



**UNIVERSITY OF NAIROBI
SCHOOL OF THE ARTS AND DESIGN**

**SUSTAINABLE PRODUCT DESIGN STRATEGIES FOR WOMEN
EMPOWERMENT IN KENYA**

**AUTHOR: MATAYO COLETTA RUTH
REG.NO: B51/67370/2013**

SUPERVISOR: DR. LILAC OSANJO

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DECLARATION

I certify that the work presented in this thesis is, to the best of my knowledge and belief,
original
except as acknowledged in the thesis. I hereby declare that I have not submitted this
material,
either in whole or part, for a degree at this or any other institution.

Coletta Ruth Matayo

The thesis has been submitted for examination with the approval of the following
university supervisors.

Dr. Lilac Osanjo, Supervisor
School of the Arts and Design
University of Nairobi

Dr. Lilac Osanjo, Director
School of the Arts and Design
University of Nairobi

DEDICATION

This thesis is dedicated to my family;

My father Alexander Matayo, mother Jennifer Matayo and my loving brothers Andrew Musyoka, Eric Mwalili and Denis Ndolo for their love and encouragement in my studies.

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ACRONYMS

AWEP	African Women Entrepreneurship Program
CTC International	Create the Change International
D4S	Design for Sustainability
EFI	Ethical Fashion Initiative
EPC	Export Promotion Council
FGM	Female Genital Mutilation
ITC	International Trade Centre
Kshs.	Kenya Shillings
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
SACCO	Savings and Credit Co-operative
SDGs	Sustainable Development Goals
SHGs	Self Help Groups
SPDS	Sustainable Product Design Strategies
UN	United Nations
USD	United States Dollar
WB	World Bank
WEF	Women Enterprise Fund
WTO	World Trade Organisations

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EXECUTIVE SUMMARY

The design of products is a major tool for women empowerment in the world's developing countries. Women and especially those living in the rural peripheries as well as slum areas, shoulder the burden of the world's poverty. Fighting poverty in communities requires encompasses empowering women to achieve sustainable development. Women empowerment is crucial for the overall development of a nation and more so developed countries; much has been done to streamline young girls and women by removing barriers to their development. NGOs have been at the forefront in mainstreaming women empowerment through core activities that the women engage in, one such activity being the design and production of craft items.

Design and production of items in the line of apparel, basketry, pottery and beadwork has been common among women empowerment initiatives. In countries such as South Africa, product design has been used as a tool for empowering societies through community programmes and projects such as Phumani paper which empowers women economically through production of paper enabling them to fend for their families and educate their children.

Product design in simple terms is seen as a wide array of activities that lead to the creation of new items or products. In this regard, production of crafts is seen as a form of product design. However, the products under study in this research will be limited to textile products including but not limited to; apparel, clothing, accessories and home furnishings. Sustainable product design is concerned with social, cultural, economic and environmental impacts of activities carried out in the practice. In this research it is achieved through incentives such as training of the employees, provision of decent jobs to them, provision of sustainable markets for their products, as well as encouraging them to undertake the production process in a sustainable manner through use of environmentally friendly materials such as recycled materials in production.

Case study approach was used as it was seen to be the most appropriate approach applied in similar studies in the past. This research critically examined the strategies applied at LifeLine Fashion Initiative by CTC International in Maai Mahiu and James Foundation in

Kasarani as well as how sustainable women empowerment has been undertaken. The model can be replicated in other parts of Kenya, Africa and developing nations at large. Case study design approaches have been used to gather information and the results presented in descriptive form complimented by photographs and diagrams.

1.0 CHAPTER ONE

INTRODUCTION

1.1 Background Information

Product design is one of the oldest forms of art that people have always been applying in their day to day life knowingly or unknowingly. It has been in existence mainly at the craft production levels where products were made for everyday use by various communities. Pottery, basketry, and beadwork were some of the most common crafts among the traditional Kenyan women. The skills were inherited from their elders and most women would engage in the crafts during their free time. Product design has in the recent past developed from the design of goods and services that improve human life; it is now a tool for national and economic development universally. This has resulted in a goal in product design towards achieving sustainability. In a thesis research on the quality of handicraft products in Kenya, (Kamuiro, 2015) states that issues such as global climate change, depletion of natural resources, behavioral changes and different materials all have positive and negative design implications. This has resulted to the need for designers mitigate these problems by designing sustainably.

A sustainable product or process is one that constrains resource consumption and waste generation to an acceptable level, makes a positive contribution to the satisfaction of human needs, and provides enduring economic value to the business enterprise (Bakshi & Fiksel, 2003). The practices in the old times were not necessarily sustainable as there was no input from a product designer. This was basically because product designers didn't exist and in their place were craftsmen with proven expertise in their crafts who guided the budding craftsmen. However, this has changed over the years with the advent of product design which has seen communities slowly incorporating product designers in their design process. Some of the practices of the ancient times were however sub-consciously sustainable. For instance, the traditional water pots were not only eco-friendly but also sustainable as they were made from mud which is biodegradable and

also a poor conductor of heat thus allowing the water to remain cool even during the hottest of days.

Sustainable product design strategies are the approaches and tools applied in product design without depleting natural resources or directly or indirectly polluting the environment while sustainable development meets the needs of the present generation without compromising the ability of future generations to meet their own needs (United Nations, 2015). They apply sustainable design processes to create products that enhance human welfare both socially and economically as well as their environments. Many of world's developing nations are adopting sustainable design strategies for empowering women through their informal initiatives in craft production.

Cultural norms and economic factors including FGM (Female Genital Mutilation), low levels of product and process technology, small product markets, lack of access to capital, lack of physical infrastructure and the weak institutional frameworks for addressing enterprises are some of the constraints to enterprise growth (McCormick, 1999). Since Kenya's women population as at 2011 constituted about 50.10% of the total population (Trading Economies, 2014), the government found it necessary to institute new laws and policies that are continually redressing the plight of women in the society by empowering them through their work places, political responsibilities, ownership rights, protection from Female Genital Mutilation (FGM) among others. Support has been given to women through provision of funds and policies that favor their gender in tendering and other economic practices. The Constitution of Kenya 2010 has addressed most of the indigenous laws that discriminated against women and has provisions for women empowerment and gender equality, which have played a major role in ensuring the women are protected by the law.

Design as a tool for development and empowerment or for the alleviation of poverty has received little or no attention. Various experts in design such as Victor Margolin and Angharad Thomas point out in their studies that design has the power to change the world. According to Thomas (2006), there is a general sense that the world is facing massive problems, and that the design community is not addressing them accordingly. However, the situation has gradually changed with the emergence of social design

concept as advanced by Margolin & Margolin (2002) which has resulted in collaborations between designers and other professionals to drive development.

In this sense, design is portrayed as a possible tool for development that is yet to be exploited. It is through social design initiatives that we have seen the rise in the number of NGOs interested in empowering women through design. For Instance, the Ethical Fashion Initiative, which empowers women through fashion, was founded in 2009 and has grown to having 90% of their team as women and about 10% men. It has its presence in East Africa, having two hubs in Nairobi within the slums, (www.ethicalfashioninitiative.org). This has been a revelation to the communities in which it is present and helped people realize just how much design can be an effective tool in empowering women. Kenya has a high number of women self-help groups that suffer from poor leadership and lack of sustainable solutions for their production.

Products by Women Around the World

Although not clearly defined as product design, craft production has been greatly practised by women as a source of income through crafting products from textile products such as leather, banana fibre, cotton, linen, sisal as well as other materials. Around the world, products are produced by individuals as well as SHGs and they include, ceramics, beadwork, pottery, basketry, textile weaving, carving, sculpture, and many others.

Over the past twenty-five years, non-profits organizations, governments, and businesses have realized that the complexity of global problems, such as climate change and poverty, require new solutions that cannot be limited to a specific sector or expertise. This acknowledgement has led to the discovery of tactics, theories, and strategies that transcend sectors and create lasting change (Phills, 2008). These can be referred to as social innovations. In the recent past NGOs have engaged in women empowerment by focusing on providing them with skills, tools, and markets among others.

Organisations such as the ITC Ethical Fashion Initiative which is a project funded jointly by the UN and WTO have been actively involved in empowering women through fashion. The EFI has brought on board renowned fashion designers to work with women

impacting skills on design, production and marketing of the end products within their brands (EFI, 2015). This has shed light on how design could be applied as a tool for empowering women around the world.

Products from Women in Kenya

Women in Kenya have not been left out in craft activities. With gender equality yet to be achieved, most of the women are either in the informal sector or unemployed. This has seen the unemployed women venture into different sorts of activities in an effort to raise an income for them and their families. This has led to the formation of women self-help groups which the women affiliate to for support and access to financial services. Some of the activities the women engage in include basketry, weaving, tailoring and dressmaking, pottery, sculpting, beadwork and painting. They also engage in food vending, door-to-door laundry services among others.

For instance, the Maasai and Samburu women in Kenya produce beautiful beadwork during their free time. They pass on the skill from generation to generation through apprenticeship, an approach that has made it possible to keep the designs authentic. The Kamba and Kikuyu are also popular for their basketry skills while the Luo are famous for pottery. All these activities are economically empowering to the women as they help them raise some income through the sale of their products. Some groups such as the Umoja Women in Samburu protect the women against retrogressive cultural practices such as FGM and domestic violence while also empowering them.

Challenges Faced by Women in the Third World

Women in the third world otherwise known as developing world are involved in activities such as childcare, housework, subsistence farming, and remunerated employment (Brydon & Chant, 1989). The most common form of employment in most developing nations is casual in nature and thus, the women are subjected to low wages and poor working conditions. In these nations, women are faced with poverty and hunger as well

as very low standards of living. Apart from the debilitating economic restrictions, cultural, religious and political forces often pose additional challenges to women's empowerment.

Across the developing world, women in the informal economy, unprotected by government provisions and exploited by patriarchal structures, work relentlessly to earn a living for themselves and their families. Naila Kabeer, a professorial fellow at the Institute of Development Studies at the University of Sussex, offers an insightful explanation of women's empowerment. Kabeer sees empowerment as "the process by which those who have been denied the ability to make strategic life choices acquire such ability" (Kabeer, 1999). She expands this understanding by specifying that choice necessarily implies the possibility of alternatives. Lack of empowerment of any group within the society is intrinsically tied up to poverty since a lack of resources limits the ability to exercise meaningful choice.

Based on the thought that empowerment is a transition from a passive state to a more active state of control, design is crucial in empowerment as it offers various channels for empowerment towards developing a nation as a whole. Women empowerment is crucial for the overall development of a nation (AWEP, 2015). In the more developed countries, much has been done to streamline young girls and women into the various activities by removing barriers to their development. In such countries as South Africa, affirmative action was used to remove all forms of discrimination hence redressing the past imbalances created by apartheid. Women's issues such as their rights, equality, welfare and empowerment started gaining attention. In the rest of Africa including Kenya, gender mainstreaming remains a challenge. NGOs have been at the forefront in pushing for and showing the way for women empowerment and mainstreaming.

Challenges faced by Women in Kenya

In Kenya, women constitute over 50% of the total population. Kenya has gone steps ahead in instituting new laws and policies that are continually redressing the plight of women in the society. The Constitution of Kenya (2010) has addressed most of the

indigenous laws that discriminated against women. It has provisions for women empowerment and gender equality, which have played a major role in ensuring that women are protected by law.

For a long time women had to deal with FGM, forced marriages and denial of basic rights such as voting rights, land ownership among others, but with westernisation and the emergence of global ideologies, they are gradually being empowered and granted access to all of the rights. Most women in Kenya are informally skilled in production especially in craft products and from various researches conducted, SPDS can be applied to empower them through trainings, financing, and providing markets for their products. By empowering women to come up with crafts and products that are sustainable and meet the needs of the end market which includes local customers, formal contractors and fair trade buyers abroad, Kenya will pave a new, indigenous path for sustainable development for the world to follow.

Women empowerment is a key contributor towards the enhancement of the well-being of the population, which is the key objective to the nation's development agenda. Such enhancement is achieved through sustainable development, the broader and more comprehensive concept of development that was adopted by the Brudtlandt Report of 1987 (NCPD, 2013).

On gaining independence, the Kenyan government focused so much on empowering the citizens who had been oppressed by the Europeans during the colonial era. Kenyan women began getting educated and Christianity gained popularity. As a result, cultural practices such as FGM that were oppressive to women are being eradicated. Kenya's Vision 2030, the Sustainable Development Goals (SDGs) as well as the new constitution also set pillars that have played a major role in empowering women and eradicating extreme poverty.

The cases under study in this research were chosen as they are both involved in women empowerment through product design. Both of them, that is, LifeLine Fashion and James Foundation operate within the NGO arena in Kenya with funding from the Donor Community and are also accessible to the researcher. Their products are also similar and

it is therefore possible for the researcher to easily compare the product design processes and strategies applied in both cases.

LifeLine Fashion is a project under CTC International which is a non-profit organization in Kenya that works alongside communities to create sustainable change. The organization's mission is to empower people to do amazing things that improve their lives via various projects all of which are managed by full-time local staff and community volunteers in Maai Mahiu, Kenya and in their US office in Austin, Texas. The initiative works to create a self-sustaining model for development by using entrepreneurial programs to grow its non-profit initiatives and empower communities to create the change, (www.ctcinternational.org). It was founded Zane Wilemon, an American national together with Jeremiah Kuria a local pastor at the time upon seeing the desperation of the community. Mr. Kuria was at the time the director of the Maai Mahiu Children's Home while Zane was a volunteer medic at the Rift Valley. CTC's unique approach to holistic community development evolved through Zane and Jeremiah's day-to-day interactions with the people of Maai Mahiu, forging genuine relationships and becoming a part of the community. Today, CTC helps Kenyans and especially women and children, to build and manage the sustainable infrastructure necessary to meet the challenges of everyday life, employing over 60 local Kenyans and serving the 60,000 residents of Maai Mahiu in the Rift Valley. CTC runs various projects for empowerment namely; Acacia fund, Adult Literacy, Café Ubuntu, Community Gardens, CTC Land, GAPA, Heal Kenya, Heal Yeah! 5K, HIV/AIDS Centre, LifeLine fashion, Livestock Co-op, Malaika Kids, Medical Care, Waste Management, Youth Empowerment, and The Ubuntu Hub.

Majority of these projects involve women but for the purpose of this research, LifeLine fashion project, which deals with the Malaika Mums in the production of fashion items, was selected. LifeLine Fashion is a project that empowers Malaika Mums, who are mothers to the children in the Malaika Kids program, through the production of fashion products for export markets. It was initiated in 2011 by CTC as a support system for the particular group of women as they were left with a lot of free time when their children were taken in for therapy and treatment.

The other group of interest is James foundation which is a social enterprise with three different initiatives under it. It is located in Kasarani area of Nairobi and empowers women through training and creation of employment in the production of textile products and jewelry. The organization was formed in 2011 by three European ladies in conjunction with Uzima Tele Church. It has since managed to empower 32 women, most of whom are widows and single mothers. Some of the items they make include dresses, skirts, blouses, coin purses laptop bags and jewelry pouches. They also make bracelets, earrings, and necklaces. The work is mostly handmade using easy-to-use hand tools while the textile products are made using manually operated sewing machines.

From the two cases, it can be seen that product design has been both consciously and unconsciously applied as a tool for empowering women in marginalized communities. The systems have been greatly influenced by the nature of the women in the initiatives with the activities been craft oriented with easy to learn skills training. These have been some of the reasons why the initiatives have been a success as is evident through the women who have been part of the empowerment initiative.

1.2 Statement of the Problem

From the background information, it is evident that product design results in items that improve the lives of people while creating revenue for the designer or producer. The expectation is that if women were involved in product design they would be empowered through the sale of their products. Although many efforts have been geared towards improving the production of products by women in Kenya, there is still more that could be done to empower the Kenyan women. In the two cases presented, skills training, provisions of production equipment, as well as markets are some of the factors that have been applied to empower women through product design; in which case the design of products is very much craft in nature than it is design.

It is however not clear whether the strategies applied are sustainable and whether the initiatives have considered the input of a designer in the design process. Sustainable product design is a key pillar for women empowerment around the world. In South Africa, designers have been brought on board in product design initiatives to help in

making the processes and practices sustainable. This has greatly influenced the success of initiatives such as Phumani paper which was established in 1999, as a partnership between South Africa's Department of Science and Technology and the University of Johannesburg. Through Phumani Paper, local unskilled people in South Africa have learned how to craft high-quality paper by hand, using locally available natural resources and waste products.

However, the Kenyan community is slowly embracing and appreciating the place of design and has begun embracing design for women empowerment. This has led to the need for guidelines on how to go about it and this need was the driving force behind this research. The question that drives this research, therefore, is what sustainable product design strategies that could be applied to design products sustainably while at the same time realizing women empowerment.

1.3 Objectives of the Study

Main;

- To establish the sustainability features in product design within women programmes in Kenya

Specific;

- To investigate the trends at LifeLine Fashion and James Foundation in their women's programmes
- To profile sustainable product design strategies applicable to women empowerment initiatives.
- To propose ways through which sustainable product design can be applied to empower women in Kenya.

1.4 Research Questions

Main;

- What are the sustainability features in product design within women programmes in Kenya?

Others;

- What are the trends in LifeLine Fashion and James Foundation in their women empowerment programmes?
- What sustainable product design strategies are applicable to women empowerment initiatives?
- Which strategies in sustainable product design can be applied to empower women in Kenya?

1.5 Significance of the Study

- There is inadequate information on how sustainable product design can be used to empower women. The research, therefore, sheds light on how Product Design strategies could be effectively applied to empower women.
- The research findings provide a reference point for other researchers on women empowerment.
- This research informs policy makers on the role of design in women empowerment initiatives.

1.6 Assumptions of the Study

Sustainable product design continues to drive development and gender equity matters in Kenya and other developing nations

Women embracement of sustainable product design is likely to result in sustainable development which is likely to change their position in the development agenda.

