Consumer Attitudes towards Sustainable & Environmental Strategies in Fashion Clothing

A Thesis submitted to University of Manchester
For the Degree of
MPhil: Sustainable fashion and environment
In School of Material

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ABSTRACT

Purpose – The purpose of this research study is to explore sustainable issues in the fashion industry, and the achievement of sustainable development by putting into application the eco-friendly operational strategies as well as sustainable marketing strategies. Promoting sustainable fashion could increase the market share of “green clothes”, achieve a higher recycling rate, and reduce the impact of pollution. This research is not only for organizations, but also relevant to individuals who are interested in sustainable fashion.

Design/methodology/approach - The empirical study is based on the questionnaire survey. The data were obtained from a questionnaire handed out to a convenient sample in UK and China. With the information obtained, and after the scales validation process and factor analysis, both t-test and regression analysis have been conducted with regard to the hypotheses proposed from literature.

Findings – Firstly, from the perspective of operational strategy, recycling is the end use of a product lifecycle. Increasing the textile recycling rate could reduce textile waste and create new market opportunities. Re-sell used clothes, as one of the most convenient recycling options, could be considered as profit-driven rather than environmentally friendly motivation. The premier recycling options such as re-design and modification are more popular among environmentally friendly consumers, although modification requires sewing skills and fabric knowledge. As a new market opportunity, the re-design solution package would increase consumers’ interests in re-designing used clothes. However, consumers’ behaviour towards “recycling” do not result in “buying green clothes”.

Secondly, in order to increase market share of eco-fashion, “green clothes” should be promoted via sustainable marketing strategies. The marketing strategy should be designed together with consumer values and attitudes, environment regulations, and information credibility. As a key element of marketing strategy, information credibility can influence consumers’ behaviors in both recycling and purchasing. Respondents with higher expectation on the product information, are more willing to purchase “green clothes”. In addition, the economic crisis has great impact on the fashion industry, and it also reduces consumer expenditure and purchasing frequency on “green clothes”.

Research implications – Firstly, a sustainable marketing strategy, which suggests production and promotion with sustainable issues of the re-design solution package has been put into application. Secondly, in order to increase information credibility and availability, the research suggests using eco-labels that are required to be standardized in fashion industry.
DECLARATION

Thesis title: Consumer Attitudes towards Sustainable and Environmental Strategies in Fashion Clothing

This thesis is a presentation of my original research work. No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or the institution of learning.

The work was done under the guidelines of Dr Stephie Tsai, in School of Material, University of Manchester.

Name…………………………………………………………

Signature………………………………………………………


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PART ONE:
INTRODUCTION
Chapter 1 Introduction

1.1 Research background and motivation

The continuous growth of the global economy has caused significant environmental problems for the planet and eco-system: the natural forest has been lost or damaged, many animals are extinct or in danger, and the natural resources are over used. The relationship between environment protection and economic development are very complicated because they are interacting with each other rather than being opposite. Previous researches mainly concerned topics that relevant to the economy and the environment, including: sustainable economic development, human rights, social activities, politics and technology improvements (Tisdell, 1991; Hueting, et al., 1992).

In order to achieve a sustainable and harmonious relationship between the economy and the environment, it is the responsibility of both consumers and business to consume natural resources efficiently, reduce pollution, and protect the global environment and eco-system for future generations (McCann-Erickson, 2007). Government and regulations, business and organizations, and individuals should all participate in the sustainable development of the economy and the environment.

Individuals’ responsibilities have major impacts on both the green market and environment protection. Consumer behaviour and value can influence consumers’ environmental awareness, purchasing behaviour and recycling decisions; thus, it should be considered as a key factor to increase the market share of green products. Environmental values play a primary role when consumers are purchasing green products: values affect people's belief, which then have an influence on personal norms that lead to consumers' pro-environmental behaviour (Reser and Bentrüpperbaumer, 2005; Stern, 2000).

At the same time, from the view of business, sustainable issues could add value to their operational process by improving technology efficiency, and stimulate the
market by introducing new green products. In recent years, business strategies with sustainable issues have been recognized by many organizations and business, as they will benefit not only the environment, but also organizations by creating marketing opportunities (Jones, et al., 2005). Previous studies find that sustainable business strategies can be achieved by increasing process efficiency, product enhancement, market position and development (Day, 1998).

This research aims to explore sustainable business strategies by taking into consideration both operational and marketing strategies. A sustainable business strategy should be designed with regard to environmental legislation and social regulations; the cost and scarcity of natural resources; consumer awareness and social responsibility; media encouragement and public pressure; social attitudes and consumer values (Jones, et al., 2008; Signe and Clifford, 2005).

In recent years, sustainable development has been recognized by the textile and fashion industries, since textile has been one of the major industries as well as pollution producers all over the world. Fast fashion has made pollution even worse; fashion becomes more affordable, as the globalization has made it possible to produce clothes at lower costs. Therefore, developing sustainable business strategies could help the fashion industry achieve sustainable development, increase the market share of “green clothes” and raise the recycling rate of used clothes.

“Green clothes” could be seen as a new marketing opportunity for fashion industry, and green fashion has become one of the latest and popular trends in the last decade. In this research, green clothes are defined as garments that are created and produced with consideration of the environmental and social impact that they may have throughout their product life cycle, such as using organic materials, eco-friendly production process, and recycling (Gershon, 2005). Thus, environmentally friendly operational strategies could provide useful guidelines for designing and producing green clothes.
Regarding marketing strategy, building a green image allows many companies and retailers to report their efforts in their environmental responsibilities, and promote products with the new environmentally friendly measures applied from production, retailing to consumption. However, some studies argue that green is the ‘new black’, and many consumers find limited information about green clothes (Fletcher, 2008).

Specific information and knowledge about green clothes could allow consumers to understand the benefits they will gain from purchasing and using them. Therefore, information variability and creditability could influence consumer behaviour and attitudes towards purchasing. Generally, consumers are more willing to trust advertisements with altruistic messages (Paolo, et al., 2009), and successful advertisement should communicate with consumer about the information and knowledge in efficient ways (Kim and Damhorst, 1999). Thus, creating a green brand image becomes a key tool for increasing product credibility in marketing strategy.

At the same time, increasing textiles recycling rate is one of the most significant solutions for reducing textile waste and maintaining sustainable development in the fashion industry. The total amount of clothing and textile wastes in the UK is approximately increasing 2.35 million tons per year (Allwood, et al., 2006). Domina and Koch (1999) indicate that there are mainly three methods to recycle used clothes, including disposal, resale, and re-use (Domina and Koch, 1999). For sustainable development, re-sold and re-use used clothes which for sustainable development can benefit both environment and business, especially in a short-term (Fletcher, 2008). In the long run, it is necessary to research and develop new technologies that can reduce the recycling impact on environment and minimize pollution during the production process.

In addition, the current global financial crisis has been continuously affecting the major industries since 2007, and the global economy has been continuously going through depression gradually (Wilson and Eilertsen, 2010). The fashion industry has
had to deal with a sales reduction since the financial crisis, while general consumer expenditure has been reduced. Despite that the financial crisis has posed more challenges for organizations to tackle environment problems during the hard time, it also brings about new market opportunities for green industries. The crisis encourages manufacturers to develop more new energies and technologies, especially for climate change and emission trade.

1.2 Purpose of the study
This research study aims to achieve sustainable development in the fashion industry by exploring sustainable issues in both operational and marketing strategies. Sustainable development of the fashion industry could reduce the impact on textile pollution, increase the recycling rate, and create a new market share for green clothes. Thus, the research is proposed to increase market share for green clothes, as well as recycling rate, reduce impacts of the economic crisis in green market, and find potential market for re-design solution package.

