducing marketing business with regards to sustainability.
- Project continues for the next 2 years developing the knowledge and collaborating with other disciplines within the School of Design.
- Exhibition evening at IKEA Edinburgh September/October 2016 tbc.
- Future Student Society via EUSA.

Reference:

§ MCC (Make Circles Collective) <http://makecirclescollective.weebly.com/projects.html>.

§ Heather F. Ross MSc. BA (Hons) CText FTI FHEA Doctoral Researcher and TA.

§ The University of Edinburgh, Business School - Kenneth Amaeshi - Director of the Sustainable Business Initiative.

§ Georgina Jamieson Research and Impact administrator for SBI

- § Circular Economy Feasibility Study Report produced by STAG for ZWS – May 2015.
- § <https://www.ellenmacarthurfoundation.org>
- § <http://www.zerowastescotland.org.uk/our-work/circular-economy>
- § MakeThingsLast: Scottish Enterprise.
- § <http://www.wrap.org.uk>
- § <http://www.ethicalfashionforum.com/source>
- § <http://www.socialtailor.com/2016/01/20/circular-in-a-fashion-by-mark-shayler/>
- § <http://www.alisongwilt.com>
- § <http://www.tedresearch.net>
- § <https://stagplacements.wordpress.com/page/2/>
- § <http://buy-or-lease.mudjeans.eu>
- § <http://trakke.co.uk>
- § Redressing the Fashion Industry - Orsola De Castro (Ted Talk).
- § <http://www.freitag.ch>
- § <http://www.refinity.eu>

Acknowledgments:

- Thank you to RKE for the funding that allowed me the time to complete this research.
- Chris Speed Design Informatics (support and encouragement).
- Sofie Rogers IKEA Store Edinburgh.
- Lynn Wilson (ZWS).
- All the 3rd year Textile students at ECA.
- Technical support from Fiona Moon/Sally Buxton/Lindy Richardson ECA.
- STAG for promoting the research.
- Kitty Mclauchlan (admin assistant).
- Rory Mclauchlan (technical support).