1.7 Limitations of the Study

This research being mainly qualitative was limited to the researchers understanding of product design and women empowerment. Information on research methods appropriate for design related studies was also not readily available and therefore, the researcher had to rely on methods generally recommended for case study researches.

Some of the respondents were illiterate and semi-literate which resulted to a communication barrier but this was countered by having an interpreter.

The respondents were also not very familiar with the various issues in sustainable product design.

1.8 Scope of the Study

The research was conducted within women empowerment groups that are involved in textile product production to empower marginalized women. Two case studies were selected from two geographical locations in Kenya. CTC International is located in Maai Mahiu town, a rural-urban setting within the Rift Valley region of Kenya and James Foundation in Kasarani, Nairobi.

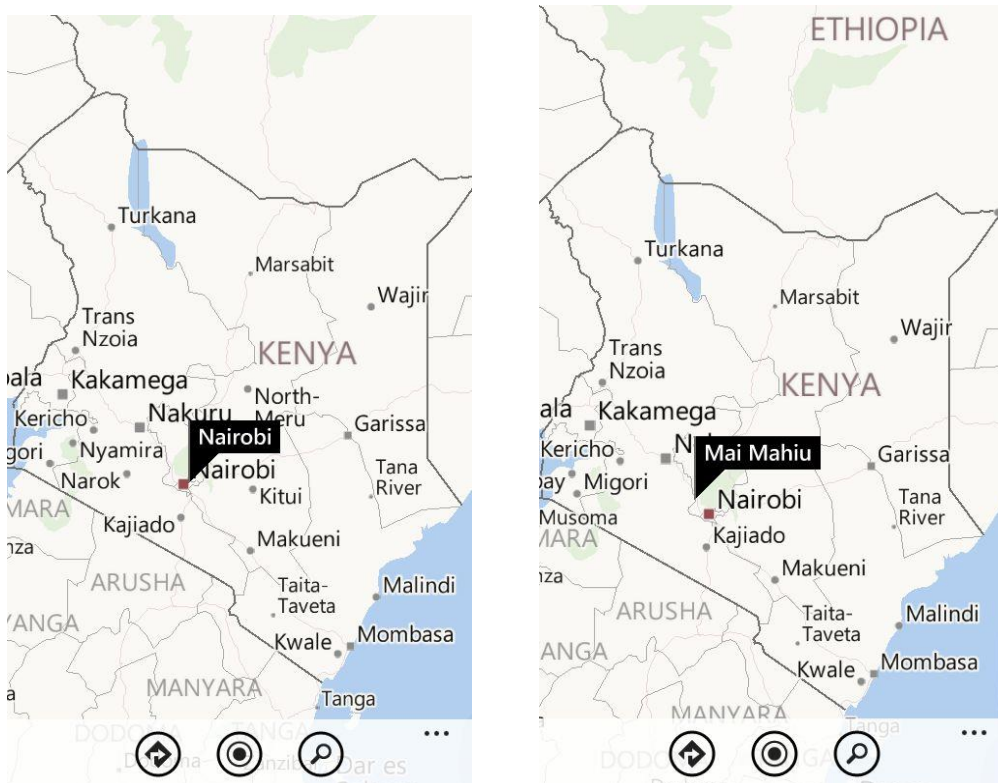


Figure 1: Maps showing the scope of study

Source: Google Maps

These two were chosen as there are many such initiatives in the country and they cannot all be studied individually within the confines of this research.

Thus, the research was limited to the two case studies and a total sample of 22 respondents selected from the case studies. The product scope was limited to fashion products that are made from textiles and beadwork.

1.9 Research Design

This is a qualitative social research which applied case study approaches. It was conducted to investigate the impacts of sustainable design strategies on women empowerment. From the many women empowerment initiatives in Kenya, two cases were purposively selected for the purposes of this study. The subjects of this study were purposively selected from two women groups; CTC International in Maai Mahiu and James Foundation in Kasarani, Nairobi. The researcher used qualitative techniques to collect data through case study approach (Yin, 2003). Interviews and observations were conducted to collect data (Singleton, Straits, & Straits, 1993) and the results presented in descriptive form complemented by photographs and diagrams.

1.10 Definition of Terms

In the context of this research, the following words mean;

FGM

Female Genital Mutilation is the ritual of the removal of some external female genitalia practised by some ‘uncivilised’ communities. This practice is harmful to the female genital organs and thus is discouraged.

Product Design

The design of crafts with a keen interest in beadwork, leatherwork, textiles, and other consumer products such as clothes and bags.

Strategies

Ideas and concepts applied to ensure that products are designed sustainably for purposes of women empowerment.

Sustainable Product Design

Design that encompasses the three pillars of sustainability (people, profit, and the planet), and is applicable to supporting sustainable production capacity in

developing countries, (Clark, Kosoris, Hong, & Crul, 2009).

Women Empowerment

Enabling women to acquire skills that help them cater for their needs and those of their families while improving their standards of living, (Kabeer, 1999).

2.0 CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

Product design is continually evolving to accommodate the changing needs of the society in which it thrives in. It has gradually become a tool not only for sustainable development but also for the empowerment of different marginalized groups. One main group that has benefited from craft product design is the marginalized women who employ it for income generating purposes. Sustainable product design is seen as one of the key areas in empowering women today in both the rural and urban areas. This has also seen a number of issues in the design of products such as the processes, skills requirement as well as the materials in use take a sustainable approach. Handcrafting using of rudimentary tools has been evident in craft production but with changing times, product design is seen to embrace the use of modern automated equipment alongside hand tools.

In order to establish the theoretical links between sustainable product design and women empowerment, this chapter tries to clearly understand the above key issues by reviewing the relevant literature. It looks into the available literature on product design and sustainable practices around it, as well as the design process and goes into the analysis of exemplars around the world for insights on strategies. The researcher seeks to also identify the relationship between Sustainable Product Design and Women Empowerment and ways in which the two can collaborate to bring about sustainable development.

Most women prefer to be engaged in crafts that they are traditionally accustomed to within their homes. 80% of women in rural homes are engaged in the craft production as a pastime with little economic value attached to them. This could be promoted to a higher level through sustainable product design strategies. To help us understand the SPDS useful in empowering women, we will look at two case studies as exemplars, an Ethiopian exemplar and a Malaysian exemplar.

The Ethiopian first lady who has been a key pillar in empowering women in her country veiwrs women as the key drivers of sustainable development. She strongly believes that;

'Empowering women economically is not only respecting their human rights, it is also a means to be successful in economic, health, poverty reduction, education, and similar social security issues'.

Ethiopian First Lady Roman Tesfaye

This implies that respecting women is fundamental in any economy and when you empower them you are respecting their rights while generally improving their livelihoods.

2.2 Design and Development

In order to understand the context of this study, there are three key issues that guide this research; design, women, and development. The development discourse is a rule-governed system held together by a set of statements that the discursive practise continues to reproduce- whether such practise refers to industrialisation, agriculture, peasants or women and the environment (Escobar, 1995 pg 154). This therefore means that we cannot talk of development that excludes women as they are an essential tool in development. Women can only contribute to development if they are economically, socially, politically and culturally empowered. According to Escobar (1995), the need for development resulted in efforts to empower women and other disadvantaged persons so as to achieve sustainable development in disadvantaged countries.

In order for a woman to be empowered, she needs to have access to the material, human, and social resources necessary to make strategic choices in her life. Not only have women been historically disadvantaged in access to material resources like credit, property, and money, but they have also been excluded from social resources like education or insider knowledge of some businesses (Cheston & Kuhn, 2002).

The direct empowerment of women through design therefore takes place when women engage in product design with the support of others around them as a source of livelihood. It is however perceived that the collaboration with professional designers could make the practice sustainable and more successful. The Kenyan government recognizes that women entrepreneurs have not been on an equal footing when it comes to their access to opportunities and assets but it has yet to effectively address the barriers

facing women in business (Athanne, 2011). Production of crafts is one of the socio-economic practices by women in most of the developing countries. Though the practice has been informal for a long time, it has been used in various parts of the world as an economic tool to empower communities in Indonesia, Malaysia, Egypt, Ethiopia and other parts of the world.

In Kenya, the current constitution that was passed in 2010 ushered the country into a new system of governance, the devolved system of governance, replacing the old centralized system. This system consists of a national government and 47 county governments. The county governments are regional governments that were established to ensure that services would be brought closer to the people. Most of these counties have women groups which practice craft production as a source of livelihood.

The women in the craft sector are being exposed to export markets by the Exports Promotion Council, which is playing a major role in the promotion of the Kenyan craft sector. The Women Enterprise Fund (WEF) in collaboration with the Export Promotion Council (EPC) runs a programme aimed at enhancing Kenyan women access to the international market (EPC, 2015). The objective of this programme is to mainstream women entrepreneurs into the export process by facilitating them to access export markets, through business-to-business linkages and capacity building, in order to enhance their economic development. The EPC has collaborated with design schools such as the University of Nairobi to ensure that the products are designed to international standards and suitable for export markets. The project is market oriented and addresses the United Nation's Millennium Development Goals (MDGs) of reduction of extreme poverty (Goal 1), promotion of women empowerment and gender equality (Goal 3), as well as the Economic Pillar under Vision 2030 which aims at improving SMEs and the prosperity of all Kenyans (EPC, 2015).

We can therefore say that some of the key considerations for empowering women are:

- Provision of access to material resources such as finances, property, machinery and equipment
- Provision of access to social resources such as education and insider knowledge of all businesses

2.3 The Design Process

Design is the conscious intuitive effort to impose meaningful order. (Papanek, 1985). The design process is defined as the planning and patterning of any act toward a desired, foreseeable end (Papanek, 1985). According to Papanek (1985), design must become an innovative, highly creative, cross-disciplinary tool responsive to the true needs of men. Several design authors have discussed have advanced the design process as an intense process entailing a number of stages.

The design process can be summarised to involve the following stages; Inspiration, Identification, conceptualisation, exploration/refinement, defination/modeling, communication, production (Aspelund, 2010). This process is applicable to almost all design disciplines.

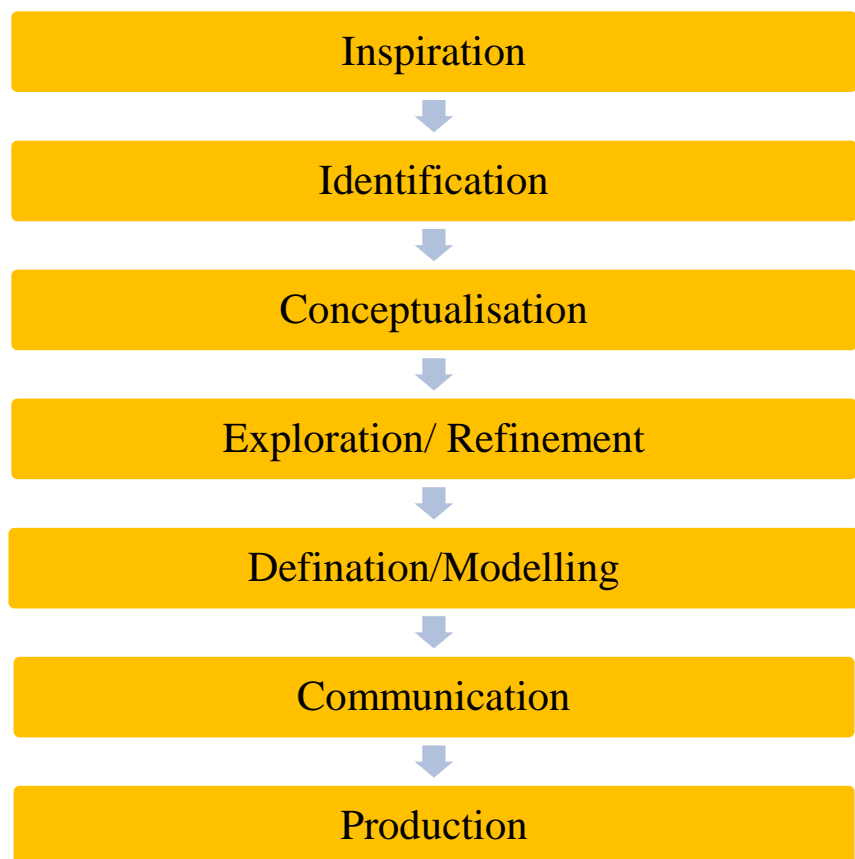


Figure 2: The design process as proposed by Aspelund (2010)

Source: Matayo (2015)

The inspiration stage is the initial stage that is often emotional and almost spiritual as it involves the designer finding the thing(s) that drives their creativity. After this stage, the designer then proceeds to the identification stage where he identifies the constraints that he may come across in his project. He then proceeds to conceptualization where he visualises different ideas and explores the different concepts he has generated to fully understand their impact before deciding on translating them into workable projects. This may be done by using mood boards or storyboards to establish sustainable ways of mitigating the problem. At the exploration stage, the designer explore's his decision in more detail to ensure it is both sustainable and environmentally friendly. He then proceeds to modelling where he chooses the best solution and makes a prototype. If this stage is successful the designer communicates to the client and organises a meeting to communicate the solution. If the client approves the designers solution, the designer proceeds to the production of the required units of the product.

Ashby and Johnson 2012 describe the design process in product design in a more contextual way by grouping the various stages according to Aspelund (2010) into three stages. They are of the view that product design has three broad stages namely; conceptual design stage, development stage, and detailed design stage.

❖ **Conceptual design stage**

This involves presenting the working on how the product will meet the end need. It involves consideration of the aesthetic and technical ideas that would lead to the desired end product. The designer has to be very careful while choosing the concept as it has implications on the overall configuration of the design. At this stage, the focus is mainly on concept development and consideration of different ideas. This stage relates to the first three stages in the design process according to Aspelund (2010) namely; inspiration identification and conceptualization.

❖ **Development stage**

This involves taking each promising concept and developing it, analysing its operation and exploring alternative choices of materials and processes. This stage ends with a feasible design that is then passed on for detailing with specifications given for each

component. It encompasses detailed exploration/refinement of the proposed solutions to ensure a desirable and functional result is achieved.

❖ **Detailed design stage**

High level of precision and detail for specified materials and processes is key and the designers end up producing prototypes of the end products. This is basically the modelling stage in the model by Aspelund (2010).

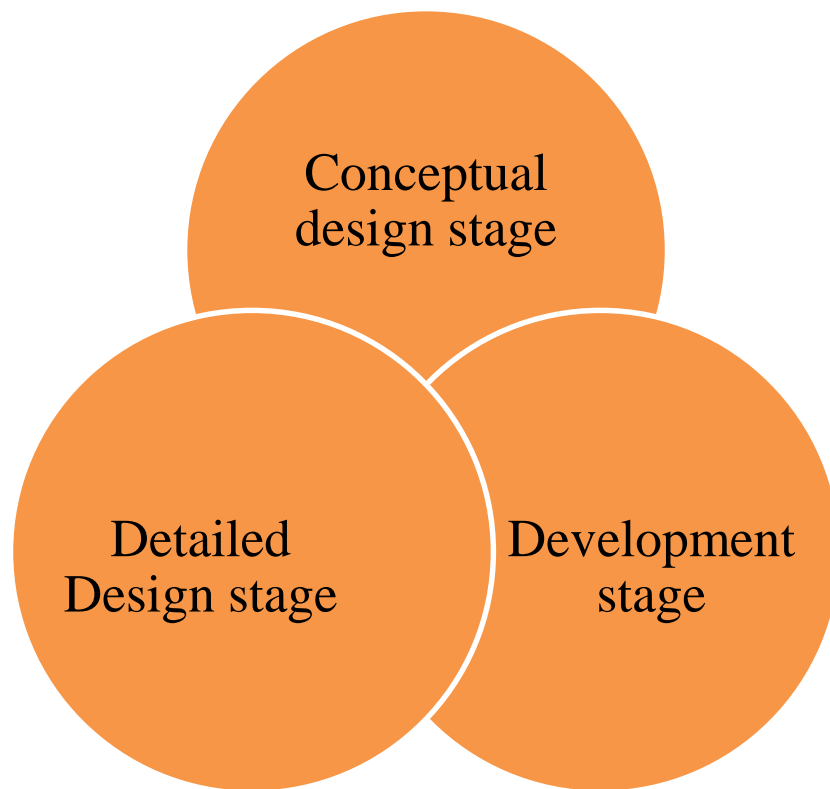


Figure 3: The design process by Ashby & Johnson (2012)

Source: Matayo (2015)

In a nutshell, there is no systematic path to good design, rather the designer seeks to capture and hold a sea of ideas and reactions to materials, shapes, textures and colours, rearranging and recombining these to find a solution that satisfies the design brief and a particular vision for filling it, (Ashby & Johnson, 2012). The design process by Ashby &

Johnson (2012) does not, however, go into the details of the communication and production of the product.

In the majority of the initiatives involved in craft production, the process applied is the seven stage process by Aspelund (2010). The process is more or less the same with most of the cases giving more attention to the product production stages.