Sustainable business strategies allow organizations to achieve sustainable development in the long run, and improvements of business strategies could be made through productive processes and marketing strategies. First of all, as the end use of garment’s life cycle, textile recycling should be taken into consideration in sustainable operational strategies. The research proposes reducing textile pollution by increasing recycling rate of used clothes, and aims to define the factors that may impact textile recycling, e.g. the availability of recycle options, the convenience of recycle options, and alternative recycle solutions.

Secondly, as for sustainable marketing strategy, increasing the market share of recycled clothes could not only bring profits to organizations, but also reduce the
environmental problems. Green clothes are usually sold at higher prices, due to the cost rise of materials and promotions. This study aims to determine the potential market for green clothes by considering consumers’ purchasing power when sale prices rise. Consumers’ purchasing behaviours are related to their value structures and knowledge about being environmentally friendly; thereby information reliability should also be reflected as an important factor that may change consumers’ attitudes.

Thirdly, in order to stimulate the re-design of used clothes as a recycling option, a re-design solution package is introduced to express consumers’ abilities in sewing and design skills. The re-design solution is not only an alternative recycle option for textile recycling, but also a new marketing opportunity for the fashion industry. The research is aimed to find out the potential marketing for the re-design package by targeting on consumers who are environmentally friendly and have passions for fashion.

Furthermore, influences of economic crisis should be considered as important factors that may impact both the green market and the fashion industry, and these impacts should be addressed during the marketing research and data analysis.

1.3 Research questions and objectives

The research question this study aim to answer is: how sustainable development can be achieved in the fashion industry? To answer this question, the following are four major topics that should be addressed to achieve sustainable fashion

- How to increase the recycling rate of re-sold used clothes?
- How to increase the re-use rate as a recycling option?
- How to increase the market share of green clothes?
- What impacts of the economic crisis may propose to green market?
The empirical study of this research is based on literature reviews and hypotheses development, and cross-country factors were taken into consideration for survey design. The research survey aims to examine research purposes and objectives, and analyze the hypotheses testing. There are eight major objectives in this study, as following:

- Examine the background of the economy and the environment, and provide guidelines on how to achieve a sustainable relationship between the two.
- Identify consumers’ values and attitudes towards green clothes, and confirm how to achieve sustainable development of the fashion industry.
- Determine how to increase the credibility of advertising and information about green products and the importance of green brands.
- Demonstrate consumers’ values and motivations regarding recycling used clothes, and evaluate the factors that may influence consumers’ recycling decisions, such as the availability of recycling options, the convenience of recycling options, and alternative recycling solutions.
- Introduce a re-design solution package to express the consumers’ ability to re-design, and research potential marketing opportunities for the re-design package, which could be seen as one of the alternatives recycling options.
- Examine consumers’ purchasing power of green clothes, along with consumer value, attitudes and information credibility. Both the UK and Chinese respondents’ purchasing powers should be compared, and cross-country factors will be considered.
- Examine the impact of economic crisis on green clothes and other green products, and find out the marketing opportunity brought about by the economic crisis. The UK and China will compared in terms of the impact of the economic crisis.
- Make recommendations and suggestions about manufacturers, retailers, media, and further research.
1.4 Outline of the Thesis

This research contains six chapters in total, and divided into four parts. The introduction in part one; the theoretical background, the conceptual framework and hypotheses development in part two; the empirical study and findings in part three; and the recommendations, conclusion and limitations in part four. For a clear view, the outline structure of this thesis is also represented in Figure 1.1.

The introduction of the research in Chapter One contains the research background, motivation, research purpose, research questions, and outline of the thesis. It aims to provide a clear structure of the thesis, and provide a convenient guidance for readers to understand purposes and objectives of the research.

The literature review and theoretical background of the study are presented in Chapter Two, which contains four main topics, including: economics and the environment, sustainable business strategies, textile and the environment, and consumer behaviour. Firstly, Chapter 2.2 is defined as the background of the research, which determines current government controls and regulations on environment, marketing opportunities posed by these controls, and impacts of the economic crisis. Secondly, sustainable business strategies include operational strategies and marketing strategies in Chapter 2.3. Sustainable business strategies are based on traditional business strategies and can add sustainable development to business. Thirdly, Chapter 2.4 suggests textile pollutions could be reduced through using environmentally friendly production process and sustainable marketing strategies. Fourthly, Chapter 2.5 focuses on textile recycling by considering the availability and convenience of recycling option and the design solution to increase recycling rate. Last but not least, consumer behaviour and attitudes towards environmentally friendly products could affect their purchasing behaviour and recycling decisions. The research defines two suggestions for organizations to promote green products: increasing information credibility and constructing a green image.
Chapter Three has developed the literature review into eleven hypotheses based on four areas, including: re-sell used clothes, re-design used clothes as a recycling option, consumers’ purchasing powers of green clothes, and impact of economic crisis on green industries. Each hypothesis is determined with dependent variables that may impact on it; these variables include recycling options, re-design solutions, consumer behaviour, economic crisis, the media and public awareness.

The methodology in Chapter Four has presented the process of how to develop the hypotheses into a questionnaire survey. The research is designed with cross-sectional factors, thus international marketing research issues such as the differences in language, culture, social responsibility, and the data collection and analysis should be considered during the survey design and data analysis. Overall, there are 12 questions in the survey and 139 respondents in both UK and China participate in it. The target group of the research is females aged from 21 to 45. All of the data are collected by using convenience sampling.

In Chapter Five, the data collected from the questionnaires are analyzed by SPSS. After the preliminary data analysis and data measurement purification, the established eleven hypotheses are tested and analyzed by a regression test and t-test.

The research finds out that recycling options can be affected by consumer behaviour and attitudes. Firstly, re-selling used clothes is commonly used especially for clothes with higher residual value; and eco-friendly consumers like to use premier recycling options rather than directly re-sell to charity shops. Secondly, both fashion and eco-friendly consumers may be interested in re-designing used clothes; their recycling decisions could be increased by providing reliable information and launching a re-design solution package.

Consumers’ potential purchasing powers of green clothes could be increased by delivering reliable information and product knowledge by efficient strategies; the
research finds out that consumers with higher expectations of environmentally friendly products, quality of clothes and fashion trends, are more willing to purchase green clothes. Besides, it also finds out that the economic crisis could reduce consumers’ expenditure, and both fashion and eco-friendly consumers reduced their expenditures and purchasing frequency with regard to green clothes.

Chapter Six serves as the conclusion of the research. It summarizes the findings of the hypotheses testing, and lists the managerial implications and recommendations arising from findings of the research.

For marketing purposes, the research recommends a marketing strategy for the re-design solution package, based on the environmentally friendly operational strategies and sustainable marketing strategies. In order to increase sales of green clothes and the recycling rate, the research also suggests that the fashion industry should use eco-labels to attract consumers’ attentions and deliver the information in an efficient way, in spite of complexity of standards of fashion labels. In addition, it is also recommended to compare data from both the UK and China. Therefore, the purchasing power of green clothes is compared and contrasted for both groups.
Chapter 2: Literature Reviews

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2.3 Sustainable Business Strategies
2.4 Textile and Environment
2.5 Textile Recycling
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PART TWO: THEORETICAL BACKGROUND, CONCEPTUAL FRAMEWORK AND HYPOTHESES
Chapter 2 Literature Reviews

2.1 Overview of Literature Reviews

This chapter lays the theoretical background of the study. Chapter 2 contains five main topics, including: economic and environment, sustainable business strategies, textile and environment, textile recycling, and consumer behaviours.