2.4 Sustainable design

Sustainable design is design that creates solutions that solve the economic, social and environmental challenges of the project simultaneously. This therefore means that sustainability cannot be achieved without considering the community, economy and environment in which a product or process exists. The three are interdependent as seen in Figure 4

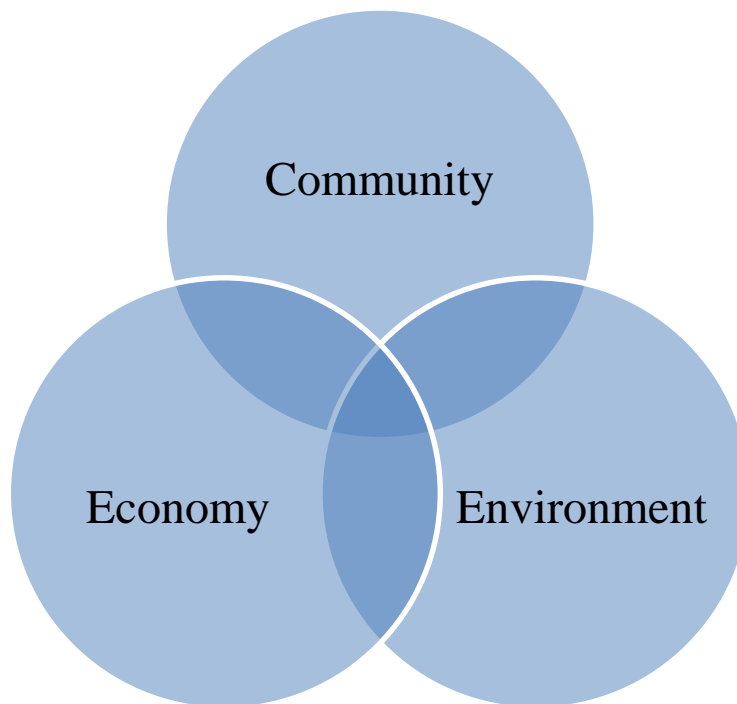


Figure 4: The interdependence of the elements of sustainability

Source: Adapted from (Williams, 2007)

2.4.1 Economic sustainability

This involves the use of various strategies to optimize the available resources so as to ensure profitability and financial benefits over time. It could be applied in the case of businesses as well as in individual empowerment. It is achieved by providing a means of income generation, providing access to resources as well as ensuring good management of the available resources. Design aids in achieving economic sustainability by engaging people in the production of goods and services for income generation purposes. This is the case of the Ethical Fashion Initiative in Kenya which provides craftsmen and women a platform to sustainably produce and sell their products through the initiative. In return, they get paid in monetary terms and this enables them to cater for their daily needs and pay house rent as well as school fees for their children.

2.4.2 Social sustainability

This involves identifying and managing business impacts, both positive and negative, on people. Companies can either directly or indirectly affect what happens to employees, workers in the value chain, customers, and local communities. It is therefore important to manage the impacts of our practices proactively. Product design helps in achieving this by reducing poverty through paying good wages to the producers, reducing inequality by adhering to the gender rules during recruitment and employment as well as ensuring the general social development of a community.

2.4.3 Environmental sustainability

This involves ensuring that the ecology is conserved through the use of renewable energy sources, reduction of pollution as well as depletion of non-renewable resources amongst other environmentally friendly practices. The use of solar energy for lighting in homes as opposed to kerosene lamps is one example of an environmentally-friendly resource.

2.5 Eco design

Eco-design also known as ecological design is a sustainable design approach that seeks to incorporate green thinking into the design of things while reducing the environmental impact arising from the products. Ryn and Cowan (2007) define ecological design as any form of design that minimizes environmentally destructive impacts by integrating itself

with the living processes. This means that the design respects the diversity of species, minimises resource depletion and in a larger sense lives harmoniously with nature and its surroundings. In the area of product and fashion design, eco designers develop products that do not emit greenhouse gases at the end of their useful life. This is achievable through the use of green materials that minimise the environmental impact.

Some processes in product design are eco-friendly as they are traditional in nature, mainly hand work with less use of powered machinery. The materials used are also naturally occurring and hence have minimal impact on the environment. Figure 4 shows a bamboo dress by Avita, a fashion designer. The dress is made using 100% bamboo fibre which is environmentally friendly and biodegradable.



Figure 5: Bamboo fibre dress by Avita

Source: www.google.com

2.6 Design for sustainability (D4S)

Design for sustainability is an eco-design concept that has been widely used to refer to Sustainable Product Design (SPD). In the 1990s, concepts such as eco-design and green product design were introduced as strategies companies could employ to reduce the environmental impacts associated with their production processes, (Clark, Kosoris, Hong, & Crul, 2009). One eco-design methodology, Design for Sustainability (D4S), has evolved from general Cleaner Production methods to focus on products and to include social, economic, and environmental elements of production; the United Nations Environmental Programme, Division of Technology Industry and Economics (UNEP), is a key player in this field, partnering with various institutions to produce publications and collaborate on product sustainability projects.

Sustainability also requires taking into account the needs of future generations, meaning that current environmental, social and economic impacts should be reduced as well as those impacts on future generations. D4S encompasses the three pillars of sustainability (people, profit, and the planet), and is applicable to supporting sustainable production capacity in developing countries, (Clark, Kosoris, Hong, & Crul, 2009). In product design, D4S involves increasing energy efficiency, using recycled materials, designing for recyclability, reducing toxic materials as well as extending product life.

2.7 Social design

On social and societal aspects some of the key things to have in mind are such as the protection of basic human rights, minimisation and possibly eradication of child labour, ensuring the health and safety of workers at workplaces, provision of tools for economic growth for the local communities, stakeholder engagement in decision making and engaging the company in community development, (Crul & Diehl, 2006).

2.7.1 Evolution of Women Empowerment

The United Nations Support for women rights (whose result would be empowering women), began with the organisations founding charter. It stated in Article 1 Sub-Article

3 that the purpose of the United Nations was ‘To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion’ (United Nations, 1945). Since the signing of the charter in 1945, the United Nation has been on the forefront of empowering women and other marginalised persons/communities as well as ensuring that their rights are safeguarded.

During the 1970s, the international feminist movement began to gain momentum. The General Assembly declared 1975 as the international women’s year and held the first world conference on women in Mexico the same year. There was a lot of activity geared towards achieving the set goals over the year and later on in the lead-up to the Millennium Development Goals (MDGs) Summit in September 2010, the Secretary-General launched a global effort convening 40 key leaders to define a collective strategy for accelerating progress on women's and children's health (United Nations, 2015).

2.7.2 Design as an economic activity for women

Over a long period, product design was practiced in the form of craft production in communities in ancient times as a hobby as well as an economic activity. Much attention was given to production, authenticity and cultural significance of the crafts. Although efforts have been made to shift the approach and make the practices sustainable, more can be done through establishing SPDS that apply the sustainable design principles in production. Sustainable design refers to theories and practices for the design that cultivates ecological, economic and cultural conditions that will support human well-being indefinitely (Thrope, 2007).

All around the world the term empowerment has gained popularity due to its use by development practitioners ranging from the World Bank to the smallest NGOs (Ryan, 2007). The WB defines it as a means of improving efficiency, whilst alternative agencies see it as a metaphor for fundamental social transformation (Saunders, 2002). Empowerment has further been conceptualized in the context of power to mean that

people are given the ability to make choices, so to be disempowered therefore implies to be denied choices. It is seen to refer to the process through which those who have been denied the ability to make choices acquire such ability. It therefore entails “the expansion in the people’s ability to make strategic life choices in a context where this ability was previously denied to them” (Kabeer, 2004).

Empowerment of women means equipping them with education, tools and skills to help them access business and leadership opportunities and become agents of change within their communities. An exploration of local terms associated with empowerment around the world always leads to lively discussion. These terms include self-strength, control, self-power, self-reliance, own choice, a life of dignity in accordance with one’s values, capable of fighting for one’s rights, independence, own decision making, being free, awakening, and capability—to mention only a few (Narayan, 2002). Empowered women are perceived as champions of social and economic progress within their communities. In Africa, women are the backbone of communities and the continent’s greatest potential to unlocking economic growth as they provide the majority of labor with the least amount of resources. Reductions in the gender gap in education, health, political participation, and economic inclusion will result in an increase in the continent’s economic competitiveness (AWEP Kenya, 2014).

2.7.3 Strategies From Exemplars Around The World

This research examined three projects for practical strategies, one Ethiopian exemplar ‘Connecting 1,500 Women and Young Girls to the Export Market’, a Malaysian exemplar- ‘Tanma Federation’ which runs women empowerment projects with three women groups (CAWEE Ethiopia and Tanma Women, 2014) as well as PRADAN India.

Ownership and Funding

The Ethiopian project is owned by The Office of the 1st Lady of the Federal Democratic Republic of Ethiopia with The Center for Accelerated Women’s Economic Empowerment (CAWEE) as the lead project implementer whereas the Malaysian group

is owned by three women groups of refugees in Malaysia; Mang Tha, Kaoprise and Chin Women Organization.

On the other hand, PRADAN India is an NGO which helps is concerned with the promotion of self-help groups (SHGs).

Women's Products

The Ethiopian project dubbed 'Connecting 1,500 Women and Young Girls to the Export Market' focuses on women empowerment through the production of crafts in three key areas which are leatherwork, embroidery, and crocheting. They also deal with spinning, dyeing, and weaving of cotton.

The Malaysian Tanma women create and sell beautiful and original home accessories, handbags, all occasion greeting cards made from Malaysian batik, woven, and sewn handicraft based on traditional Chin motifs, organic soaps and massage oils based on traditional Mon recipes from plant-based ingredients such as lemongrass, lavender, vanilla and orange.

The women in the SHGs are owners of home-based enterprises, called "honeybee activities", involve a myriad of ventures such as silk production and production of crafts products using tasar yarn.

Markets for women's products

In marketing of the women's products, the Ethiopian stakeholders have been able to connect the women to international markets through supporting them to participate in different international trade shows so that they expand their market base by connecting their products to high-end markets. Locally within Ethiopia the project has been able to sell its textile cloth to Sole Rebel which uses them in the production of Shoes amongst other local buyers.

In Malaysia, Tiny Tapir, Hock Choon, Trait d'ethique, Tout L'Or Du Monde, Elevyn, Alliance Francaise, American Association of Malaysia are some of the local buyers of the women's products. The women have also been able to sell their products internationally through their online shop.

PRADAN's intervention in Tasar yarn production equips rural poor women with skills and provides them with infrastructure, inputs, and marketing support for yarn production

as an independent enterprise. PRADAN helps to market the yarn both as an intermediate product as well as the final woven products. This helps ensure for them a steady and sustainable income.

Institutional support

Some institutions that offer support to the Ethiopian initiative are such as; Enat Bank, Entrepreneurship Development Centre of the UNDP in Ethiopia, World Vision, Associations of Women Entrepreneurs, Kuriftu Ethiopian Cultural Village, Ethiopian Airlines, Ministry of Industry, Ministry of Trade, Ministry of Foreign Affairs, Ministry of Tourism, Ministry of Women, Children & Youth Affairs and Ministry of Education, Ministry of Mines whereas in Malaysia, Tanma is funded by UNHCR, Global Fund for Women.

Through the support from PRADAN, the Self-Help Groups work for the women in a number of ways: they provide guidance; they give support and assistance to women; and they identify and promote home-based enterprises among its members.

Sustainable Strategies to Empower the Women within the Initiatives

Training of the women

Bearing in mind that majority of the women in the groups are either illiterate or semi-literate, both initiatives have invested in training the women on relevant skills. For instance, the women in Ethiopia are provided with technical skills. Fifty women are identified for training in basketry, expanding to the sectors of spinning, hand weaving and dying. Once the training is completed, the trained women get involved in production, start generating income. In Malaysia the profit from the sales or orders goes back to the community and is used in running sewing courses, handicraft classes, Basic English class, alphabetization and developing entrepreneurship skills. Tanma works on marketing and business development while allowing the women to attend weekly leadership development training and a weekly advanced level of English class as well as raising knowledge about general topics.

Nurturing Self-Help Groups of rural poor women is PRADAN's key tool in fulfilling its mission and goals. The Self-Help Groups work for the women in a number of ways: they provide guidance; they give support and assistance to women; and they identify and promote home-based enterprises among its members.

Financial Support Strategies

In Ethiopia, once the women and young girls are provided with the required technical skills, immediately after the completion of the training, they are expected to be engaged in production targeting high-end markets. Through the various development partners, the women are assisted in getting financial support to start and run their own businesses. Those that do not start their own businesses are provided with job opportunities. The Malaysian women rely on donors, volunteers and retail partners for their financial support.

PRADAN India provides its members with a platform from where they can access banks and public services, and spearhead changes that affect them as poor women. The SHG members take loans from the SHGs and set out to begin an enterprise of their own.

Policies and legal frameworks within which women operate

The Ethiopian project is run by the first lady's office in conjunction with CAWEE as a move towards achieving the Millenium Development Goals and is closely monitored by the government. Tenaganita, a non-governmental organisation in Malaysia, which works to protect and promote the rights of women, migrants & refugees, hosts Tanma Federation. It organises Income Generation Activities based on Fair Trade and cooperative principles to run social projects such as the Chin Women Empowerment program, Mon Women Empowerment centre and shelter and the Chin refugee children school.

In all initiatives, the strategies have been clearly set and sustainability issues addressed to ensure their success. Strategies have been put in place through establishing of financing partners, provision of training, provisions of markets for products, creation of jobs and placement of the women in the job markets as well as improving the economies and their standards of living. Continuous training, provision of markets and sourcing of funds for the women has contributed greatly towards sustainability of the projects.

Some strategies have been found to help companies design their products and services more sustainably; streamlining of new designs, procuring sustainably, reducing material usage, optimizing production, improving distribution, reducing environmental impact of product use, extending products useful life, and practicing good waste management and end of life, (Turner, 2013). They may also select the individual strategy/strategies that best apply to their company depending on their specific phase(s) of development.

In order to achieve sustainable product design, individuals and companies have to recognize that improved efficiencies save time, money and other resources in the end. They therefore have to think systematically about the entire product stream in the following ways- adopted from (Vallero & Brasier, 2008);

- a) How to apply sustainable development concepts, including the framework and functions of green design and the production models
- b) Applying the design process within the context of sustainable framework, including considerations of commercial and institutional influences
- c) Considering the practical problems and solutions from a comprehensive standpoint to achieve sustainable products and processes
- d) Determining waste streams resulting from product designs and adopting 'Design for Disassembly (DfD)' ethos (-the process of designing products so that they can easily, cost-effectively and rapidly taken apart at the end of the product's life so that components can be reused and/or recycled.)
- e) Applying creativity system integration and originality in group product design projects

This research accepts and adopts these five steps as concepts for sustainable product design.

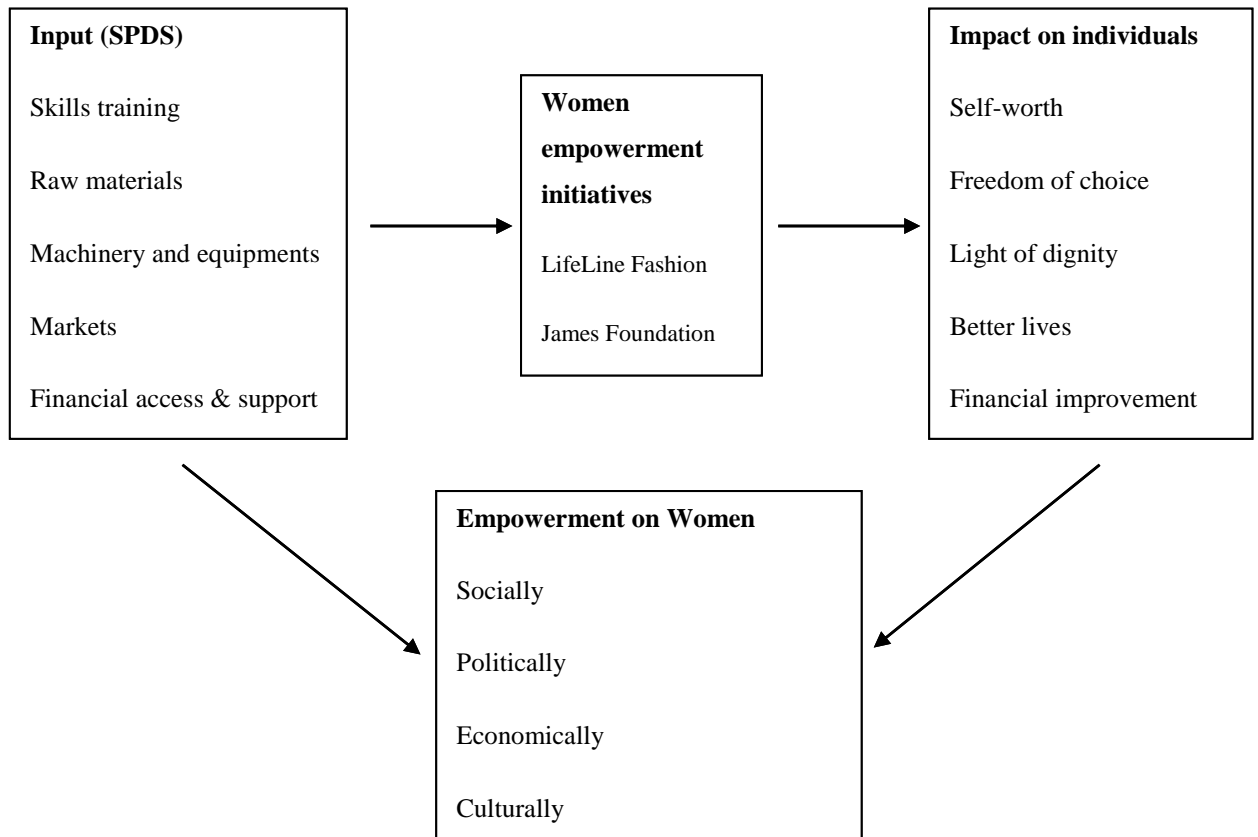
Table 1: Summary of the strategies from exemplars

Category	Ethiopian Case	Malaysian Case	Indian Case
Ownership and funding	Office of the First Lady of Ethiopia	3 Women groups	NGO
Products	Leatherwork, Embroidery and crochet.	Home accessories, handbags, greeting cards, organic soaps and massage oils	Silk production, weaving.
Markets	Local and international through the Office of the First Lady	Local and international through online shop	Local producers through the NGO
Institutional support	Banks, UNDP, the government and NGOs	UNHCR and the Global Fund for Women	PRADAN an NGO
Training women	Basketry, crocheting, hand weaving and dyeing	Sewing, handicrafts, Basic English, alphabetization and entrepreneurship skills	Apprenticeship on silk production and processing
Financial support	Development partners	Donors, volunteers and retail partners	The Self Help Groups

Source: Matayo (2015)

2.8 Conceptual framework

The researcher has been able to draw the conceptual framework for women empowerment using SPDS as follows;



3.0 CHAPTER THREE

METHODOLOGY

3.1 Overview

This chapter of the research discusses the research methodology applied. The research applied qualitative research techniques which according to (Leedy & Ormrod, 2005) encompass several approaches that are in some respects, quite different from one another. The qualitative research designs applied were case study approach which involved two women empowerment initiatives. Case study approach was applied as it's seen to be an effective approach in qualitative studies (Yin, 2003). The common belief in qualitative research approach is that the researcher's ability to interpret and make sense of what he or she sees is critical for understanding any social phenomenon (Leedy & Ormrod, 2005).

Primary data was collected by the researcher at Lifeline Fashion for a period of two weeks from 4th May 2015 to 15th May 2015. This was done through field visits to the project at Maai Mahiu. The interviews at James Foundation Kasarani were conducted from 13th July 2015 to 24th July 2015 during field visits by the researcher. In both cases the data was collected through observations, face to face semi-structured interviews, photography and audio recording. Women who were selected purposively by the researcher with the help of the production managers were interviewed and a focus group discussion held.

Secondary data was obtained through desktop review of online conference articles and design research reports, perusal of journal articles and magazines as well as design research theses at the University of Nairobi library.

Data collected was in the form of field notes, visual observations, photographs, and audio recordings and was sorted and thematically organized focusing on the objectives of the study. This was typical of thematic analysis as described by (Creswell, 2007) which involves building patterns, categories and themes by organizing data into more abstract units of information. In doing so, the strategies and approaches by the two cases under

study were analyzed. The methods applied in this research were greatly influenced by the work of Amollo (2007).

3.2 Research Design

This research was primarily a qualitative social research that was expected to give practical outcomes on ways in which change might be brought about in the society, in which case the change refers to empowered women through sustainable product design strategies. Case study approach (Yin, 2003) was used where case studies from two counties within the devolved system of government in Kenya were selected. The two cases selected were LifeLine Fashion in Maai Mahiu and James Foundation in Kasarani. With the help of the production managers, the researcher purposively selected a sample from the two women empowerment initiatives and interviewed them to set the guidelines on how the practices could be replicated in the rest of the counties. The unit of analysis was the women, production managers as well as the directors of the initiatives as they are the key players in the design process and the supply chain.

This research employed qualitative research techniques of data collection, analysis and presentation. Surveys were conducted, observations and focused interviews (Frankfort-Nachmias & Nachmias, 2000) used to collect data which was qualitatively analyzed. This was guided by the fact that qualitative researches are applied where the issues being studied have many dimensions and layers, and so they try to portray the issue in its multifaceted form (Leedy & Ormrod, 2005). This was achieved by the researcher through conducting field visits to the two cases over the period between 4th May and 24th July 2015 to collect the required data.

3.3 Target Population

The target population is the entire group to which the researcher would like to generalize her results (Singleton, Straits, & Straits, 1993). According to the NGO Council of Kenya, there are over eight thousand five hundred registered (8500) NGOs in Kenya. Out of the population of 8500 NGOs, two women groups operating within Kenya were purposively selected for this research; LifeLine Fashion in Maai Mahiu and James Foundation in Kasarani, Nairobi. LifeLine Fashion and James Foundation were selected as they provide

the main source of livelihood for over 300 women and their children as well as people living with HIV.

LifeLine Fashion was deemed appropriate for this research as it is representative of a disadvantaged group of individuals mainly women living within the rural areas. James Foundation was selected for this study as it is representative of the state of women in the urban areas. The main reasons for looking into these two cases were to identify the ways through which the initiatives have empowered women through sustainable product design strategies.

3.4 Sampling Method

The sampling technique applied was purposive sampling as it allowed the researcher to select groups that were appropriate and relevant to the topic under study. This was because the researcher, a professional designer was able to identify the sample that would provide information relevant to her research. The researcher thus opted to use this method as it allowed her to rely on her expertise in the area of study to select a sample that is representative of the population guided by Singleton, Straits, & Straits, (1993) while at the same time selecting a sample best placed to provide the relevant information.

3.5 Sample

Women groups that are engaged in sustainable product design in Kenya are relatively few. Most of the groups are not necessarily engaged in sustainable practices. From the few identified groups, the two cases were selected for the study and a sample of 24 respondents which includes a director from each of the groups, a production manager from each of the groups and the women who produce the products was selected to represent the population.

From the two cases, purposive sampling was used to come up with the sample as seen in Table 2.

Table 2: Sample Distribution

Description	Number of subjects at LifeLine Fashion	Number of subjects at James Foundation	Total number of subjects
Director	1	1	2
Production Manager	1	1	2
Women	13	5	18
Professional designers	1	1	2
Total			24

Source: Matayo (2015)

The directors of the projects were some of the key decision makers on issues pertaining to how the initiatives were run and the strategies applied. It was expected that they would be key informants on the strategies applied as well as the impact of the projects on the society at large.

The interviews with the directors were conducted to get detailed information on the projects and also the nature of the women within the cases.

Production managers were essential to this research as they provided insights on the design processes as well as the products made and the skills required for the same. Women were also important to this research as they provided first-hand information on how the design of products has impacted on their lives. To achieve this, face to face interviews as well as focus group discussions were held with the women to establish their attitudes and perceptions on the strategies applied and what other ways could be used to empower them.

Two professional designers including Jessica who was the outsourced designer for LifeLine Fashion at the time were also interviewed to give insights on the role of design in women initiatives and empowerment as a whole.

3.6 Data Collection Procedures and Instruments

The data was collected by the researcher who is a design specialist. Being a design research the researcher was a design specialist able to direct and determine the outputs of the research (Cross 1999). The collection of data was guided by (Leedy & Ormrod, 2005) on the methods applied to case study approach by collecting extensive data on the cases on which the investigation is focused. Therefore, the primary data collection methods used were observation, photography and face to face interviews. For these to be effective, interview guides and an observation guide were used.

Observation was undertaken using the observation guides and resulted in the generation of field notes and photographs. Observation guides aided in collecting information on all the activities and processes involved in the production process, the working conditions that the women are subjected to as well as the approaches applied to ensure sustainability is addressed in production.

For example the products such as jewelry, tote bags, and coffee sleeves were photographed to explain the materials used and approaches to design applied. Some of the variables that were investigated through observation included the materials used, techniques applied and technology in use. Photography was also used to capture the activities at LifeLine and James Foundation workshops.

Face to face semistructured interviews were used to get clarifications in areas where the researcher needed clarifications (Leedy & Ormrod, 2005). For example, the management was interviewed for information on the design process as well as information about the stakeholders in the supply chain. Interview guides were selected as they take less time to administer and also because the language could be interpreted to one that the respondents were conversant with. It thus aided in taking care of language barrier as the majority of the respondents in these groups were not familiar with design terminologies.

Other data collection methods such as desk research through perusal of available literature, journals, design magazines as well as perusal of websites aided in obtaining secondary data.

3.7 Data Analysis

Data analysis consists of examining , categorising, tabulating, testing or otherwise recombining both quantitative and qualitative evidence to address the initial propositions of a study (Yin, 2003). The collected data was qualitatively analysed by organising it thematically based on the research objectives as the issues emerged. Most of the data was presented in narratives describing the approaches applied to the design of products as a means of empowering women. According to (Osanjo, 2012), narrative analysis is a strategy that recognises the extent to which the stories we tell provide insights about lived experiences. It is relevant for this research as the aim was to identify ways and approaches that have been applied in product design towards empowering women. This type of analysis helped in identifying themes within the accounts of the respondents thus aiding in organising the data thematically. This made it possible for the researcher to make sense out of the collected data. The observed data was also organised thematically depending on the findings.

Photographs were also presented and complemented by descriptions to explain the circumstances and their relevance to this research. The machines in use, as well as the products, were photographed for purposes of visual understanding of their types and state.

The data was presented descriptively in tables which according to Leedy & Ormrod (2005) are arrangements of words, numbers, signs or combinations of them in two-dimensional matrices for the purpose of exhibiting certain information in a compact and comprehensive form. Cross-case synthesis was performed to analyse the data since there are two case studies which made the technique relevant. This was done by creating word tables which display data from the individual cases according to some uniform framework (Yin, 2003)

Table 3: Summary of Data Collection

Method	Technique	Advantages	Disadvantages
Face to face semi structured interviews	The researcher used an interview guide to solicit responses from her respondents. The guide was guided by the research objectives and the responses were recorded in the form of field notes. Some of the interviews were also voice recorded. These acted as a reference for the researcher.	The researcher was able to remain focused to the research objectives without deviating from the aspects under study. It was also easier to analyze this data as there was some order as compared to if the data was from an unstructured interview.	The researcher had to be keen on the use of language to the respondents. The women at CTC were not familiar with design and sustainability jargon and thus the researcher had to use simple terms to get the information sought. The interviews were also time-consuming as the researcher had to travel to Maai Mahiu and Kasarani and interview the respondents one after the other.
Observation	Observation involved the researcher identifying the phenomenon to be observed	It allowed the researcher to capture information that would otherwise have been	A lot of the information collected through observation can be manipulated by the

	<p>and getting the appropriate tools (camera and notebook). Through observation information on equipment, production process, materials and techniques were observed</p>	<p>difficult to capture using other means. For example, the product design approaches which were the focus of this study. It was possible through observation for the design expert to identify the activities, materials as well as approaches to the design process</p>	<p>observer as it is a method that relies entirely on the observer.</p>
<p>Focus group discussions</p>	<p>The research developed five questions for discussion based upon the issues to be addressed drawn from the objectives. The women were grouped and notes taken.</p>	<p>It saves time for the researcher as she can access more respondents to respondent collectively to specific issues</p> <p>It also helps in strengthening responses collected from individuals through the interviews</p>	<p>The data from focus groups can be difficult to analyze because the discussion is in reaction to previous findings.</p>

Source: Matayo (2015)

The procedures in data collection analysis and presentation were summarised as seen in the Table 4

Table 4: Summary of Data Management

Objectives	Data needs	Data sources	Method of collection	Method of analysis
Establish the sustainable features in product design within women programmes in Kenya	Profile the approaches to sustainable design	Management	Interview Observation Photography	Descriptive analysis Cross-case synthesis Thematic organization
Investigate the trends at CTC International and James Foundation in their women's programmes	Process and product life cycles	Management Women	Field notes Observation Photography	Descriptive analysis Thematic organization
Profile SPD strategies applicable to women empowerment initiatives.	Level of education, skills training, financial improvement and other benefits	Management Women	Observation Interviews	Descriptive analysis Cross-case synthesis
Propose ways through which SPD can be applied to empower women in Kenya.	List of SPD strategies that could be effective in women empowerment	Directors Women	Interviews, field notes Reviewing reports, journals and seminar articles	Descriptive analysis

Source: Matayo (2015)

4.0 CHAPTER FOUR

FINDINGS AND ANALYSIS

Overview

This chapter gives the data selected from the sample, analysis of the same and discussions of the findings. The researcher found it necessary to assess the strategies applied in the empowering women in both urban and peri-urban contexts in Kenya. This aided the researcher in determining the challenges faced in the different environments, how they have been addressed as well as the strategies that have been applied to empower the women in the different cases. Even as the government invests in women empowerment, international donors continue to dominate the use of crafts and design for women empowerment. More could be done to place Kenyan citizens in a position where they can be the key players in empowering women without reliance on donor interventions.

The researcher conducted face to face interviews and observations at the LifeLine Fashion in Maai Mahiu and managed to interview both the women and administrative staff. The women were interviewed to understand the success story in empowerment as well get suggestions on possible ways of improving the initiatives. They also helped in understanding the state of the marginalized women in Kenya. The administrative staff provided information on the strategies applied and the processes involved in empowering women.

The researcher also visited the second case which is located in Kasarani area in Nairobi. James foundation is an umbrella organization which house three sister-units namely; Judith and James (a fashion production line), J127 (training on tailoring, dressmaking and jewelry) and Jimani (accessories production line). The organization was formed to empower women especially widows, single mothers and the needy. This was to be done through the use of fashion as a tool for empowerment. The strategy was to first train the women on dressmaking and tailoring as well as jewelry production and then engage them in production for commercial purposes.

The literature reviewed in Chapter Two on women empowerment initiatives revealed that majority of initiatives rely on donor funding for skills training and provision of access to funding for the women. The researcher pointed out some of the strategies used to empower women to include but not limited to; training of the women, financial support strategies, markets for the products, institutional support and favourable policies and legal frameworks. The Kenyan situation has been dominated by donor funding but there is a rise in the number of initiatives and more involvement of the citizens in driving empowerment initiatives.

The two initiatives that were studied for the purposes of this research were CTC International's LifeLine Fashion in Maai Mahiu and James Foundation in Kasarani, Nairobi. The women in the two groups had been recruited from marginalised groups and were mostly widows and single mothers. The feedback from the interviews was qualitatively analysed as will be seen in this chapter.

FINDINGS

The findings from the research were synthesized and presented in tables as seen in this section. The data was arranged systematically for ease in the analysis. There were similarities as well as differences between the two cases under study. For instance, the sewing machines used for production at LifeLine Fashion were all electric powered while those at James Foundation were both electric and manually powered. The women, as well as production managers, pointed out that the electric machines were preferable as they were more efficient; the output was higher per given period of time using the electric powered machines as compared to when manual machines were in use. The quality of the work was also better as the end products using electric machines were neater and with better stitching.

Table 6 summarizes the age of the women in the two initiatives, that is, LifeLine Fashion and James Foundation.

Table 4: Age Distribution

Age	LifeLine Fashion	James Foundation	Total
Above 40	2	1	3
35 to 39 years	3	2	5
30 to 34 years	4	1	5
Below 30 years	4	1	5
Total	13	5	18

Source: Matayo (2015)

In LifeLine Fashion, sixty-two percent (62%) of the women are below 35 years with the youngest being 28 years old and the oldest 46 years old. James Foundation has forty percent (2 out of 5) of the women aged between 35 and 39 years while the youngest is 27 years old.

In Table 7, the findings on the women's level of formal education were presented. It was presented in three main categories namely; tertiary level, secondary level, and primary level.

Table 5: Formal training/ education

Level	LifeLine Fashion	James Foundation	Total
College	1	1	2
Secondary level	2	3	5
Primary level	10	1	11
Total	13	5	18

Source: Matayo (2015)

It was found that a majority seventy-seven percent (10 out of 13) of the women at LifeLine Fashion had a primary level education which was associated with the fact that the women were from a rural setting and education had not been accorded much importance in their community. At James Foundation, sixty percent (3 out of 5) of the women had up to secondary level education which was mainly because the initiative is located in an urban setup.

Upon joining the initiatives the women receive skills training relevant to their duties within the initiatives. Since some of the women in the initiatives were also found to have acquired skills training before joining the initiatives, the various skills acquired were presented in Table 8.

Table 6: Skills Training

Skill	LifeLine Fashion	James Foundation	Total
Tailoring and Dressmaking	13	3	16
Jewelry	0	2	2
Hairdressing	2	0	2
Electricity and welding	2	0	2

Source: Matayo (2015)

All the women in LifeLine Fashion were trained on tailoring and dressmaking as this is the core of their activities. Three of the women at James Foundation received training on tailoring and dressmaking while the remaining forty percent (2 out of 5) were trained in jewelry making. The women in LifeLine Fashion had also acquired skills in hairdressing, electricity, and welding which some still practice for supplementing their income. Those at James Foundation had no additional skills as they were housewives without training before their husbands' demise.

LifeLine Fashion has been running for the last 8 years while James Foundation is only 4 years old. Over the years, the initiatives recruit more women as need arises. The duration of stay within the initiatives by the women was summarized in Table 9.

Table 7: Length of time within the organization

Period	LifeLine Fashion	James Foundation	Total
Above 5years	3	0	3
4 years	8	2	10
3years	2	0	2
2years	0	3	3
Total	13	5	18

Source: Matayo (2015)

Sixty-two percent (8 out of 13) of the women in LifeLine Fashion have been within the organization for 4 years. These were among the group of women recruited in 2011 when the sewing machines were purchased and the initiative needed to raise the number of women to increase production. Those that had been there for more than 5 years had joined when the initiative was being formed and thus had been there for 8 years. The initiative has not recruited more women in the last two years. At James Foundation, there were no women who had stayed for more than 5 years since the initiative was started in 2011. They also did not recruit any women in 2012 but in 2013 they recruited more women.

The initiatives engage the women in the production of textile products mainly from cloth as well as jewelry. To achieve this, various processes are undertaken. This necessitates the assigning various duties to the women depending on their skills and expertise as seen in Table 10.

Table 8: Duties within the organization

Activity	LifeLine Fashion	James Foundation
Inventory control	2	2
Layering and Cutting	4	2
Stitching	8	3
Quality control	2	2
Trimming	2	3
Jewelry making	0	2

Source: Matayo (2015)

Layering and cutting, as well as stitching, are labour intensive thus the allocation of more women in the stages. The women in LifeLine Fashion are not assigned duties in jewelry making. The construction of the ‘Love’ bracelet is outsourced from the Maasai women groups in Ngong who have a crafts expert guiding them on the ground with the aid of the outsourced LifeLine Fashion designer.

FINANCIAL BENEFITS

Improved incomes for the women

Before joining the initiatives most of the women were poor with little or no income. The initiatives have empowered them through their work and increased their incomes. They are now able to live better lives with their families. For instance, Hannah of LifeLine Fashion had her income increase from Kshs. 3000 (USD 30) per month to Kshs. 13000 (USD 130) per month. On the other hand, Judith of James Foundation had her monthly income increase from Kshs.5000 (USD 50) from Kshs. 17000 (USD 170). With these increments in their incomes the women are able to live better lives than before by providing better meals, shelter and education to their children.

Funding the women

The initiatives support the women in acquiring finances from financial institutions. From these, the women are able to acquire loans to start small businesses as well as acquire property such as plots of land and *bodabodas* (motorcycles).