First of all, the research considers relevant economy and environment issues as the background of this study. In order to achieve sustainable development, the green market and economic growth should consider relevant issues with environment legislation and regulations. Although the recent economic crisis has reduced economic growth, recent government controls are trying to create marketing opportunities for green market. Thereby, Chapter 2.2 has indicated that relevant environment regulations and recent marketing opportunities for green market.

Secondly, sustainable issues could add values to business strategies, and help organizations to increase market share and achieve sustainable development. The research suggests businesses and organizations to develop environmentally friendly operation strategies and sustainable marketing strategies. Thus, Chapter 2.3 is focusing on environmentally friendly business operation strategies and sustainable marketing strategies for green products.

Thirdly, textile and fashion pollution can be reduced by either increasing market share of green clothes, or improving production process. Green clothes is determinate as one of the sustainable development solutions to the textile and fashion industry, and the research is aiming to increase consumers’ purchasing powers of green clothes. Chapter 2.4 has referred that sustainable fashion should reflected on the whole product life cycle in fashion industry, and it is necessary to take consumer behaviour and attitudes into consideration.
Fourthly, recycling is regarded as the end of use in production lifecycle; it is one of the most efficient methods to reduce textile pollution (Fletcher, 2008). The research is aiming to increase recycling rate of both re-sold and re-use recycle options for used clothes. Chapter 2.5 indicates that recent popular recycle options and alternative recycle options were presented to increase recycling rate. A re-design solution package is also planned for new marketing purpose, as the economic crisis has created new market opportunities for vintage clothes.

Last but not least, consumer purchasing behaviours are related to their values and attitudes, and they need specific information when they purchasing green clothes. In order to increase consumer purchasing power of green clothes and recycling rate, Chapter 2.6 also considers the importance of information reliability and suggests building green images.
2.1 Overview of literature review

**Economic Background**
- 2.2 Environment and Economy
  - 2.2.1 Environmental laws & regulations
  - 2.2.2 Eco-consciousness as marketing opportunities
  - 2.2.3 Economic crisis and its effects

**Academic theories**
- 2.3 Sustainable Business Strategies
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**Industry issues**
- 2.4 Textile and Environment
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**Recycling**
- 2.5 Textile Recycling
  - 2.5.1 Available recycle options
  - 2.5.2 The convenience of recycle options
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**“Green clothes”**
- 2.6 Consumer behaviours
  - 2.6.1 Media and information reliability
  - 2.6.2 “Green clothes” and information credibility

**2.7 Summary**

Figure 2.1 Structure of literature reviews
2.2 Environment and Economy

The planet and the eco-system are confronted with environmental problems, most natural forest having been lost or damaged, many animals are extinct or in danger, and the natural resources being over used. Previous study was focused on environmental issues on both manufacturers and consumers; however consumers are not making significant changes to the impact they are having on the environment, and manufacturers are continually introducing new products all over the world (O’Hara, 1998).

Environment protection is changing social and cultural attitudes, while the economic growth is impacting on environment, and reducing both producer and consumers’ green initiatives to a merely anecdotic level. Early researches define term “environmental consciousness” is used for the cognitive dimension of environmental attitudes, or environmental beliefs (Swenson and Wells, 1997; Stone, et al., 1995; Bech-Larsen, 1996). “Environmental concern” is referred to such emotional dispositions as individual indignation about the destruction of nature (Eagly and Kulesa, 1997; Kalafatis, et al., 1999; Schlegelmilch, et al., 1996).

The world economic activity is depending on environment and natural resources, there are complex connections between economy, environment and sustainable development. Sustainability has been defined as maintaining the existence of the human species, maintaining intergenerational welfare, maintaining productivity and resilience of the economic systems (Tisdell, 1991), maintaining capital stocks - including “natural capital stocks” (Costanza, et al., 1992,) and maintaining the regenerative capacity of the environment (Hueting, 1980; Hueting, et al., 1992).

To avoid consequences from economic activities, sustainable development becomes key principle for all levels of government and economic activities. On the other hand, environment dimensions can also have positive affects when businesses achieves
goals, such as reduction in environment degradation, access of greater sustainability, and the general appearance of being green (Blair and David, 2001).

Environment and economy bear complex relationship; previous researches are mainly concerned with the areas including: economic, social activity, politics and technologies (Tisdell, 1991). According to WCED’s Brundland report, there are various definitions of connections between economic activity and ecological sustainability; some refer to the sustainable economic development, or sustainable production, others refer to sustainable growth (WCED, 1987).

In order to achieve sustainable economic growth, government and regulations are playing important roles to ensure the responsibilities of organizations and individuals. It is also an important factor that influences market and prices, and creates marketing opportunities.

2.2.1 Environmental Laws and Regulations

Government has responsibility for the development of the society, not only public health and safety, but also the sustained environment (Hughes, 1986). Previous study has found the relationship between social benefits and economic benefits on regulations are complex, as environment regulations are conduced to ecosystem, but may reduce economic growth (“Back to basics on climate change”, 2008).

Political process and legislation can impact on global business, there are three main areas that are relevant to the environmental legislation, including: plan and fundamentals of land use, legislation of pollution control, and protection of wildlife and natural resources (Blair and David, 2001).
Environmental law combines statutes, common law, treaties, conventions, government regulations and policies. It covers broadly to reduce human impact on the environment, and protect ecosystem and natural environment (McMillan, 2001). Government and regulations are significant important external factor in the market; they can affect the market by control on prices, advertising, sale, promotion and improvement of product quality (Lowe, et al., 2007). For example, Green tax is also known as Pigouvian tax; add green tax on the market price is the most important regulations that can reduce environment pollution (Hanley and Shogren, 2001).

In the UK, when public expenditure restrictions permit, the Local Authorities will enforce more strictly according to existing regulations. The UK government of environment legislation is sophisticated, there are a number of departments that can influence environmental policy, and the power is delegated to many other bodies and fringes of government (Baron, 1996). For example, DETR is the Department of Environment, Transport and the Regions; it plays an important role as it has responsibility for both environment protection and policy practice. DETR can track environment responsibilities that are handled to the local government, as DETR has authority of a number of Environment Agencies, Countryside Agencies and English Nature, and set budget for these agencies. Environment Agency was set up in 1995, as an independent corporate body that responsible for pollution control. English Natural is responsible for the natural conversation in England, and it emerged from Old Natural Conservancy Council (Blair and David, 2001; Baron, 1996).

The political process can be affected both by direct lobbying of parliament and government interests. In most Western countries the political process is affected by political lobbying, and public relation consultants and political lobbyists are helpful for all interested parties to gain access to the decision-makers (Bhatt, 2007). Compare with other EU countries, UK environmental protection is based on the discretionary flexible approach known as ‘best practicable means’, rather than enforcement of statutory limits. There are several laws and registrations will enforce businesses to
comply with environmental standards; the two basic environmental standards in the UK; include: standards determined at the source of the pollution, and environment quality standards (Blair and David, 2001).

Although the government legislations will enforce businesses to meet environmental standards and regulations, the relationship between economic activities and the environment is complicated and interworked, as government controls and regulations also create new marketing opportunities.

### 2.2.2 Eco-consciousness as Marketing Opportunities

The world economy is growing significantly and applying more environmental pressures on developing new sustainable resources, straightforward increase the price of goods which use non-renewable raw materials (Whitmore, 2007). There are so many wastes shifting from developed countries to developing countries, and raw materials are shipping from developing countries to developed countries (Fletcher, 2008). It is a marketing opportunity for many developing countries, but it also brings damages and impacts on our planet (O’Hara, 1998).

Hanley and Sogren (2001) defined basic principles that can create a new market opportunity from environment problems. First of all, the property rights for environmental products and assets should be defined and assigned; therefore traders will be able to know the quantity of their products they hold, and can negotiate over the price. Secondly, government and regulations can set a market price of the environmental asset and let people decide how much of the asset they want to buy. Thirdly, regulations can set the quantity of the asset than can be trade, and people can decide what price they are willing to pay (Hanley and Shogren, 2001). For example, organizations can trade their emission allowances (Mascha, et al., 2009).
In recent years, the environment and natural resource problems are significantly increasing in developing countries. In order to craft regulations and policies to reduce these problems, the most common regulations are based on command-and-control approaches. Command and control (CAC) is used as a set of standards, and it is aiming to minimize the level of pollution, and it also enforces and monitors organization to achieve these standards. These standards also set the maximum level of permitted emission standard (Blackman, 2008).

The emission trading is one of recent examples of new marketing opportunities. Businesses should be aware of the importance of greenhouse gas impacting on environment, as it is a key factor for climate change. The climate change is due to the increase level of carbon dioxide, and footprint is defined as the amount of greenhouse gases a human being produces. In order to control carbon dioxide, the emission control was started in 1997 (Mascha, et al., 2009).

The trade permit for environment protection was first introduced by Dales (1968), and it is focused on the quantity side of the market equation. One of the typical examples will be in the emission market, the trade permit creates value as a free trade property, people who keep the pollution under permits level are able to sell the credits to others (Dale, 1968). Organization’s carbon footprint can be calculated by adding the measures of greenhouse gases in their primary footprint and secondary data (International Energy Agency, 2005). The primary source of carbon dioxide emission includes the burning of fossil fuels, building energy use, and vehicle transportation. The indirect emissions known as secondary resource resulted from life cycle of any products we use, from their manufacture to their breakdown (“Back to basics on climate change”, 2008).

Emission trading is a market-based approach which is used to reduce and control emission pollutions (Dale, 1968). The limited amount of pollutant is set by government and regulations; companies or individuals are issued emission permits in
credits. They cannot exceed the allowed credit of emission permits they hold, if they want to increase their credits, they have to buy the allowance from those who pollute less (Klepper and Peterson, 2006).

Energy Saving Trust and Environwise suggested that the significance of accounting the organization’s carbon footprint can be improved in the supply chain, as the process produces the most emissions can be detected and will therefore point out what has been emitted. M&S and HSBC have set up a new business way that includes cutting travel by introducing videoconferencing, replacing boilers and light-bulbs with energy efficient ones, reducing waste, and choosing recycled products (“Back to basics on climate change”, 2008). Previous research suggested retailers and organizations to offer customers transparency to help them measuring both their own carbon footprint and their suppliers. Many industries have actively presented their responses to climate change, including insurance, food, chemical and transportation (Harvey, et al., 2007).

On the other hand, emission trading will not only reduce green gas, but will also lead to the development of more efficient technologies and an increased availability of renewable energy (Florian and Letmathe, 2010). New technologies bring new marketing opportunities to the green market, especially with new sustainable energy, such as wind and solar and other alternative energies (Kunsch et al., 2004).

### 2.2.3 Economic Crisis and Its Effects

The world economy is challenged to deal with climate policy in hard time, and the global financial crisis should not impede our fighting with environmental problems, because the economy needs continuous development. Previous research defined financial crisis was powerful enough to damage the financial systems, and it could occur from time to time (Kuttner, 2010). The current global financial crisis has been
continuously affecting major industries since 2007, and the global economy is keep
downturn gradually (Wilson and Eilertsen, 2010).

According to the International Monetary Fund (IMF 2009a), the advanced economy
reduced 7.5% in real GDP during the fourth quarter of 2008, and the decline is
reduced slightly in the first quarter of 2009. Financial crisis caused reduction of
interest rates, continued provision of ample liquidity, credit easing, as well as public
guarantees, and bank recapitalization have appreciably lowered concerns about a
systemic failure (Papatheodorou, et al., 2010). The inflation has increase selling prices
in import market. The Group of Twenty (G-20) reported 80% of world output and
trade are affected by dramatic inflation fall (Stiglitz, 2009).

The economic crisis has affected many industries, such as food, travel/holiday, clothes
and electronic products. The fashion industry is beginning to deal with economic
crisis, rising commodity prices and imminent recession. Joe Ayling from Just-Style
reported thousands of factories in China need close down; the global recession is
taking its toll on apparel and footwear supply chains (“Just – Style”, 2009).

The general sale of clothing industry has been improving since 2010. According to
Mintel (2009), clothing is on the top of the sales when comparing consumers’
spending on everyday items. However, Consumers’ confidence could take a further
knock during the recovery phase as unemployment rate continues to rise, credit
facilities remain tight and the housing market stays weak (Clothing Retailing-UK,
2009). Especially economic crisis is increasingly affecting unemployment on female
workers (Stiglitz, 2009).

Rosalind Wells the NRF chief economist said the economic crisis will reduce
consumers spending on holiday (Just-Style, 2009). Both domestic and international
tourism industry are affected, as claimed by the United Nations World Tourism
Organization (2009); the international tourism started to be affected by economic
crisis since second quarter of 2008, and the negative effects grew worse in first semester 2009 (Papatheodorou, et al., 2010).

The electronic market is also influenced by the economic crisis, due to the change from cheap energy to costly energy. The technological development leads fast changes to electronic products; economic crisis also increased the price reduction on electronic products due to the decrease of demand (Jan-Erik Lane, 2010).

- **Economic Crisis as Opportunities**
  Although the financial crisis has reduced economic growth, it also brings opportunities for environmentally friendly products, as “green product” is one of the solutions to the crisis (Tienhaara, 2009). Stiglitz (2009) also indicates that the downturn of the economy has not affected the market failure that underlies the climate problem, as polluters do not bear the full cost of emission (Stiglitz, 2009).

Sustainable recovery from the economic crisis brings both challenges and opportunities to climate change and emission market. The public finances have responded to the crisis in many countries, and the crisis may strengthen by emission tax (Hanley, 2001). In addition, in order to increase sales of green markets, government and environmental programs have increased expenditure to increase demand in short term (Mascha, 2009).

Wilson and Eilertsen (2010) have listed a few solutions to respond to the economic down; these solutions are either aiming to reduce costs of materials and production process, or increase marketing share of products. Retailers are encouraged to introduce new products and services, expand to new markets, change pricing, invest new production and increase marketing market (Fletcher, 2008). To reduce costs, the research suggested to reduce operational costs, stop new hiring, reducing employees, less spending on training and development, and put larger projects on hold (Wilson
In order to increase market shares during the hard time, green products need to reduce costs and sell at more competitive prices. The price increase on energy market will also spur the sale of green products, especially in electronic product market (Jan-Erik Lane, 2010). Therefore, new technology and substitute energy products can create new market share (Stiglitz, 2009). The green product innovation is known as GPIs, which is aiming to help green products to achieve better performance, reduce costs, become more environmentally friendly, and more competitive (Peattie, 1992).
2.3 Sustainable Business Strategies

Nowadays, sustainable development is not only recognized by government as one of the regulations for economic growth, but it has also become one of the most important business strategies for enterprises and organizations. Businesses, governments and communities are aiming to achieve sustainable development and reduce pollutions to environment and eco-systems.

The relationship between marketing and sustainable development is complicated, in concept, businesses and organizations should target on selling more and consuming less, with antithesis (Jones, et al., 2005). Sustainable marketing enables people to use the resource of the world to satisfy their basic needs and enjoy a better life without over consuming resources or damaging the ecosystem (“Her Majesty’s Government”, 2005).