CTC international acts as a guarantor for the women to acquire loans from K-Unity Bank, a microfinance bank in Maai Mahiu. This makes it easy for the women to acquire loans as the initiative supports them and facilitates the payments. The organization also founded an umbrella SACCO for its employees where members can save as well as borrow funds.

The women in both cases have also formed merry-go-round *Chamas* in which they are able to save and borrow money. From the *Chamas*, they have managed to buy sewing machines which have aided them in substituting their income. The sources of funds for the women are summarized in Table 11.

Table 9: Sources of funds for the women

Initiative	Source of funds for women
Lifeline Fashion	K- Unity bank loans Chama loans CTC Umbrella SACCO
James Foundation	Chama loans

Source: Matayo (2015)

The funds acquired as well as the women savings have been used to improve their lives in a number of ways. Through sensitization from their management, the women have been able to invest their money in different ways which have resulted in better lives for them and their loved ones. The investments were found to include those seen in Table 12.

Table 10: Nature of investments by the women

Initiative	Types of investments
Life Line	Educating their children Purchase of land Sand brokerage Tailoring and Dressmaking Construction of rental houses
James Foundation	Educating their children Tailoring and Dressmaking

Source: Matayo (2015)

Women at LifeLine have been able to do more in comparison to those in James Foundation due to their improved income over time as well as the support from their management in borrowing.

The raw materials used vary from textile materials to beads and metal for jewelry making. Textile materials are used to make the bags and apparel while leather, beads and metallic products are used to make jewelry. Table 13 highlights the raw materials in use in the initiatives.

Table 11: Raw materials

Initiative	Raw materials in use	Source
LifeLine Fashion	<p>Fabrics: Cotton, Jute, <i>Kikoy</i>, Canvas, <i>Maasai Shuka</i>, Leather.</p> <p>Beads and buttons: Wooden, Plastic</p> <p>Reuse: The waste from production is sometimes reused for patchwork products</p>	Local textile manufacturers in Kenya such as Bedi and Sunflag. Ushanga
James Foundation	<p>Fabrics: African print <i>Khanga</i>, <i>Vitenge</i>, Jute, Cotton.</p> <p>Beads and buttons: Wooden, Plastic</p> <p>Jewelry materials: Silver and brass plates and wires</p>	Industrial Area, Nairobi Downtown Nairobi

Source: Matayo (2015)

Both LifeLine Fashion and James Foundation have a preference for African inspired fabrics which are preferred by their clientele. At James Foundation metallic products as well as beads and buttons are used to make jewelry whereas at LifeLine Fashion only leather and plastic beads are used to make jewelry. It is also important to note that at LifeLine, the waste fabric from other processes is used as the raw material in making patch-worked products such as coin purses and tote bags for the women. Both cases source their materials locally except for a few scenarios where the client specifies that they use imported fabric. The materials are then stored in their storage rooms located within the premises where they can be accessed as need arises.

Different machines and equipment are used to create products in the two initiatives as seen in Table 14. These vary from hand tools to electric powered sewing machines. Jewelry making is purely by use of hand tools which include pliers, drillers, chisels and hammers.

Table 12: Machinery and Equipment

Initiative	Type	Quantity
Lifeline	Electric-powered sewing machines	All 27
James Foundation	Electric-powered sewing machines Manually-powered sewing machined Hand tools	3 18 Pliers, Drillers, Chisels, Hammers etc.

Source: Matayo (2015)

LifeLine Fashion employs the use of electric powered sewing machines for production as it phased out all manually operated sewing machines due to inefficiency. James Foundation is still a young organization in its initial growth stages and thus has more manually operated sewing machines as the electric ones are expensive to purchase.

The two initiatives have varied product lines on both apparel and jewelry. The common product for the two initiatives is the tote bag which is mainly produced for the export markets. The products of LifeLine Fashion have been greatly influenced by their main client Wholefoods who are eco-friendly in their products offering. The products are designed using organic materials to ensure that they meet the standards set by the client.

James Foundation’s products are also made based on the clientele although they do not give much attention to eco-design.

Table 13: Type of products produced

Initiative	Product
LifeLine Fashion	Tote bags, wine bags, coffee sleeves, coin purses, aprons, bracelets.
James Foundation	Tote bags, apparel (dresses, skirts, jackets etc), swimming bags, jewelry (earrings, bracelets and necklaces)

Source: Matayo (2015)

PRODUCT DESIGN PROCESS

LifeLine Fashion is a project which empowers over 50 marginalised women in Maai Mahiu through production of tote bags, wine bags, coffee sleeves and bracelets among other gift items. Initially, the women were mothers to special needs children but with time the project has grown to accommodate other marginalised women. The women were initially recruited through referrals on the basis of need. However in the recent years, recruitment is through formal interviews to assess their level of need. After recruitment, the women are then trained on tailoring and dressmaking for a period of 6 months after which they join the rest of the group in production. The markets for their products are mainly in the United States of America with the main consumer being Wholefoods chain stores.

1. The Design Process for textile products

The ‘Life’ Tote Bags

The tote bags at LifeLine also known as the ‘Life’ bags were the eco-friendly supplement to the polythene shopping bags used by clients while shopping and the initiative produces them for Whole Foods which is a chain of food retail stores in the USA. Whole foods, who are the main consumer for the tote bags are keen on healthy living and sustainability

in their endeavours and thus encourage their clients to shop using the recyclable tote bags. The tote bags are made from organic materials such as 100% cotton fabrics like canvas and jute. The design of the totebag is usually handed down from the outsourced designer to the production team. The prints on the bags are mainly of nature and wildlife as a way of promoting conservation of the ecosystems. These prints are also a key decision of the outsourced designer upon consultations with the client. Figure 6 below shows a Life bag made from 100% cotton with an elephant print.



Figure 6: 'Life' tote bag

Source: Courtesy of Zane Wilemon

Their design process involves getting a client brief (receiving the clients' order) which includes the product number, quantity required and the expected delivery date. This role is performed by the USA based marketing team which then passes on the information to the Kenyan team. The order may also come along with the design of the product attached in cases where the product is new. In this case the development of the designs is done the

outsourced designer and then the designs added to the catalogue of LifeLine Fashion's products. Upon receiving the order, the patterns are then drafted by the production manager with the help of the trainer.

The outsourced designer then approves the patterns and sends the final sample to the production house. Upon receipt of the design specifications and confirmation of the materials and quantities to be made, sourcing of materials begins. Depending on the materials required, they can be purchased from Bedi, Spinners and Spinners, Alpha Knits, and Sunflag. Zippers, cords and tags are bought from Oriental Mills, paper tags from executive printers whereas cartons and other packaging materials are purchased from Polyshop.

Upon receipt of the materials, the production process begins with layering and subsequently cutting out the required pieces. Printing if needed is then done on the pieces then the pieces proceed to stitching, finishing, and quality control. Quality control is done by the production manager with the aid of the operations manager to ensure the products meet the required standards. The bags are then packed and shipped to the client in the USA.

Printing services are outsourced from Kroman Printworks in Nakuru who screen print on the cut pieces before they are joined. Before production is undertaken, a sample is stitched and if approved the women proceed to produce the order. In some cases the sample and patterns are sent from the USA office thus the women go straight to production without making a sample.

The design process for the Life bag can thus be summarised as seen in Figure 7 below to include six main stages namely; sourcing for the market and preparing the brief, design and sampling, briefing the women, production and quality control, packaging and shipping to the client.

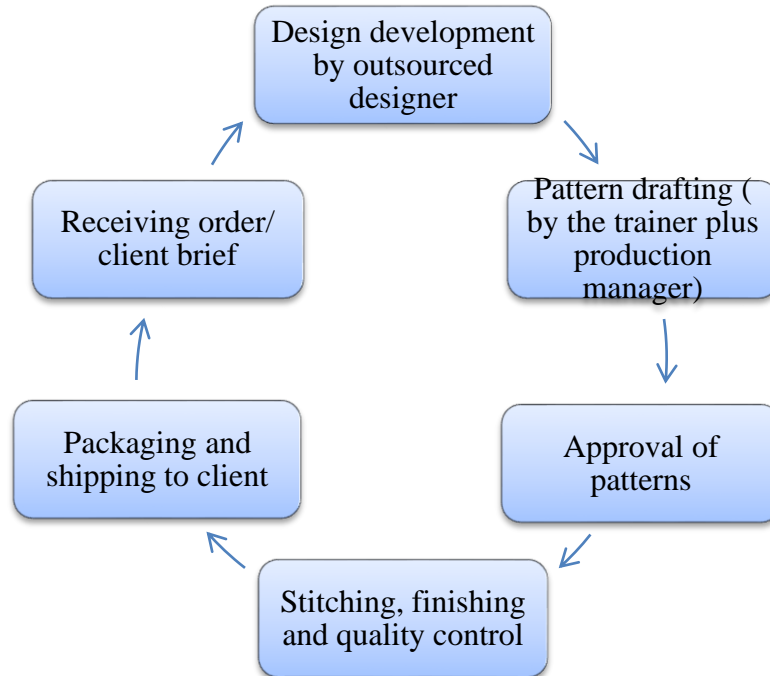


Figure 7: Design process for the 'life' bag

Source: Matayo (2015)

James Foundation is an organisation that empowers over 22 marginalised women specifically the widows and single mothers through fashion. The women are trained and eventually produce tote bags, apparel and jewelry for export to UK markets. They are recruited through referrals after which they go through a one and a half year training in tailoring and dressmaking and transition to Judith and James project to produce textile products. Those that have interest in jewelry making are trained for 10 months and then they transition to Jimani project for jewelry production. The training is conducted under the project tagged J127 which trains them free of charge and issues free sewing machines to the women who do not get absorbed in the organisation.

The Design Process for the 'Bahati' Tote Bags

The Bahati tote bag is a product of James Foundation that is quite similar to the Life bag and is made using 100% organic materials. It is mostly plain without print but sometimes may be screen printed using organic motifs. It is exported to UK markets where it is mainly used as a shopping bag.

Figure 8 below show a Bahati bag made out of 100% organic materials and without print details.



Figure 8: 'Bahati' tote bag

Source: Matayo (2015)

The design process at James Foundation involves sourcing for markets by the UK counterparts. Jennifer who is a fashion designer based in the UK searches for markets for the womens products. She then comes up with a sample of the required product and passes it on to the Kenyan counterparts including the design specifications. In most cases the Bahati bag fabrics are send to the Kenya from the UK office and thus not locally procured.

The women are then briefed by Judith on the product and processes where neccessary. This is mostly in cases where the product to be produced is new and with details that need special attention. The women then proceed to production of the bags with the fabrics which in most cases are send from the UK. According to Judith, the quantites produced are usually upto a maximum 20 pieces per item, a quality attributable to the fact that they do not have a specific consumer of their products in large quantities. Upon completion, Judith conducts quality control and ensures that the bags are fit for packaging and shipping.

The design process for the Bahati bag can therefore be summarised to 5 stages as seen in Figure 9 below.

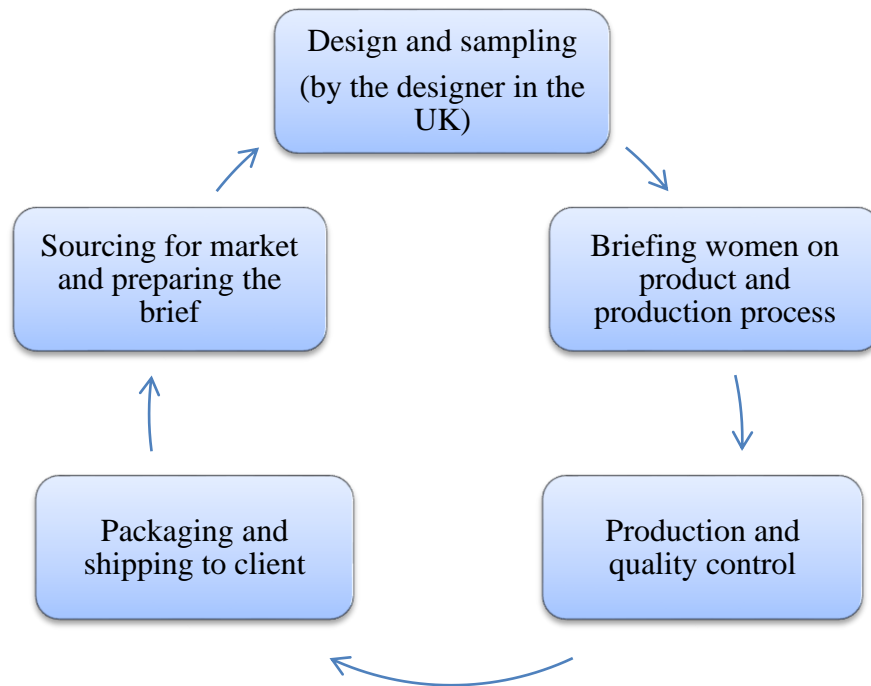


Figure 9: Design process for the ‘Bahati’ bags

Source: Matayo (2015)

The type of production system used in both initiatives is the progressive bundle system whereby each operator does different operations of a garment. All sewing machines needed to make the garment are laid in a line. The cut parts are fed in a bundle form. When an operator receives a bundle of cut components, she opens the bundle and does her operation (job) for all pieces of the bundle as she passes each piece to the next operator who is doing next operation. This means that numbers of women are involved in sewing a single garment.

The advantages of this system are that as operators do only single or limited operation, their performances increases. Secondly, product consistency can be maintained from garment to garment. Grace, the production manager at LifeLine Fashion stated that this was why the system is adopted by most of the export oriented garment producers.

The design processes for the Life tote bag and the Bahati tote bag by LifeLine Fashion and James Foundation respectively can therefore be summarized as seen in Table 14 below.

Table 14: Summary of the design processes for the tote bags

Stage	Life Bag	Bahati Bag
Receiving the order/ client brief	By the USA office Mostly one main client (Wholefoods)	By the UK counterparts Often new clients
Design development	By an outsourced designer	By UK based designer
Pattern drafting	By the trainer and the production manager	By the UK based designer
Approval of patterns	By the outsourced designer	The designers patterns are final
Stitching, finishing and quality control	Progressive bundle system Quality control by the production manager	Progressive bundle system Quality control by the production manager
Packaging and shipping	As agreed with the client	As agreed with the client

Source: Matayo (2015)

The two are similar in that their design process relies on export markets. However, unlike LifeLine fashion which has an established clientele for mass consumption, James foundation relies on small scale consumers with no specific client. According to Judith of James Foundation, this has been a challenge since they are not able to move many units. LifeLine has managed to always be in production since their units are always in demand by their client who is well known to them.

The two projects also rely on designers for design development and thus their work is well informed. However LifeLine Fashion involves the trainer and the production manager in pattern drafting and this helps in ensuring the details are well understood and internalized. Grace, the operations manager at LifeLine pointed out that the low quantity of rejected products was due to the involvement of the trainer and the production manager in pattern drafting. This is however not the case at James Foundation and one could attribute the high number of sub-standard products to this fact.

2. Product Design Process for Jewelry

The ‘Love’ Bracelets

The love bracelet which is a project under the LifeLine Fashion project is constructed by the Maasai women in Ngong. It empowers Maasai women who work in community groups, hand-stitching the ‘Love’ bracelet. The bracelet has enabled LifeLine to create jobs for more than 400 women in the Great Rift Valley. The Maasai women make these beautiful bracelets through their ancient tradition of beading under acacia trees near their homes.

The bracelet was designed by Chrissie Lam an outsourced designer following a partnership with American Eagle. Since the women possess beading skills as part of their tradition, a local craft designer guides them through the construction process. The design process thus begins with the women studying the patterns and designs for the Love bracelet from the designer. They then proceed to making sample bracelets and upon approval they produce the required number of bracelets. The bracelets are then finished and the quality assessed. This is followed by packing and shipping to the client, in this case, American Eagle Outfitters.

Figure 10 below show a summary of the design process followed in the production of the love bracelet.

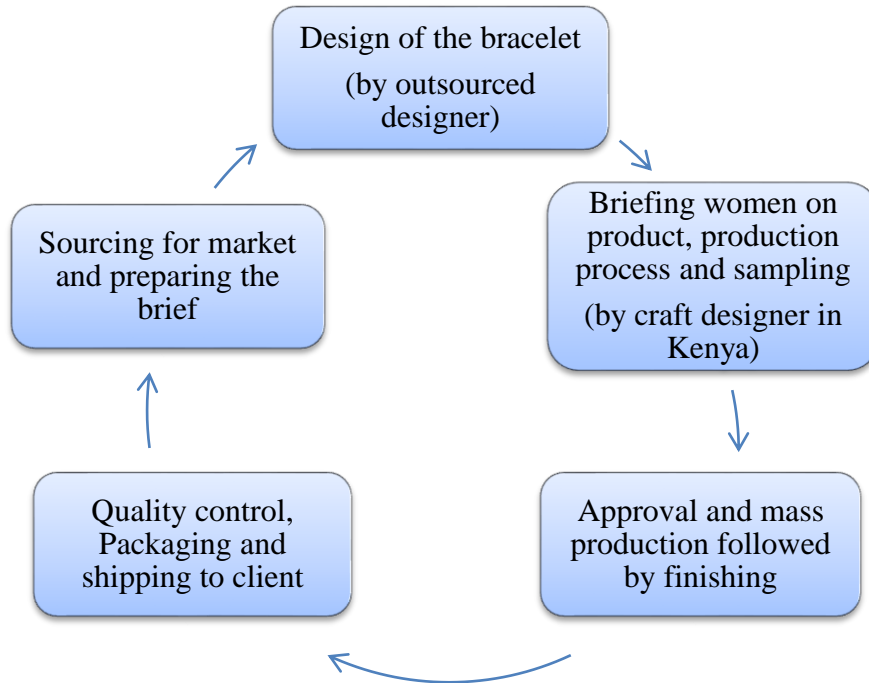


Figure 10: Design process for the ‘Love’ bracelets.

Source: Matayo (2015)

In both cases, the product design process starts with the receipt of an order from the client which is mostly accompanied by a sample. The production manager then discusses the sample with the women identifying the design specifications such as the fabrics and finishes to be applied. They will then proceed to make a piece each using muslin. These are then assessed to ensure they understand the design details before they can proceed to mass production using the actual fabrics for the order.

For specialized cases that do not come with a sample, the outsourced designer works with the production manager to come up with designs and patterns for the product. Upon approval by the client, the sampling team then works to produce the sample which is again sent to the client for approval. Upon approval the sample is sent back to the initiative and the production process begins with familiarizing the women of the design specifications.

The product design processes in both initiatives rely on the services of outsourced designers based in the UK and US. However LifeLine Fashion employs the services of a Kenyan-based Maasai craft designer who guides the women in the product design

process. This has aided in enabling the initiative to empower the women in Ngong who are mostly illiterate and conservative.

The initiatives are also seen to produce for export markets which have been found to offer better prices for their products hence higher profits. Jeremiah from CTC argues that the western world has been more supportive of sustainable and eco-friendly design compared to African countries particularly Kenya. It therefore seems that sustainable product design as a tool for women empowerment is made possible through production for the western world.

In conclusion, the 6-phase design process adopted by LifeLine Fashion (refer to Figure 7) is recommended as it is thorough and inclusive.

APPROACHES TO PRODUCT DESIGN

1. Outsourced Designers

LifeLine Fashion does not have resident product designers in its production process. It however employs the services of volunteer UK textile designers like Jessica and Chrissie, who make the patterns and the designs that are used to make their products including the love bracelets, tote bags, coin purses and coffee sleeves.

At James Foundation the services of a USA based fashion designer Jennifer are employed. She finds new clients who place orders to be made in Kenya by the women at James Foundation. From the meeting, she develops a brief which guides her in coming up with the final designs of the products to be made. A sample is then made and sent to Kenya to be used as a guide in production. With the help of the Kenyan director Judith, the designs are discussed in detail with the women and then production commences. All of the women at James Foundation are also trained through the J127 program on tailoring and dressmaking Grade test 1, 2 and 3 as well as jewelry making. This training equips them with basic fashion and jewelry design skills which aid in understanding the details of their work.

2. Fabrics, leather, beads and brass

LifeLine Fashion uses raw materials that are purchased from the local textile manufacturers such as Bedi thus promoting the Kenyan textile industry. This practise is economically sustainable as the manufacturers are always assured of markets for their products.

James Foundation also procures its materials such as seed beads, wooden beads, brass, and traditional African fabrics locally from the Industrial Area and along River Road Nairobi thus boosting the economy of the nation. The waste fabric from both initiatives is utilised in making of crafted accessories such as coin purses, patchworked bags, clothed jewelry and buttons among others.

3. Sewing Machines

The electric powered machines used are easy to maintain as they have no carbon emission. They are also easy to use and therefore the women are able to operate them with ease. Due to the fact that the machines are manually operated, women are always assured that they have jobs at the initiatives. The electric powered machines (see Figure 11) used at LifeLine Fashion are more efficient, easier to operate and produce more neat work as compared to the manually treddled machines (see Figure 12). This is sustainable as more work is done within a shorter time enabling the initiatives to serve more orders within a given time as compared to manually treddled machines at James Foundation which would produce less products within a given period.

Before purchasing the electric machines, LifeLine Fashion had manual foot treddle machines which were slow and inefficient. One of the women mentioned that the machine would keep moving along the floor as you stitched and every time you accidentally back treddled the thread would cut off forcing you to thread again. The process was cumbersome and energy consuming and the purchase of the electric machines was a great relief to the women. The electric sewing machines in Figure 11 were purchased in Nairobi and are more efficient, easier to work with and produce neat work as compared to the manual treddled machines. The machines are used to stitch tote bags, wine bags, coffee sleeves and other textile products.



Figure 11: Electric powered sewing machine at LifeLine Fashion

Source: Matayo (2015)

When the electric machines were brought in the women were trained on how to operate and service them as they were a bit different from the manual ones. The special machines such as the overlocking machines were also bought for neatening the edges of the textile products. The manually operated sewing machines in Figure 12 were slow and the end products were untidy in finish. They were also purchased locally and it was easier for the women to learn to operate them as compared to the electric ones.



Figure 12: Manually operated machine at James Foundation

Source: Matayo (2015)

James Foundation still uses the manual machines to stitch apparel and textiles products as they are affordable. They however concur that electric machines are more efficient and with the availability of capital, they would increase the number of electric machines within the initiative. Hand tools such as pliers, chisels, hammers and hand drills (see Figure 13) are used in making handcrafted jewelry. These techniques are eco-friendly and result in pieces that are unique and valuable. Mass production is however a challenge as one can only produce a piece at a time by hand.



Figure 13: Hand tools for making jewelry at James Foundation

Source: Matayo (2015)

4. The Products

The two cases produce different products majorly for export purposes. The researcher noted that most of the products were less bulky and appropriate as gift items. It was confirmed to the researcher that the clients for the products prefer gift products as they are fast moving and have good returns. It is also favorable to the cases as they are able to produce more units and export more in less bulky packaging. This means that the women are engaged in production of more units thus ensuring regular income. The products by LifeLine Fashion include tote bags, wine bags, aprons, coffee sleeves and bracelets. At James Foundation they produce tote bags, swimming bags, apparel and jewelry.

James Foundation Products

Tote bags

The tote bags in Figure 14 below are made of organic cotton and jute thus are ensuring minimisation of environmental impact. These are designed to replace polythene bags which are environmentally hazardous. Skills such as beadwork are sometimes applied on the tote bags for aesthetic appeal.



Figure 14: James Foundation's Bahati eco-friendly organic bags

Source: Matayo (2015)

The bags are exported to the UK markets in quantities between 20 and 100 pieces depending on the size of the order. They are used by the clients mainly female shoppers to carry goods as they are easier to use and also a fashionable and sustainable approach to shopping.

Dresses and swimming bags

The women also make dresses on order as well as standard sizes for sale on their online platform. The dresses are made using tie and dyed as well as African print fabrics which are preferred by their clients. From the remaining fabric the women create swimming bags and coin bags.

Figure 15 shows the use of African prints which are best sellers in the western world due to the authenticity of the prints and their originality in Africa. They are also made from organic materials (cotton) making them environmentally friendly.

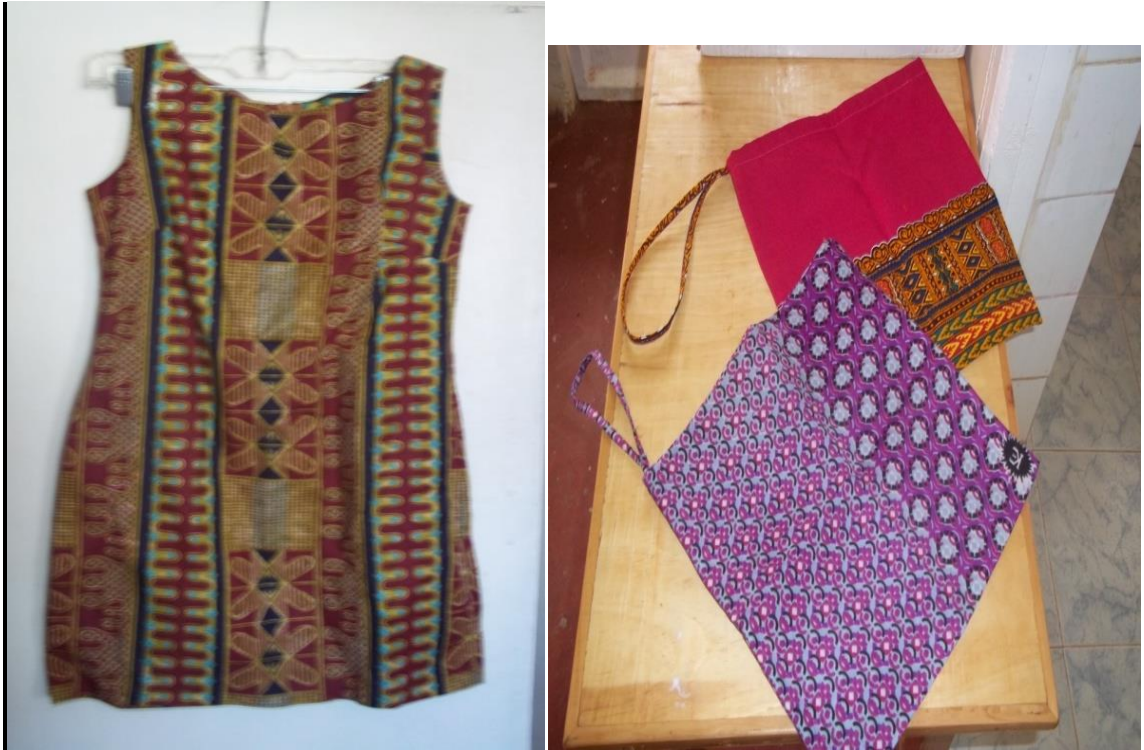


Figure 15: James Foundation's African Print dresses and swimming bags

Source: Matayo (2015)

LifeLine Fashion's Products

Coffee sleeves

WholeFoods raised concerns on the use of paper serviettes on their coffee mugs to the US partners. They suggested that they were looking for a sustainable substitute to the paper serviettes. The coffee sleeve in Figure 16 was thus designed as a more sustainable substitute to the serviettes and paper cartons used to insulated heat while holding the coffee mug. A client just needs one sleeve which he can use and keep in his pocket to use during his next cup of coffee. The sleeve is washable and reusable just like a scarf. Customers love the invention and there has been an increase in orders for the same since by WholeFoods. The coffee sleeves are made using eco-friendly hand-washable canvas as well as *kikoy* fabrics and in most cases are screen printed.



Figure 16: LifeLine's Coffee Sleeve

Source: www.groundsforchange.com

'Life' bags

Another of LifeLine Fashion's products is the tote bag and wine bags in Figure 17. They also came in as substitutes to the polythene bags used by WholeFoods. They are handmade from organic cotton and screen printed in slogans and prints that communicate directly or indirectly about current issues. The wine bags have a rhino print with the words 'Save the Wino'. This communicates to the person buying the wine about conservation of the rhino species.



Figure 17: LifeLine's Tote bags and wine bags

Source: Courtesy of Zane Wilemon

In conclusion, the products made by the women and especially the ones at LifeLine Fashion put into consideration environmental aspects, sustainability aspects as well as improving livelihoods of the women. This is achieved through manufacturing organic products that are easy to make and sell to the client. Tote bags are similar for both organizations, a factor attributed to the large export markets as the western countries are moving towards eco-friendliness and avoiding polythene bags. It is also evident that gift items are better for export markets.

SOCIAL DESIGN

The initiatives are impacting socially in the communities where they have been established by supporting the women's families and children as well as their health among others. The social empowerment is seen to be closely relating to the Ethiopian case, CAWEE (refer to Chapter Two). At James Foundation the women work in a social set up where they are allowed to recommend other marginalised women to be recruited in the organisation based on their degree of need. The initiative also issues sewing machines

to women who do not get absorbed in the foundation after graduation thus enabling them to start their own businesses. The women are monitored to ensure that they make good use of the resources available to them.

Social design is design that empowers the community as a whole and in this sense, a number of strategies/approaches have been used to empower the women as is discussed below.

1. Beneficiary Selection Process

According to Grace who is the operations manager at CTC's Life Line fashion, 27 out of 27 which represented a hundred percent (100%) of the women were selected from a pool of needy women who were mainly illiterate and mothers of special needs children. This was done through referrals by the other women within the project. The women would recommend a needy woman who would then be summoned to an oral interview. If they qualified as both financially needy and mothers of special needs children they would then be absorbed in the project.

At James Foundation the women were also selected from the neediest group in that they had to be widows and in some cases single mothers without a source of income.

2. Formal Education/ Design Skills Training

The women at LifeLine Fashion were taken through adult literacy classes to enable them communicate in Kiswahili and English. They were also taken through tailoring and dressmaking classes and eventually became masters of their skill. Currently, all 27 women have received training in tailoring and dressmaking.

At James foundation, 1 out of 5 representing twenty percent (20%) of the women had gone up to primary level of education with 3 out of 5 representing sixty percent (60%) of the women having gone up to Form Four. This is mainly as a result of the location of the initiative as it is in an urban area where people are keener on educating their children. However 4 out of 5 representing eighty percent (80%) of the women lacked skills training and had been housewives while their spouses were still alive. The initiative thus recruited them and trained them (see Figure 18) through Grade 1 to

3 in tailoring and dressmaking free of charge under James 127 for a period of one and a half years. Those who opted for jewelry training went through six months of training. The exceptional students were later absorbed from both the tailoring class and the jewelry class to work in Judith and James and Jimani respectively. 3 out of 5 representing sixty percent (60%) of the women have received training on tailoring and dressmaking while 2 out of 5 representing forty percent (40%) of the women have training on jewelry.



Figure 18: Tailoring and Dressmaking class in progress at James Foundation

Source: Matayo (2015)

3. Access to machinery and equipment

The women in both initiatives have access to the sewing machines even when they are not working on an order. This way, the women have managed to earn an extra coin during their free time. This is mainly because majority of the women are the sole

providers for their families and thus need that extra coin to keep their families running. The initiatives thus find it necessary to allow the women to produce their own products during their free time.

4. Culture and family-friendly systems

The production process by LifeLine fashion incorporates the culture and way of living of the people. It respects the Maasai culture on beading and uses it as a key skill in the production. Their latest project dubbed ‘#loveisproject’ which involves production of Maasai-inspired bracelets for exports to markets such as American Eagle has made this possible. The project involves production of handcrafted bracelets by Maasai women in Ngong as they go on with their daily activities. The initiative also runs other programs that aid in supporting the families of the women such as Malaika Kids and the garbage collection projects for the children with special needs and the youth respectively. The women at James Foundation are also allowed to produce items within the confines of their houses thus enabling them to monitor their children as they do their homework.

5. Free medical support

Both cases hold forums to sensitize women on their health. They tackle topics such as the importance of maintaining good hygiene standards and these services are free of charge. The women suffering from HIV are counselled and encouraged to use ARVs. LifeLine fashion holds a free medical camp randomly. The camp is usually open to all residents of Maai Mahiu and the people are examined and advised on their health accordingly.

6. Free child support

The LifeLine Fashion initiative also runs other programs that aid in supporting the families of the women such as Malaika Kids which takes care of the special needs children. Those with kids in schools have also been able to support and educate them through the income they get from the initiative.

7. Other income generating activities

The initiatives, for instance Lifeline, also help in keeping the towns clean through their the garbage collection project. This is a project that involves the jobless youth in the town in collection and disposal of waste in Maai Mahiu town. From this, the youth are paid Kshs. 200 per day by the initiative for collecting the waste, an exercise that takes about two hours to complete every Saturday.

ECO-DESIGN

As discussed in Chapter Two, it is essential for the design process to be eco-friendly in order for the practise to be sustainable. A process or project can be regarded as eco-friendly based on the raw materials used, the production techniques applied as well as its commitment to the 3Rs (Reuse, Recycle and Reduce) in the design process. The two cases under study engage in eco-friendly practices as discussed below.

1. Leather, beads and other organic materials

At CTC's Lifeline Fashion, the production of the 'love bracelets' shown in Figure 19 is eco- friendly as the materials (leather and beads) used have no negative environmental effects.



Figure 19: Construction of the love bracelet

Source: Courtesy of Zane Wilemon

The coffee sleeve (see Figure 20) was also a great innovation towards eco-friendliness as it minimises the use of paper (serviettes and cartons on mugs for heat insulation), by the use of a cotton stitched sleeve that is reusable. This helps in reducing the use of paper which in return saves trees.



Figure 20: Fabric sleeve in place of paper insulation on coffee mugs
Source: Matayo (2015)

2. Handcrafting

The love bracelets (see figure 19) are handcrafted using hand tools thus minimal environmental effects. This is also the case at James Foundation where all the jewelry is handcrafted using hand tools thus minimising carbon emissions as seen in Figure 21. This ensure that the environment is conserved which is one of the goals in sustainability. The approach is also seen in use at the CAWEE project (see Chapter Two).



Figure 21: Hand tools used in James Foundation

Source: Matayo (2015)

3. Recycling

The women in LifeLine Fashion use waste fabric to make coin purses and patchwork tote bags. The remaining waste fabric is however disposed off to the dumpsites. The women in James Foundation also use waste fabrics to make clothed accessories such as necklaces, buttons and earrings as seen in Figure 22. These accessories are made for export to the UK markets and are alternatives to plastic, ivory and wood accessories which are not eco-friendly.



Figure 22: Eco-friendly accessories

Source: Matayo (2015)

EMPOWERMENT OF THE WOMEN

1. Free Formal Education/Skills Training

According to Grace who is the operations manager at CTC's Life Line Fashion, 27 out of 27 representing a hundred percent (100%) of the women were selected from a pool of needy women who were mainly illiterate and mother of special needs children. 10 out of 13 representing seventy-seven percent (77%) of the women were primary school drop outs, for example, Joyce and Hannah at the time they joined CTC and had no artisan skills. They could have been as a result of the location being rural and haunted by a culture of people who do not support the empowerment of women. They were thus taken through adult literacy classes to enable them communicate in Kiswahili and English. They were also taken through tailoring and dressmaking classes and eventually became masters of their skill. Currently all 27 women have received training on tailoring and dressmaking.

At James Foundation, 1 out of 5 representing twenty percent (20%) of the women had gone up to primary level of education with 3 out of 5 representing sixty percent (60%) having gone up to Form Four. This is mainly as a result of the location of the initiative as it is in an urban area where people are keener on educating their children. However 4 out of 5 representing eighty percent (80%) of them lacked skills training and had been housewives while their spouses were still alive. The initiative thus recruited them and trained them (see Figure 23) through Grade 1 to 3 in tailoring and dressmaking free of charge for a period of one and a half years. Those who opted for jewelry training went through six month of training. The exceptional students were later absorbed from both the tailoring class and the jewelry class to work in Judith and James and Jimani respectively. 3 out of 5 representing sixty percent (60%) of the women have received training on tailoring and dressmaking while 2 out 5 representing forty percent (40%) of the women have training on jewelry.