Sustainability is defined as the responsibility for the world and ecosystem; people should consider economy, society and environment together (Fletcher, 2008). It is aiming to make people consume efficiently, protect the global environment, and reduce the pollution without damaging the future generations (McCann-Erickson’s, 2007). Sustainable business strategies provide a new opportunity for businesses, as companies use sustainable strategies will benefit by increasing process efficiency, product enhancement, and market share (Day, 1998).

Environment creates new marketing trend for marketplace, business should seen environmental and sustainable marketing as opportunities rather than just react to them, and there will be challenge for those businesses to stay under the weight of more regulations (Denton, 1998). Government and regulations are significantly important external factors in the market; they can affect the market by controlling the prices, advertising, selling, promoting and improving product quality. The European Economic Community has put pressure on environment control (Julian, et al., 2007)
When the environment of business operation is affected by external factors, business should be aware of that potential opportunities have been created by these factors. Jones, et al. (2008) listed four principles: firstly, the environment changes in physical, social and political issues; secondly, changes of requirement of legislations and planning; thirdly, the general business trend related to environmental issues; and fourthly, other business competitors who recognize the opportunities and develop advantages in market place (Jones, et al., 2008).

On the other hand, developing sustainable business strategies will not only benefit the environment, but also bring profits to consumers (Barrow, 2005). More companies are benefiting from sustainable business strategies and they need to think more about the environmental and social legislation and regulations; they should concern about the cost and scarcity of natural resources, consumer awareness and social responsibility, media encourage and public pressure; and social attitudes that are generally changed on values (Jones, et al., 2008).

This research is aiming to help businesses and organizations to achieve sustainable development through production process and marketing strategies. Therefore, the sustainable business strategy should include environmentally friendly operation strategies and sustainable marketing strategies.

2.3.1 Environmentally Friendly Operation Strategies

Companies are recommended to use the environmental operation strategy as it will improve production efficiency, and it is a better management strategy for the business. In order to become more competitive, successful management must turn raw materials into more finished products and services with less waste or non-value added material (Fletcher, 2008).
Environmental operation strategies are often involving new technologies and investment in new equipments. In the long term, we should consider about product life cycle, and think about environmental issues, quality issues, costs and efficiency as a whole. Cutting pollution not only benefits the ecosystem, but also saves money for the company. Company reputation is also enhanced by being more environmentally friendly; materials are saved thus the cost is reduced; and resources are maximally used. Cleaner production actually saves money and it is the main reason to turn business green (Denton, 1998; Ultimate, 2001; Jones, et al., 2005).

Every organization has different operation strategies. Currently there are various tools that may be used to achieve greater eco-efficiency. For instance: Design for environment, environmental management systems, product stewardship programs, supply chain management, total quality management and Just-in-time (Ultimate, 2001).

Just-In-Time (JIT) is helpful to achieve the best possible use of all your resources to avoid waste, and it is focusing on process improvement. Besides, improving operational and managerial efficiency not only improves the quality of the product and service, but also improves its environmental compatibility (Denton, 1998). JIT is an inventory strategy that reduces in-process inventory to increase a business’s return on investment, and it also reduces for cost on process and materials (Cobb, 1993). However it requires support from efficient transportation which results in high energy consumption.

Design for environment (DFE) is a useful tool for organizations to become more eco-efficient; it is not only aiming to reduce environment impacts but also save costs for organizations, which considers about all stages in product life cycle, from material, production process, manufacturing, packaging and distribution, product using and end of product life (Jacqueline, 2007). A good understanding of product life cycle gives more information about products, and allows organizations to make more accurate
production plans, more successful marketing strategies, and more complete financial assessment for investment options (Ultimate, 2001).

The Word Business Council for Sustainable Development has listed seven key principles that organizations should consider when developing products, changing product process and taking other actions with environmental implications which including reduce material intensity of goods and service, reducing energy intensity of goods and service, reducing toxic dispersion, enhancing material recyclability, maximizing sustainable use of renewable resources, extending product durability, and increasing the service intensity of goods and services (Jacqueline, 2007).

Sustainable operational strategies are based on traditional operational strategies, and adding sustainable values in the product life cycle. More research on environmentally friendly operation strategies and sustainable product lifecycle will be discussed in Chapter 2.4 2, associated with textile and fashion industry.

2.3.2 Marketing Mix for “Green Products”
Sustainable marketing usually creates, produces, and delivers sustainable solutions to consumers and stakeholders, and these solutions also bring higher net sustainable value, which could continuously satisfy consumers (Charter et al., 2006). The sustainable marketing should be considered based on traditional marketing mix, including product, price, place, promotion and add sustainable as an additional factor (Kinnell, 1997).

- Product
To reduce the impact of the product on environment and ecosystem, both the production process and product functions should be considered. The technology
innovation for production process enables products to be made in an eco-friendly production process, as they are usually made with lower energy consumption and less resources (Fletcher, 2008). Environmentally friendly operation strategies are one of the efficient tools to add sustainable value during the production process and product lifecycle (Jacqueline, 2007).

New technologies also produce green products which can help consumers to reduce energy consumption and pollution while they use the products (MacDonald and Oates, 2006). Government and other organizations have invested huge funding in order to investigate new technologies to reduce costs for green products, thus the green technologies have been improved rapidly. As more and more environmentally sustainable products are being sold in the market, the green market becomes a mainstream (Pickett-Baker and Ozaki, 2008).

Green product innovation is known as GPIs, it is aiming to help green products to achieve better performance, reduce costs become more environmentally friendly, and become more competitive (Peattie, 1992). Green products are generally having better quality, which is represented in longer life-cycles. GPIs could improve the product in aspects from raw materials, production process to product design. Therefore, new technology is a key factor for product innovation. In recent years, GPIs is recognized and has been increasingly used by firms in their product developments (D’Souza, et al., 2006).

In addition, product packaging should also be considered by manufacturers and retailers as using environmentally friendly product package is one of the most direct and visible methods to promote the green products (Ottam, 1994). For example, using recycled material for the package of product will not only reduce costs, but also reduce the impact on environment and ecosystem (D’Souza, et al., 2006).
• **Price**

Generally, prices of green products are higher than coordinate products. This may be caused by the cost raise on materials, production process, distribution and promotions (Pickett-Baker and Ozaki, 2008; Graviria, 1995). Earlier studies also found that consumers are price-sensitive when it comes to "buying green" and are unwilling to pay a premium price for green products (Mandese, 1991).

Previous research found consumers are willing to pay higher price for the green products rather than mainstream products (Fletcher, 2008). Because prices of green products are higher than coordinate products. This may due to the unavoidable additional costs by using environmentally friendly materials, ethical production and environmentally friendly verification (Graviria, 1995). However, previous study also indicated that consumers’ purchasing behaviour on green products is referred to their social responsible behaviour rather than environmental issues (McGougall, 1993).

Prices of green products are relying on production functions; while product functions increase, consumers are more willing to pay higher prices (D’Souza, et al., 2006). Consumers’ values and attitudes are also playing an important role, as when product values and consumer beliefs increase, the products are more likely to be purchased. For example, low energy consuming products could sold at higher prices than others, and so an innovative pricing mechanism may need to be developed and marketed (Pickett-Baker and Ozaki, 2008).

In addition, manufacturers and retailers who are making and selling green products could get benefit from government policy and result in their profits (D’Souza, et al., 2006). Government regulations are also encouraging consumers to purchasing green products.

Price is one of the most significant factors to influence consumers’ purchasing decision on green products. More issues will be discussed in Chapter 2.5, associated
with consumer values, purchasing behaviours, and information reliabilities.