Figure 23: Tailoring and Dressmaking class in progress at James Foundation

Source: Matayo (2015)

2. Access to machinery and equipment

The women in both cases have access to the sewing machines even when they are not working on an order. This way, the women have managed to earn an extra coin during their free time. At Lifeline Fashion the machines in use are electric powered (see Figure 24). Initially they were using manual machines but the management realized that the work was not as efficient and tidy as it would be with electric machines. This resulted to the shift to electric machines which resulted to increased productivity.



Figure 24: Electric Sewing machines at LifeLine Fashion

Source: Matayo (2015)

The women at James Foundation were trained using manual machines and still produce using the same (see Figure 25). Those that were not absorbed to work in the foundation were also issued with sewing machines to go ahead and set up shop. This was because the foundation felt that they needed to do something worthwhile with the skills acquired and provide for their families. Due to the fact that they were not in a state to afford the machines, the organization bought machines for them and monitored them as they established their businesses.



Figure 25: Manual Sewing Machines at James Foundation

Source: Matayo (2015)

3. Access to markets

It would have been all a waste of time if the women were trained and then not given avenues to apply their skills for income generation. This was what drove the founders of LifeLine Fashion on a search for markets for which they could make products and supply. They managed to partner with Whole foods in the US who gave them their first order of tote bags. With time, Allegro Coffee House and American Eagle came on board and then orders kept growing. Allegro Coffee is the main client for their coffee sleeves while American Eagle is the client for the love bracelet. Consequently, all the women that have been trained have been empowered through creation of jobs and markets for their products through LifeLine Fashion. This has also seen LifeLine Fashion recruit other women with tailoring skills in order to increase production and meet market needs.

At James Foundation, Jennifer and her co-founders have found markets for the women's products among their UK friends and thus are able to keep the women occupied and empowered. Their production capacity is however not so big and this

has seen them issues sewing machines to the women to enable them to run their own businesses. They are only able to have a maximum of 12 women on full time basis. However they are in the process of expanding the markets for their products to empower more women.

4. Networking with Financiers like K-Unity and SACCOs

The women at LifeLine Fashion access loans from K-Unity with the help of the organization which acts as a guarantor when the women are seeking loans in K-Unity which is the local bank in Maai Mahiu. K-Unity is a local bank found within Kiambu County which provides financial services to the low income earners. The women have also received training on business management, financial investments as well as customer care through the organization.

LifeLine Fashion has been supportive to its members and encourages them to be employers and agents of change in the society. It advocates for independence and personal growth as well having multiple sources of income.

DIRECT OUTCOMES ON THE WOMEN

a) Improved standards of living

Before joining the LifeLine, 12 out of 13 representing ninety-two percent (92%) of the women could only afford one meal per day and lived in absolute poverty. Their incomes improved upon joining LifeLine Fashion and they can now afford at least two meals a day and spare some money towards educating their kids. For example Hannah's income was raised from Kshs. 3000 (USD 30) per month to Kshs. 13000 (USD 130) per month.

The women at James Foundation were not any different from the ones at Lifeline. All of the widows were below 35 years and had been left with at least one child to raise. The rest who were single mothers also had to run families with no stable sources of income. This was a difficult situation for all of the women. Upon joining James foundation and gaining skills, they were now able to provide better lives for their families. For example, Judith who was a widow and a mother to

three kids had her income rise from Kshs. 5000 (USD 50) per month to Kshs. 17000 (USD 170) per month. With this she provides better food, shelter and education to her kids.

b) Confidence levels

As a majority of the women in the groups were semi-literate, they faced challenges in communication which resulted to low confidence levels. However, upon receiving training from the initiatives they were able to communicate better and fluently which resulted in to increased confidence levels. The women now believe in their ability to make decisions that involve their lives and those of the people they love. All of them can also express themselves in Kiswahili unlike before.

c) Creation of employment

Before joining Lifeline Fashion 10 out of 13 representing seventy-seven percent (77%) of the women were housewives with no skills training while the remaining 3 out of 13 representing twenty-three percent (23%) were house helps. They therefore did not have stable incomes and jobs. The women at James Foundation had also been housewives and thus the initiatives provided them with jobs in their production units enabling them to have stable sources of income.

d) International Exposure to markets for their products

The products from the women at LifeLine Fashion have found markets in big brands in the US such as American Eagle and Wholefoods Stores. This has helped in creating awareness of their brands internationally thus increasing potential markets for the women's products.

James foundation also export some of its products to the US and UK market with the rest of the products being sold locally.

e) Medical benefits for the mothers and their children

The women at LifeLine Fashion have benefited health wise from the initiative too. CTC International holds free medical camps for the mothers and their families regularly. It also advises the mums with special needs children on how to take care of them. This has greatly help the mums in offering home care to their special needs children and helping the people around them to understand their child's disability. Three of the women who are HIV positive admitted that they did know the importance of taking ARV drugs before joining LifeLine but they have since benefited from the medical talks and started taking the drugs.

f) Improved health

Education and training on hygiene at LifeLine Fashion has helped in reducing the number of sick offs among the women. The initiative hold monthly forums to address health issues such them importance of ARVs to HIV patients, good hygiene standards at their homes and also at workplace. All of the women admit to having attended the forums which are compulsory to all.

g) Improved incomes

The provision of sewing machines for women at James Foundation has enabled women to have a source of income. The women at LifeLine Fashion are also no longer reliant on their husbands and are now able to chip in on the family's expenses. All the women have experienced significant rises in their monthly incomes.

The findings from the two cases studied were summarized as seen in Figure 26;

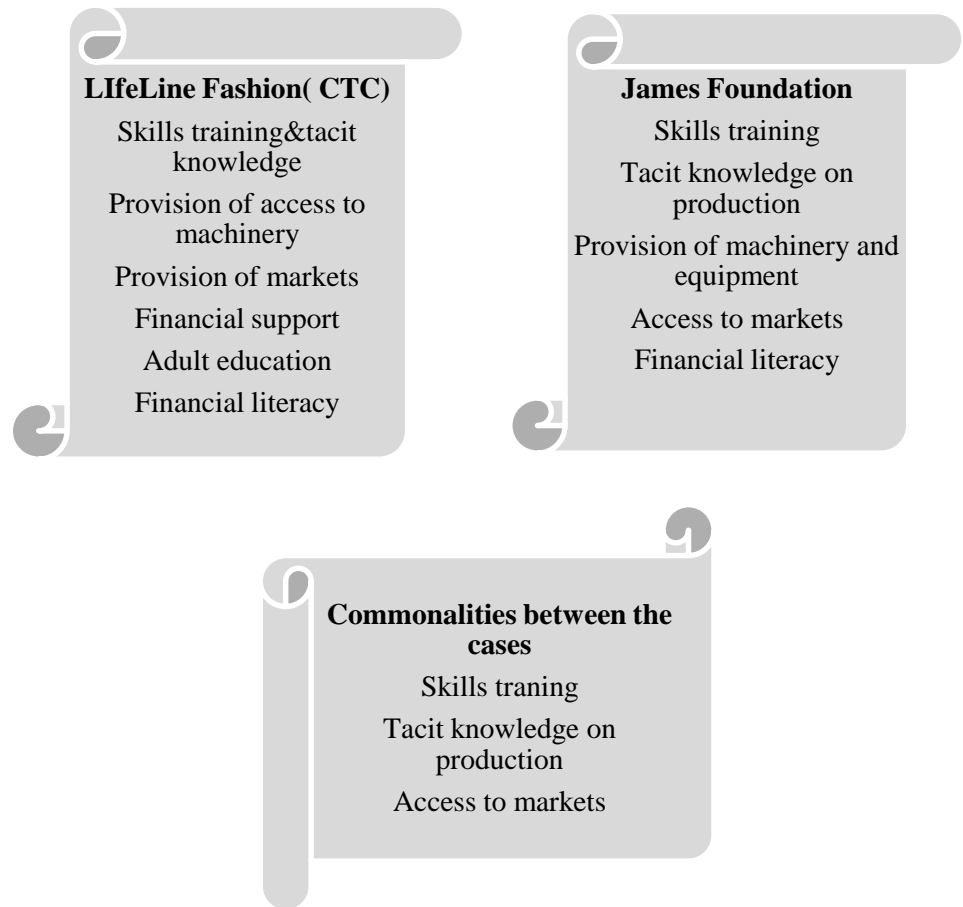


Figure 26: Summary of findings from LifeLine Fashion and James Foundation

Source: Matayo (2015)

The strategies from the exemplars studied in the literature review give a framework on how to employ sustainable product design to empower women. The strategies applied were related to the cases under study and the gap areas identified as seen in Figure 27. It was evident that sustainability is not given much consideration in the initiatives as profitability is seen to be the main agenda. Both cases do not have a resident product designer but have made efforts to consult designers during product development.

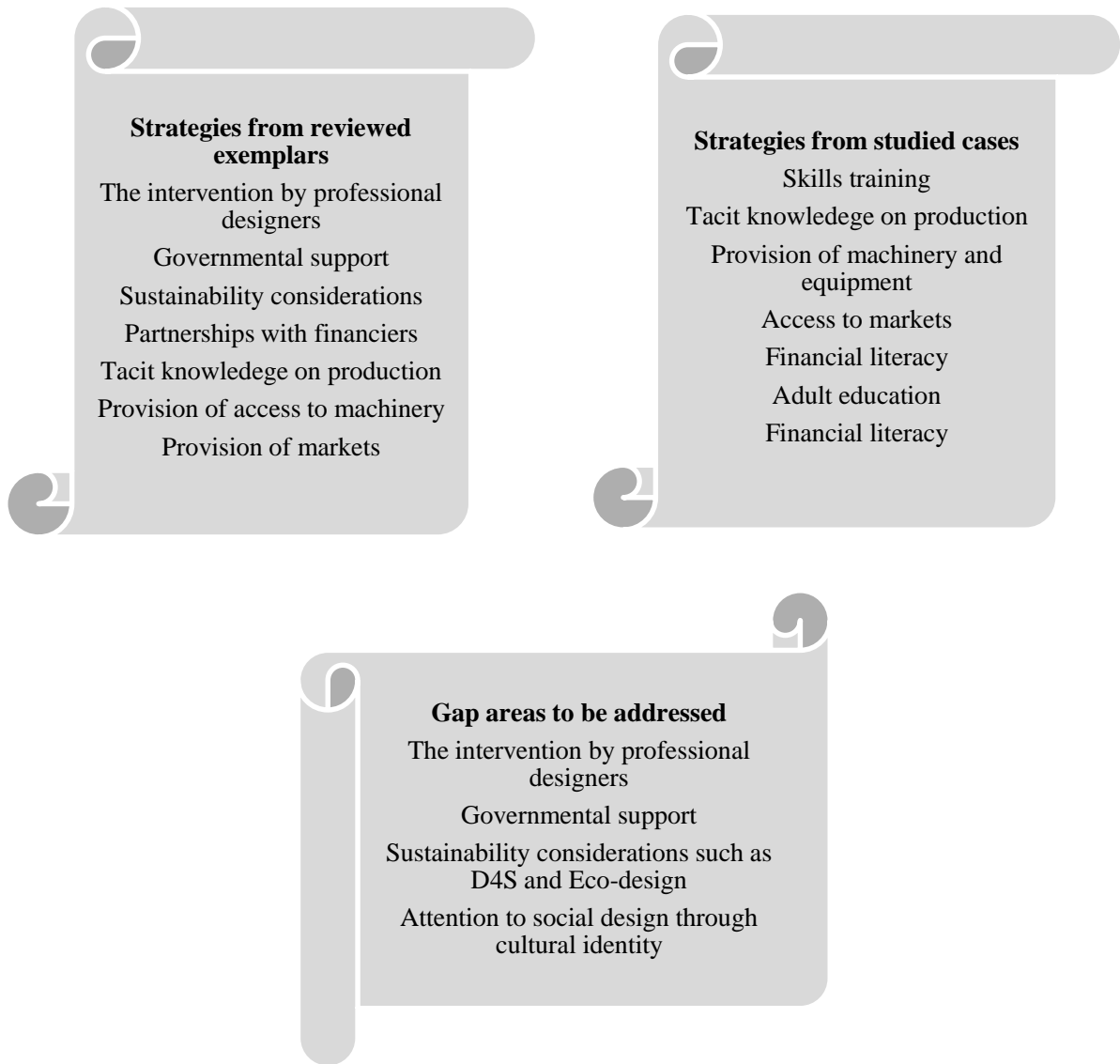


Figure 27: Summary of strategies and gap areas

Source: Matayo (2015)

5.0 CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

OVERVIEW

This chapter addresses the main research question which seeks to identify sustainable features in product design within women empowerment programmes in Kenya. The findings from Chapter Four highlighted various strategies drawn from the primary data. The findings also show that there has been limited collaboration of the artisans and the designers in LifeLine Fashion while at James Foundation the designer is seen to be involved during the initial stages of the design process especially in designing and prototyping the products to be mass produced. According to (Gitobu, 2012) design is essential in the craft industries as it is the driver of product design and development process which involves idea generation, standardization, quality control, packing and packaging as well as cataloguing. This makes it equally important in the empowerment of women through the products they make as the designer brings in the creativity and skill necessary to make the products fit for external markets.

Some of the strategies applicable in product design are subjective depending on the environs within which the initiative is based. For instance, the approach in Maai Mahiu differs in some ways from the one in Kasarani due to the fact that the women in Maai Mahiu have skills that are specific to their culture and social set up. The Maasai women of Lifeline Fashion are conversant with beadwork which is popular in their cultural dress. Their challenges are also unique to them as they face rejection due to bearing children with disabilities. The community does not also allow women to be employed yet their men are reckless, jobless and addicted to illicit brews leaving their families to languish in poverty. These are some of the key consideration areas when addressing the plight of the women in the different communities.

APPROACH TO THE DESIGN PROCESS

This section presents information that is clustered in response to the objectives of this research. The researcher has attempted to synthesize the findings from the cases to answer the research questions. This section describes the product design practice within women initiatives, the design process and approaches to design. It gives insights on approaches to product design, raw materials acquisition, the design process within the initiatives, as well as design skill acquisition for the women.

Product Design in Women Initiatives

The women empowerment initiatives are drawn to the production of textile and fashion products for various reasons. Although they need to make money, they focus on products that require skills that the women can easily acquire. The approach in design is user-centered where the clients dictate what the women produce. The products will therefore vary from one client to the next depending on the orders placed. With every new product, the women have to be briefed on the production process and the design process for the new product formulated.

The products are mainly handmade therefore allowing more women to be engaged in production. This helps in creating more jobs thus impacting on more households.

Fabric, Leather and Beads Acquisition

The women empowerment initiatives acquire their raw materials locally. However, some materials may be imported in cases where the client prefers specific materials. The textiles materials such as fabric rolls are bought from some of the big textile manufacturers in Kenya, for example, Bedi and Sunflag Industries. In cases where uniqueness is sought, the initiatives have also identified companies that custom-make fabrics for their orders one such company being Bedi in Nakuru. The beads are also bought from local markets especially from shops in Downtown Nairobi.

The fabrics, beads and other materials used in women empowerment initiatives are not always sustainable. However, the initiatives have sought ways to reuse and recycle the waste from their production process. They also use organic materials which have minimal environmental effects such as, cotton, jute, leather and wood beads

The Design Process in Women Initiatives

In women empowerment initiatives studied, the design process followed is more or less the same. The process begins with the client's brief or order which contains the product number, the quantities to be produced and in some cases the fabric specifications. If the product is new to the product range, the services of the outsourced designer are sought to help come up with the design specification and development of production patterns. This is then followed by the development of a prototype. The production manager then communicates to the clients upon whose approval the samples are sent to the production unit. The samples are then discussed with the women who then proceed to laying, cutting and eventually producing the final product in the case of textile products.

In jewelry production, the patterns are studied and then production of the final product undertaken. After production, quality control is conducted to ensure that the products meet the client's expectations pertaining to neatness in finish and absence of faults. The products are then packaged and shipped to the client.

Skills Acquisition for Women

The women under this study have all acquired some form of training on craft and textiles items production. These skills were acquired through formal training and for some who had basic skills before joining the initiatives; through apprenticeship. The two cases have however not given much attention to equipping the women design knowledge, thus the designer is the only one with design training. This could be the reason why the initiatives are particularly doing well compared to those that have not appreciated the place of design in their work.

CONCLUSION

The findings in this research have led to the development of several conclusions in regard to product design in women initiatives, raw material acquisition, and the design process in women initiatives as well as design skills acquisition for women towards sustainable product design that empowers women. Most of the women initiatives in Kenya do not practice sustainable product design in their craft production. This has resulted to lack of access to external markets due to production of items that do not meet World Fair Trade Organization (WFTO) standards for export purposes. However the two initiatives have benefited greatly by having marketing teams to network them with external markets while branding their products as 'Made in Kenya'. The collaboration of the professional designers with marketing teams has also seen them design their products sustainably both socially, environmentally and economically.

Sustainable product design is seen as tool for sustainable development and thus the uptake of the same in women initiatives should be encouraged. Attention should be paid to the quality of their products and the approaches towards making their practices sustainable. More efforts need to be put into the development of product design skills that appeal to the women initiatives to boost the quality of their products thus increasing their revenues.

The raw materials also need to be sustainably acquired to ensure that the end products also meet sustainability standards. This can be done by encouraging the use of organic materials, recycling of waste from other processes, and the use of reusable materials among others. The design process should also be such that it reduces resource wastage while ensuring the quality standards are met.

Inadequate training poses a threat to product design as the products from women may not meet the standards for export. This would mean that the products may only be consumable locally thus blocking out the opportunities that arise in exporting. Women should therefore be properly trained on quality production to ensure that they can run successful initiatives that are able to produce products fit for export.

CHAPTER SIX

RECOMMENDATIONS

The researcher recommends the adoption of the sustainable strategies discussed in this research in the design of products for sustainable empowerment and development. Most of the strategies are relatable to the plight of women in Kenya but can be applied in majority of initiatives involved in empowerment of marginalized persons. The strategies are as listed below;

- **Adoption of the 6-phase design process**

The product design process can be made more efficient by adopting the LifeLine Fashion model (refer to Figure 7) which is thorough and inclusive.

- **Involving professional designers in women empowerment initiatives**

Awareness of the role of both textile and product designers in empowering women through craft can be promoted by encouraging women empowerment initiatives to have a resident designer who is part and parcel of the design process.

- **Deliberate consideration of sustainability of the practices by ensuring they are socially friendly as well as eco-friendly,**

Sustainability is in most cases unattended to and thus more attention should be accorded to it. Designers will play a major role in emphasizing the need for sustainable design practices.

- **Education and skills training:**

The initiatives as well as the government should invest in skills training for women and also adult literacy for those interested in furthering their studies. This will greatly impact on the quality of their products.

- **Provision of access to markets:**

The initiatives should take it upon themselves to search for markets for the products of their women. This encourages production as there is a ready market

for them. The government should also borrow the idea of CAWEE Ethiopia by sourcing for export markets for the products by women.

- **Provision of financial services and aid:**

Women should be given access to finances to help them run their businesses and invest in other activities. This improves their financial abilities while at the same time assisting them to be independent. The governments as well as financial institutions are urged to assist in providing the same.

- **Provision of access to machinery and equipment:**

When women have gained skills, it is necessary to assist them in starting their own enterprises. This is because sometimes not all the trained women are absorbed in the initiatives after training. Bearing in mind that most of these women are not able to meet the cost of purchasing machinery and equipment, it is would be recommended that the organizations provide these to help them in starting off their businesses.

The researcher proposes that further research be conducted to establish the extent to which each of the suggested strategies contributes to empowerment. More research is also necessary to identify the inter-disciplinary role of design in sociology and development studies. Consequently, design research should be conducted to determine the sustainable aspects in product design and their impact on sustainable development.

Further research on design research; appropriate methodology, data collection tools and analysis approaches is also necessary

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APPENDICES

INTERVIEW GUIDE FOR DIRECTORS AND PRODUCTION MANAGERS

SECTION A: BIO DATA

A1. Name: _____ A4. Initiative: _____

A2. Age: _____ A5. Time: _____

A3. Gender: _____ A6. Date: _____

SECTION B: SKILLS AND KNOWLEDGE

B1. What is your highest level of education?

B2. Do you possess any skills in product design? If yes explain

B3. What other skills do you possess?

B4. Who are the founders of the organization?

SECTION C: MATERIALS, PROCESSES AND PRODUCT

C1. What raw materials do you use for your textile products?

C2. Where do you source for the materials?

C3. What is unique about the materials you use?

C4. What types of machines do you use?

C5. How many women have you managed to empower since formation?

C6. Have you partnered with any bodies or institutions?

SECTION D: EMPOWERMENT STRATEGIES

D1. Briefly describe the type of women within your initiative?

D2. What criteria do you use to recruit women into the initiative?

D3. Do the women have the relevant skills at the point of joining the initiative?

D4. What strategies do you use to empower the women?

D5. What do you do to ensure there is market for your products?

D6. Would you say that the initiative is sustainable? Explain

D7. What more could be done to improve the lives of the women?

INTERVIEW GUIDE FOR THE WOMEN

SECTION A

A1. Name: _____ A4. Initiative: _____

A2. Age: _____ A5. Time: _____

A3. Gender: _____ A6. Date: _____

SECTION B: SKILLS AND KNOWLEDGE

B1. What is your highest level of education?

B2. Do you possess any skills in product design? If yes explain

B3. Did you possess the skills before joining the initiative? Explain

B4. What other skills do you possess?

SECTION C: EMPOWERMENT AREAS

C1. How long have you been in the organization?

C2. For the period you have been with the organization, has your life changed? If yes explain.

C3. What activities are you involved in within the organization?

C4. What more could be done to improve your life?

OBSERVATION GUIDE FOR PROCESSES

1. What design process applied in the initiative?
2. Are the processes environmentally friendly?
3. What materials are in use?
4. Are the materials sustainable in any way?
5. What machines and equipment are in use for production?
6. Are the machines energy efficient? Explain
7. How are the working conditions in the workshops? Explain

INTERVIEWS

Operations Manager- Grace Kimama

She studied up to diploma level where she did a diploma in business management. She has skills in marketing, corporate and public relations, project management, team building, and business development. She received skills on textile production on-site at Bedi Investments in Nakuru.

According to Grace the fabrics used are cotton twill, polycotton fabrics, and accessories mainly from suppliers in Kenya in compliance with the KAM policy on maximizing consumption of local textile materials. The material suppliers include Bedi Investments, Spinners and Spinners, Alpha Knits, Sunflag, Oriental Mills, Polyshop, Executive Printers as well as local shops.

Spinners and Spinners offers custom designed fabrics to lifeline based on the customer's requirements. Most of the suppliers also give donations to aid in running the program.

The factory has 30 electric powered machines (brother, juki and jack). Before acquiring the electric machine they had manual treadle machines that were less effective and produced lower quality work.

They have a total of 28 women with 15 of them successfully running their own businesses alongside working with etc.

Main partners are Wholefoods, Zazzle, hand-in-hand and American eagle

Most of the women come from a humble background. Unfortunate circumstances forced those from well up families to separate from their families. Some of them were rejected for having kids with special needs.

Recruitment

First priority given to mothers of special needs children. Other women recruited have basic sewing skills.

Not all of them have the basic sewing skills; they need a bit of orienting.

Strategies

Training- financial management, nutrition and health, first aid skills, fire fighting, sewing

Advising and guarantee loan acquisition

Having an in-house technician to handle machine servicing and repairs

Home visits to assess progress

Provision of basic food items

Advising spouses on family issues

Markets

Boast of strong marketing from the US office, campaign on social media e.g. #loveisproject

Sustainability

Offering of information, knowledge and life skills

Creating a channel for local market

Encourage mums to take more life skills

INTERVIEWS WITH THE WOMEN

Teresia Mugure

She is 33years old married to a casual worker and a mother of 2 boys. The first born son is in form 2 while the second born who is 6 years old is a special child suffering from spinal bifida and under the care of the Malaika kids' programme.

She was coming from hospital with her second born son when she heard about CTC. She brought her kid to Malaika kids and later on joined the lifeline fashion project. Before

joining CTC she had been working as a house help for two years. She is a class 8 drop out who was trained in tailoring using a manual sewing machine before joining CTC.

She never received any other training until she joined lifeline fashion where she was taught how to use an electric machine as well as how to make bags.

Empowerment, Achievements;

She has been in CTC for four years

She is able to educate her kid in form two and sustain the one with special needs.

She has gained more knowledge on how to handle the child with spinal bifida.

She is now able to support her extended family and especially the mother who has a heart condition.

She enjoys stitching but it is a requirement that they rotate occasionally.

Recommendations

CTC has helped empower the people of Maai Mahiu and should focus on increasing production to empower even more women. It should increase the space for Malaika kids programme so that more mothers can be available to work.

Margaret Wanjiku Mwangi

She is 28years, married to a *boda boda* operator and a mother to 2 boys (8 years and 4½year olds). Before she knew about CTC she was a housewife. She heard that CTC was conducting interviews for seamstresses and since she had been trained as a tailor, she decided to try her luck. She schooled up to standard 8 and then went for a sewing course after which she worked for two years in piece work stitching. She has been with lifeline fashion for 3 ½ years.

Empowerment

She is able to assist her husband with household duties.

Together they have managed to take their kids to private schools

They are now able to cater for their needs and daily upkeep and still save some money.

She is now specialized in cutting

She recommends that CTC should increase job capacity for more women empowerment.

Jane Gathoni

She is 30 years old and a polio survivor since when she was 5 years old. She is a class 8 drop out and wanted to be a journalist.

She was a victim of 2007 PEV. She was an IDP at Naivasha. Worked at Naivasha stitching bags and then left for Mombasa to stitch bags too. The pay wasn't good and the workplace wasn't friendly to her disability. She joined CTC in November 2011.

Achievement

She has managed to educate her 6 siblings (values Education)

Relocated from the IDP camp where she was living with her family to Maai Mahiu Town.

She bought a Lion King industrial machine which she uses to make extra income.

She has saved money in K- Unity bank and managed to buy a plot of land 50 by 100 meters.

She has joined the business of sand harvesting and has managed to employ a man to help in managing it. Her income from the business is sh. 3000 per week

Her sewing skills have improved tremendously

Recommendations: Advise women on growth to create opportunities for others.

Zipporah Wairimu

She is 38years old divorced with 5 children. Two of her children are special needs girls (cerebral palsy) who were under Malaika kids program. She also is a guardian to her late sister's son who is doing his degree in Egerton University. She is a class 8 drop out who has been trained in welding, hairdressing and dressmaking.

She used to sell *mitumba* before joining CTC. She knew about CTC through a *Chama* with other women. She started as a seamstress in 2011. At CTC she was trained on how to stitch bags.

Achievements

Was able to take care of her epileptic kid (one of the Cerebral Palsy girls)

Provide good food and education to her kids

Bought motorbike, a plot of land

Alice Njeri

She is 46years old, married and a mother of 5kids.(27 years girl(married), 25 years girls(owns a barber shop), 15years old boy (form two), 13years old boy(Malaika kid) and 11 years old girl(standard 6)

She was educated up to class 8 and then God married to her husband who was a truck driver. Later on the husband quit work and indulged in illicit brew and has never looked for a job again. He therefore never assisted in raising the family and Alice struggled to raise her two older daughters up to standard 8. CTC then came to her rescue.

She was in the first group of mums that were taken in by CTC. According to Alice, before CTC, they had formed a *Chama* of people with disabilities in Maai Mahiu. Zane, the founder of CTC, visited them and told them about CTC. He then left his friend Alison to conduct a study on their needs. The study led to the formation of CTC as a daycare for children with disabilities. The mums after bringing their kids to CTC were left with a lot

of free time and thus CTC introduced programs to empower them. This was because most of them were class 8 drop outs with no skills training. CTC thus introduced adult literacy classes, tailoring and dressmaking classes free of charge for the mums. After the training, Alice and her friends started working for CTC using manual singer machines. As the orders increased they realized that the manual machines were not effective and thus requested for the electric machines.

Alice is now a specialist in stitching but would also love to learn business management skills.

Achievements

Since joining CTC she has been able to solely provide for her family

She also managed to take her daughter to a private school that performs better than her former school. She also has been able to pay school fees for her son in Form 2. She bought a plot of land 50 by 100 and also owns a *boda boda*.

She managed to record her first album video in March 2013 through her savings

Recommendations

CTC should introduced piece work system and allow women to work from their homes since most of them have bought sewing machines.

Hannah Ruthi Wangari

She is a mother of four, 2 sons and 2 daughters. One of her kids is disabled and has been with Malaika kids since 2009. She schooled up to standard 8 and then got married. CTC taught her how to stitch and through a friend she gained skills in hair dressing. When her son became disabled at the age of four her husband left saying that “in his family they didn’t have disability genes”. She resorted to washing clothes for people for fend for her family. This saw her move from upcountry to Maai Mahiu where she had no relatives hence avoiding stigmatization.

While at CTC, she joined a group of other Malaika mums who had formed a merry go round to buy sewing machines. Through the merry-go-round she was able to purchase her own sewing machines and could therefore make extra coins working from her house.

To substitute this income she rents out a farm when she practices small scale farming. She farms potatoes and onions for commercial and subsistence purposes.

She has also gained more knowledge through CTC on good investment and good financial planning. CTC has also assisted her through guaranteeing loans for K-Unity.

AT CTC she is a quality controller and sometimes assists in cutting and trimming.

Achievements

She has been able to take her kids to school

Her income increased from Kshs. 3000 per month before joining CTC to Kshs. 13000 per month after working with CTC.

Recommendations

CTC should expand the premises of lifeline fashion to accommodate more women so that more people may be empowered.

CTC should make the SACCO open to the members of the public

Beatrice Gichohi

She is a mother of two girls, married to a hardworking husband. She also had a third child who passed on at the age of 3 years due to meningitis.

She schooled up to Form Four and then did computer packages after which she got married. She however has a strong interest in Information technology and sociology. At

CTC she learned to stitch and was appointed as the team leader in charge of inventory control.

Skills training

She was trained at CTC on tailoring and dressmaking

Achievements

Bought machine through the merry-go-round

She has been assisting the husband in raising the family by chipping in on family expenses.

She is no longer a housewife and the living standards of her family have improved

They are now able to educate their kids in good private schools

Together with the husband they bought a plot of land and built it

They were able to install water and electricity and also buy a dairy cow

They substitute their incomes by running a shop

Comments

CTC has changed the place of women in the society as well as transforming the man and the society as a whole

Esther Regio

She is married and three all above 20 years. The last born who is 20 years old is a special needs child. She was an internally displaced person in 2008 which led to the loss of all her properties. Together with her family they sought safety in AIC Church where Jeremiah (CTC Founder) was a pastor. It was at the Church that the idea of forming CTC was formed. This led to Esther being among the first beneficiaries.

Skills and training

Before CTC she knew how to crochet and knit. She was in the business of charcoal and maize vending. When she joined CTC she stitched for a while but then was given the responsibility of being the caretaker of lifeline fashion.

Achievements

She bought two plots in Maai Mahiu and two in Naivasha

She now has dressmaking skills

Florence Mueni

She is a divorcee with 4 kids, 2 boys and 2 girls. The kids are in Form four, form 2, standard five and standard three. The girl in standard 5 is physically disabled and uses crutches to aid in mobility. She was the first join CTC through Malaika kids program and then the mum joined lifeline fashion later on. She was rejected by her husband for having a special needs kid.

Education and training

She schooled up to standard seven then got married. She didn't receive any training until years later when she joined CTC. She had been forced by the husband to be a housewife as he was very possessive.

At CTC she received training on tailoring and dressmaking and also how to make bags

Achievements

Having a source of income

She bought a motor bike

She is able to pay fees for her children in private schools

She is saving up in the umbrella SACCO to buy a plot of land

Joyce Njeri

She is divorced and a mother of two girls. The first born is nine years old and suffers from meningitis. She is blind and disabled and under the Malaika kids program. At one point the husband poisoned the disabled girl and claiming that he could not give birth to a child with disability. She was rejected by her own family and ended up working as a house help. Her employer helped her seek a slot for her child at Malaika kids in 2010. In 2011 she joined CTCs lifeline fashion, was trained and started working as a seamstress.

Education and training

She dropped out of school in class 7 and got married. She had not received any training and had only worked as a shepherd and a house girl. When she joined CTC she received training on dressmaking.

She enjoys operating the overlock machine

Achievements/ empowerment

She bought a plot of land and is preparing to build residential houses on it.

She got a loan from K-Unity which aided in joining the sand harvesting business

She managed to employ a man to manage her sand business and the man bought a plot of land and is comfortably raising his family

She educates her sibling in both primary and secondary education

She can now give her daughter a better life and better education

Judith Ogai (Judith and James project head)

She is a 40 year old widow and a mother of three. She also has custody of six children of her late relatives. According to her, Judith and James was started in 2011 as training centre with two women at the time. At the time they had rented out a space in Santon where they were training and stitching pillow cases, skirts and laptop bags. The second

training was in 2012-2013 with 14 women from whom two were absorbed in Judith and James as seamstresses. The third one was in 2014 with 16 women. From this group 2 people were absorbed in Judith and James and two in Jimani.

Recruitment

They women are selected from a pool of needy women by referral

They are mostly marginalized groups, widowed and single.

Strategies

Sponsors look for markets

They train the women on business management

Education

She schooled up to form four and then got married. She was a housewife for 15years up to the time her husband passed on. After the husband passed on she was trained by *fundu* on dressmaking. She then worked for a year then loss her job as the business collapsed. While still struggling to raise her children alone she met Anne, Jennifer and Nicky in Uzima Tele church in Santon. It was here that the idea was born and the organization founded.

Challenges facing women

Lack of jobs

Illiteracy

They are only employed in the Jua kali sector

Raising families on their own

Achievements

She used to earn 1000 per week and now earns 17000

She managed to educate her kids and assist in raising her relatives' children

Materials

They use fabrics purchased locally especially the kikoi, khangas and tie and dyed fabrics.

This is because their main market is the export market to the UK which prefers the African inspired fabrics.

Machinery

They used both manual and electric machines and were operating with 18 women

Partners

Their friends in the US

Nature of women

Widows

Single mothers

Marginalized women

Recommendations

Increase the markets for their products

Increase admission capacity

Eunice Odhiambo- Jimani

Jimani was established in 2013 September as a purely jewelry line. They started by recruiting four women who were training on the craft by the organization. Eunice was among the four women.

She is married to a high school teacher and together they have two children, a 10 year old boy and a 2 year old girl. She schooled up to form four and then did a diploma in social work at Kisumu polytechnic after which she worked in an NGO for six months. She later joined Jimani and was trained on jewelry production.

Materials

They buy most of them from river road in Nairobi e.g. brass, beads and chains

They also recycle the fabrics from Judith and James

Machinery

Most of the machines they use are manual and labor intensive and they include hammers, files, punches, punching tools, rulers, pen, pliers, round mouse, cutters, and flatters

Through this they have managed to empower 6 women and still aspire to empower more.

The design process

Their US partner Jennifer looks for market in the US

She meets with clients and gets a brief for the desired product.

She then works on the design and sketches and upon approval makes a sample.

The sample is then send to Kenya with detailed description of the process where necessary

They then make the first 10 pieces and then conduct quality control checks

The order is then made

Achievements

She is able to assisting in financing the family's needs

Recommendations

They managed should increase the market for their products to increase the orders and empower more women.