● Promotion

Green products should focus on the mass market rather than niche market, but there is a number of reasons why green products continue to be sold to niche markets, and mainly to committed ethical consumers (Ottman, 1994). Consumers still have less opportunity to purchase a green product than to purchase other main stream products, unless they are aware of the purchasing options of green products in the market (Paolo, et al., 2009). When manufacturers and retailers promote their environmentally-improved products, they are often making little or no green claims in their advertisings (Rand Corporation, 2004).

According to WFA, advertisers make claims about the limitations of advertising, that it is futile to attempt social engineering by working against consumer desires or lifestyles (WFA, et al., 2002). Companies and media are laying to deliver information of environmental products or service to consumers, writers on green marketing typically emphasize the efficiency of cognitive persuasion strategies, assuming the consumer's high involvement regarding environmental issues to be a consequence of a growing environmental consciousness (Cope and Winward, 1991; Peattie, 1995; Fuller, 1999; Ottman, 1994; Stone, et al., 1995).

Previous research defined four main concerns to promote green products, including consumer attitudes towards advertising, credibility of environmental messages, credibility of the brand, and consumer attitudes towards green messages (Phau and Ong, 2007). The credibility of the advertising can affect consumers’ purchasing decisions; as more consumers are willing to respond to higher credibility of environmentally friendly images and messages (Mathur and Mathur, 2000).

Consumers’ purchasing decisions mainly depend on their past experiences, but brand image and credibility can urge them to purchase green products. As green brands can
bring positive emotions in certain target group in the market, and be able to make consumers feel better while using the products (Patrick and Vanessa, 2006).

In addition, both product package and environmental labeling could help consumers to define green products. Environmental labeling on products is an effective method of communicating to the customers the specific benefits and characteristic of the product and the claim of safety (Moorman and Slotegraaf, 1999). This information can help consumers for their purchasing decision by using symbols and verification (D'Souza, et al., 2006). Retailers and companies could also benefit from environmental labeling, as consumers could recognize the differences of the green products compared with mainstream products, and influence their attitudes about the product and the brand.

In addition, more issue about green product promotion will be discussed in chapter 2.5, by considering consumer behaviour, credibility of advertising green message, and green labeling.

- **Place**

The store image is a key factor to influence consumers’ views on brand credibility and message credibility. In store advertisements will be helpful for consumers to distribute green products, and understand product functions and the environmental benefits may be brought along with green products (Paolo, et al., 2009).

Previous study indicated that consumers’ loyalty can be affected by store images, as store images will influence consumers trust on brand (Nijssen, et al., 2003). Collins-Dodd and Lindley (2003) also indicated that consumers' perceptions of store brand image are positively associated with their perceptions of store image (Collins-Dodd and Lindley, 2003).
However, Green products not only should be produced and promoted with sustainable marketing strategies; it could also consider sustainability in its marketing distribution and sale place. For example, save energy on transportation, use more environmentally friendly methods to decorate stores, and use the internet and other selling options rather than traditional ones (Ultimate, 2001).

At the same time, Fletcher (2008) indicated that designing local and designing light as one of the solutions to reduce volume production impact on the environment. Local production not only reduces pollution caused by distribution, it also provides more jobs and increases local economy (Fletcher, 2008). In addition, e-commerce is becoming more popular in recent years; as it not only reduces impact on environment and ecosystem, but also brings profits to businesses. The one-line business enables global trading, and the brand awareness can be effectively promoted by the internet, while costs are reduced significantly (COX and Dale, 2001).
2.4 Textile and Environment

The textile industry is playing as one of the key roles in European industries, due to its high level of exports and added values; however, it is also producing serious environmental pollutions. US Environmental Protection Agency also reported that the textile industry was ranked as the seventh worst industrial polluter of water (LoMenzo, 1993).

According to BATC data, the sale volumes of textile and clothes have increased significantly from 1998. Although the economic crisis has affected textile and clothing industry, the sale volume has increased 2.04 million tones form 1998 to 2008 in the UK. However, sale volume from 2006 to 2008 is predicted by previous figures. Figure 2. 2 has represented the growth of new clothing and textile sale in the UK (Morely, et al., 2009).


Textile pollutions can be reduced by improving technology and production process (Jacqueline, 2007). In order to minimizing the environmental pollution based on European standards, it is important to improve the efficiency of environmentally friendly process. Besides, increase sustainable uses of natural resource and select
optimized production processes will also helpful to improve the quality of products (Metaxiotis, 2004).

The product lifecycle connected suppliers and consumers together, from raw material extraction to handling of waste (Jorgensen, 2010). For the sake of long-lasting environmental and social quality, previous research considered material diversity, ethically made, use matters, and recycling through product life cycle (Slater, 2003). Kate Fletcher (2008) also paid attention on textile workers’ health, as textile pollution is also major threats to their workers’ health (Fletcher, 2008).

Metaxiotis (2004) recommend an expert system for the reduction of environment cost in the textile industry, named as RECOT. The RECOT system is aiming to provide a two-step evaluation of best available techniques to improve environment, Firstly, select a set of technically appropriate process respect environmental standards to get the environment evaluation. Secondly, select a priority economic evaluation, from the previously identified set, the processes and equipment with the highest cost-benefit ratio. (Metaxiotis, 2004)

In recent years, sustainable fashion and eco-fashion have become one of the most popular trends in the market. In order to reduce textile pollution and achieve sustainable development, the research is also focusing on the five phases in product lifecycle of fashion product, from product design to end of use.

2.4.1 Sustainable Fashion

The globalization made fashion more affordable, with lower price and faster trend. Media and fashion magazines also help to create the desire for new ‘must-haves’ for each season (Luz, 2007).

However, considering with environment impacts, textile and fashion industry exists at
a high cost to plants, animals, humans, and global environment (Cooper, 1978). It not only results in chemicals being used during the production, but also the non-reusable clothes that are rapidly filling landfills. Textile workers’ health and human rights are also considered as an important issue in fashion industry (Gershon, 2005).

Sustainable consumption is introduced by fashion industry in 1990, as a remarkable sign of environmental protection (Jackson, 2004). The sustainable consumption has been defined as consumption that supports the ability of current and future generations to meet people’s demand, without causing irreversible damage to the environment (Fletcher, 2008). To achieve long term success, sustainable should be viewed capaciously, including preserve, protect and provide for the future (Thomas and Van, 2005).

Textile and fashion industry has increased promotion on environmental awareness during the recent years. Many companies and retailers reported their efforts on being environmentally responsible, and promoted products from production, retail to consumption (Fletcher, 2008). More designers and retailers are aiming to build green images for their consumers; this is due to the increase of public awareness that being environmentally friendly will result in higher marketing share (Stisser, 1994). Thus, environmental reputation becomes a new and key factor to increase product quality, customer loyalty and selling price (Fowler, 2002).

According to Stisser (1994), brand reputation on environmental issues has become one of the most important factors next to price for consumers when making purchasing decisions (Stisser, 1994). In addition to this image-based effort to look environmentally correct, more retailers as well as producers are involving themselves in cause-related marketing by linking sales of products with donations to environmental causes (Lovell, 1990).

There are mainly two ways to make efforts to support environmental protectionism,
innovation on products and increase of efficiency of production process. Besides, using of recycled resources for manufacturing is also helpful to reduce industrial pollution (Slater, 2003). For example, fabrics made from recycled materials have been introduced to eliminate waste, as have apparel-related items such as recycled garment hangtags ((Luz, 2007; Fletcher, 2008).

**Eco-fashion**

Eco-fashion was introduced as a new fashion trend in early 1990s, and it is developing towards sustainable consumption for fashion industry (Colin, et al., 1997). Nowadays, eco-fashion becomes a global phenomenon in the fashion industry. Many fashion designers have launched their eco-fashion collections; retailers are also willing to sell more environmentally friendly clothes (Hines, 2001).

Eco-fashion usually produces clothes with a more smart operational strategy, with consideration of environmental impacts, human rights, sustainable fabric and practice. There are two basic criteria for eco-fashion clothes, either using ecologically sensitive fabrics, or using responsible production techniques (Gershon, 2005).

Both designers and manufacturers are responsible for eco-fashion. Designers can to choose environmentally friendly materials and procedures, and design smart clothes that people prefer to wear (Allwood, et al., 2006). Manufacturers are responsible for making sure the processes, materials and certifications are in line with the environmentally friendly philosophy (Slater, 2003). In addition, the improvement on technological innovation will also expedite development of eco-fashion. For example, new technology will enable easily washed clothes to save water, sun-protecting fabric to reduce global warming, and durable fabric to minimize waste (Fletcher, 2008).

Most retailers promoted eco-fashion mainly in two ways, celebrities charm and fashion shows. Celebrities and media are speaking out in a range of environmentally
friendly, eco-fashion, and green lifestyle. Green as a new fashion trend has been recognized by many designers, eco-fashion is playing a key point in fashion shows. (Okonkwo, 2007) However, previous research found eco-fashion consumers are inextricably linked to celebrity chic, and eco-fashion should not just be another fashion trend (Phau and Ong, 2007).

Eco-fashion products are often more expensive than mass produced products. The rise of price results in less consumption, but it also ensures better quality, long lasting fabric, and environmentally friendly design (Pickett-Baker and Ozaki, 2008). Eco-fashion is mainly targeting economically conscious consumers, and the future of eco-fashion should target at mass market. Therefore it is important to innovate new technology to reduce the costs and make less impact on environment (Jacqueline, 2007).

From Gershon’s research, the recent innovations of eco-fashions have already begun to attract a large consumer market within the mainstream fashion market rather than luxury products market. Both designers and retailers have to consider profits of eco-fashion products. In practice, the idea of sustainable design as the latest fashion trend needs to make profits and be salable (Gershon, 2005).

2.4.2 Product Life Cycle in Fashion Industry

A good understanding of product life cycle gives more information about product, and allows organizations to make more accurate production plans, more successful marketing strategies, and more complete financial assessment for investment options (Ultimate, 2001). Consider the five phases of production process in clothing lifecycle, from materials, production, transportation, usefulness of product, to the end of life. These five phases are the key factors leading to environment impacts; therefore it is
important to understand how they affect the environment, and how to eliminate their negative effects (Jorgensen, 2010).

- **Materials**

Previous research indicated that the demand for textile fibre is increasing worldwide, especially cotton and polyester (Simpson, 2006). Different materials have significantly different impacts on environment and ecosystem: different fabric also have different production processes. Material is playing as the start point to change and a key commodity for farmer, designer, manufacturing, consumer and recycler (Allwood, et al., 2006).

Kate Fletcher introduced material diversity to reduce material impacts on environment and ecosystem. Material diversity is aiming to share ideas, reduce risk and decentralize production to achieve long-term environmental, economic and social effectiveness and stability (Fletcher, 2008). As material diversity is not only reducing resource consumption, but also producing more regional fibres, local jobs and healthy socially robust environments (Laursen and Hansen, 1997).

Designers need to consider using more environmentally friendly fabric in the design stage, such as recyclable fabric, and work in an environment friendly process (Luz, 2007). There are several advantages of using low impact materials, such as avoiding toxic or hazardous substances, reducing greenhouse gases, consuming less energy, and it is easier for reuse and recycle (Ultimate, 2001).

New technologies are also aiming to innovate smart materials, which are more durable, require less pesticide, irrigation, and other inputs. New design innovation offers alternative materials, such as organic materials, Fair Trade and rapidly renewable fibers (Peattie, 1992). For example, plant-based polymers are more environmentally friendly. This polymer is spun into fibers and woven into fabrics that
could be composted. Sustainable fashion usually concerns clothes made from raw, organic materials such as cotton grown without pesticides, reused cloth, or materials made from recycled items (Luz, 2007; Slater, 2003). In addition, different materials also refer to different disposal solutions, and have significant differences in environment impacts (D’Souza, et al., 2006).

**Production**

Textile as a high pollution industry, its production processes of both fabric and garments have serious impacts on environment. The textile and garment manufacturing industry is recognized as polluter and major user of water, especially the dyeing industry (Lauren and Hansen, 1997).

There are two major solutions to reduce pollutions during the production. The first solution is focused on process improvement, and gives guidelines in the key process stages (Peattie, 1992). These guidelines provide efficient measurements, toxic chemical substitution, chemical standards, and labour control. The second solution concerns on system improvements, which is aiming to reduce impacts by working across boundaries of individual process (Fletcher, 2008).

A well planned product design will benefit organizations in several ways, including: using the minimum amount of material required for the function; using materials which are renewable; avoiding materials that deplete limited natural resources; using recycled and recyclable material; and using waste by-products (Slater, 2003).

Both new technologies and improved management skills will increase production efficiency. The more efficient the process is, the less the production costs. In addition, improving the efficiency of production process is also an effective solution to reduce carbon dioxide, which could reduce global warming (Jorgensen, 2010). The technology innovation also includes ‘hard’ technology-based improvements, and ‘soft’ cultural change (Fletcher, 2008).
In addition, eco-fashion considers if there is chemical or bleaches in the fabrics which will increase pollution (Simpson, 2006). For example: The manufacturing processes of polyester and other synthetic fabrics require massive crude oil and lead to large amount of toxic emission such as hydrogen chloride. Therefore, it is necessary that clothing manufacturers identify and quantify the chemicals used in their products. This will also help consumers to indentify potentially hazardous chemicals that may be present in their products (Luz, 2007).

**Distribution and Transportation**

The transport industry plays as an essential component in economy and human life, but in recent years its consequences have been recognized as it brings a number of environment problems (Whitelegg, 1997).

Mainly, transport impacts on the environment in three ways, the emission that caused by cars, trains, and airplanes, the land space taken by new transport facilities such as new airport and roads, and the increased level of noisy impact on residences (Cobb, 1993). There are a few policies aiming to reduce the side effects caused by transport. They are working from three main aspects, including: reduce the number of cars on the road, reduce the level of emissions per kilometer driven, and reduce the total distance of driven (Hanley and Jason, 2001).

The Design For Environment suggested that the environmental impact of distribution can be reduced by: reducing the weight of the product and its packaging to save energy in transport; ensuring that transport packaging is reusable and/or recyclable; maximizing the efficiency of packaging; and choosing an efficient transport system (Ultimate, 2001).

Currently, retailers are making their textile products in developing countries by JIT process. Making clothes in developing countries reduce the labour cost, but it takes
weeks to delivery by ship (Cobb, 1993). Reducing transportation pollutions is a key of being environmentally friendly, due to the fact that it reduces carbon emissions, along with several other green house gases (Hanley and Jason, 2001). Many researchers are recommended to use local resources; consumers are encouraged to shop locally as well. However, in practice it needs to consider the increase of price, and the limits of choice as consequences (Luz, 2007).

At the same time, Kate Fletcher (2008) indicated that designing local and designing light as one of the solutions to reduce volume production impact on environment (Fletcher, 2008). Local production not only reduces pollution caused by distribution, it also provides more jobs and improves local economy (Whitelegg, 1997).

- **Product Use**

Fast fashion enables consumers to purchase garments at lower prices, and dispatch with less usage rates. Previous researches indicated that there are mainly two topics should be considered in product use matter of garments, including how to increase garment life and reduce the energy and water pollution during the wash (Luz, 2007; Fletcher, 2008; Allwood, et al., 2006).

Textile and apparel have strong reuse and recycling potential; it extends the value and provides an additional lifespan for the product. Rapid growth in garment purchasing has resulted in a new phenomenon that some clothes will be only worn a few times (Birtwistle and Moore, 2006). Both customers and manufactures have responsibility for lengthening product life. Domina and Koch (1999) recommend that garments’ lifetime can be increased by modification as re-design, distributing to developing countries for re-use, selling to second hand shops, and passing on to friends (Domina and Koch, 1999).

Previous research showed the typical garments are usually washed for 22 times in its life. The washing and drying process of garment is the major impact on environment,
because it requires almost six times as much energy as needed when it is produced at the first place (Franklin Associates, 1993). There are several solutions to act and reduce the use impact during the textile life cycle. New technologies enable washing in a greener and more energy-saving solution, such as improved washing machine. Different materials require various energies for washing and drying. Designing fabrics and garments that cause less impact during the washing will also save energy and reduce pollution (Fletcher, 2008).

- **End of Use**

When product life ends, there are few options recommended, including: design for re-use, design for re-manufactured, design for disassembly, design for recycling and design for disposal (Ultimate, 2001). These options are aiming to both extent product life and arrange a safe disposal.

Recycling is one of the most common and efficient ways for consumers to increase their efforts to reduce the amount of waste products channeled to landfills. According to Waste online 2004, over one million tons of textiles produced by fashion industry will be disposed at landfill site in the UK (Waste online, 2004).

Previous researches found out a few textile recycle options. Domina and Koch (1999) suggest that most commonly methods of textile recycling options are the Salvation Army, passing on to family and friends and rags. These options are easier to practice and require less planning or preparation. Re-design modification requires more skills and is not easy to generalize (Domina and Koch, 1999).

In addition, more recycle issues will be discussed in Chapter 2.5, associated with consumers’ value, variability and convenience of recycle options, and re-design solutions.
2.5 Textile recycling

Domina and Koch (1999) define that there are three factors that influence consumers’ recycling decisions, including: available recycle options, the convenience of recycle options as well as consumers’ values (Domina and Koch, 1999). Thus, to increase the recycling rate and encourage consumers to make more efforts on recycling used clothes, this study focuses on the popularity of recent available recycling options, as well as the importance of conveniences regarding using recycling options and re-design solution packages.

As the end of product lifecycle, recycling is deemed as one of the most common and efficient solutions for consumers to increase their efforts to reduce the amount of waste products channeled to landfills, and more consumers are encouraged to reuse products and other recyclable waste (Birtwistle and Moore, 2007). According to Waste online 2004, over one million tons of textiles produced by fashion industry was disposed at landfill site in the UK (Waste online, 2004).

These recycle options could be mainly classified into three categories, disposal, re-sell as recycling, and re-use as recycling (Domina and Koch, 1999). Previous research shows 25% of UK clothes and textiles are recycled through recycle bank, charity shops and door to door collection. From 2003 to 2008, the recycling and re-using rate of clothes and textiles has increased from 324,000 to 523,000 (“Maximizing reuse and recycling of UK clothing and Textiles EV0421”, 2009).

Previous study indicates that different fabric requires different disposal solutions (Kate Fletcher, 2008). Due to the fact that synthetic textile products cannot be decomposed in landfill site, unredeemable damages are brought to the ecosystem. Woolen garments that can be decomposed in landfill site, and produce large quantity of methane, which is considered as global warming gases (Waste Online, 2004; Naturegrid, 2006). To be different, linen, cotton and viscose can be made into paper
pulp and wool that can be recovered and felted or re-spun (TRC, 2006).

Textile and apparel have strong reuse and recycling potential; re-using and recycling could extend the value and provide additional lifespan for products. The rapid growth in garment purchasing has resulted in a new phenomenon that some clothes will be just worn for several times (Birtwistle and Moore, 2006). For example, H&M, TopShop and Zara and other fast fashion retailers sell garments at a very competitive price, but those garments are just worn for no more than ten times (McAfee, et al., 2004). Both customers and manufactures have responsibility for lengthening product life lies . On the other hand, Kate Fletcher (2008) indicates that business could not only gain profits from textile waste, but also achieve sustainable fashion by recycling and re-using used textiles (Fletcher, 2008)

2.5.1 Available recycle options

Consumers’ recycle behaviour is related to available recycle options (Birtwistle and Moore, 2007). Earlier studies list few popular textile recycling options such as: Salvation Army, consignment, garage sale, charity shops, passing on to friends, modification and re-design, and using as rags (Domina and Koch, 1999). Morely, et al. (2009) lists several recycling options that are widely used in the UK, including UK resale, export reuse, wiper grade, recycle grade, and waste (Morely, et al., 2009).

These recycle options could be mainly classified into three categories, disposal, resale as recycling, as well as re-use as recycling. In waste textile and fashion industry, re-sell and re-use can benefit both the environment and business, especially in short-term (Kate Fletcher, 2008). Thus, the following research focuses on resale and re-use recycle options.
● **Resale used clothes**

Previous researchers indicate that there are three popular re-selling options such as: consignment, garage sales and internet (Shim, 1995). The best quality garments are sold in charity shops and second hand shops, and some garments are re-designed into unique pieces (Kate Fletcher, 2008). In recent years, the number of second hand shop is increasing significantly, and they also raised complex effects on local economy. Sale on the internet enables consumers to sell used clothes in a more convenient and a broader way such as EBay (Hussey, 2009)

**Consignment**

Consignment refers to a inventory control method with the ownership of inventory in client node is still owned by supplier before goods are sold out while supplier is responsible for monitoring inventory level and replenishment at requirement. Therefore, consignment is one of the re-sold recycle options, and the consignment shop is also known as second hand shop (Fletcher, 2008).

However, consignment is not a very popular textile recycling option for many customers while individuals with young children would be more likely to make use of consignment because young children experience periods of rapid body growth, and children's clothes often do not fit long before they are worn out or damaged. This is also a good method for consumers to recoup some of the original costs of their garments (Domina and Koch, 1999).

**Garage sales**

Respondents using garage sales prefer to use re-selling as a recycling option rather than re-use old clothes. For consumers, garage sale takes more time and planning. Therefore it is not the ideal method of textile disposal for many customers (Shim, 1995). Some consumers also need to consider the storage cost, because most households are likely to wait until they have a large amount of goods before disposal of the garage sale (Domina and Koch, 1999).
Online sale

Online sale has become more and more popular in recent years. Many consumers resell their used clothes on the internet, especially clothes with higher residual values (TRC, 2006). Sale on the internet enables consumers to sell used clothes in a more convenient and broader way. Many websites provide professional services for personal trading in used clothes, such as Ebay (Hussey, 2009). Although online sale requires packaging and delivery services, it usually returns good profits and values.

- Re-use and re-design

Previous findings show 25% of textile of clothing wastes are reused in the UK. The superior-quality garments are re-sold to charity shops, and the majority of re-used clothes are exported to the developing countries (Fletcher, 2008). Domina and Koch (1999) indicate that as for re-using used clothes, there are mainly two methods such as: passing to friends and modifying as re-design (Domina and Koch, 1999).

Modified and re-design

Recyclers whom prefer reusing old clothe are significantly less likely to convert their unwanted textiles into rags; they prefer to use unwanted textiles to create new styles and products in order to maintain their life time (Domina and Koch, 1999).

Modifying and reusing unwanted textiles require good sewing skills and a large amount of time; those who choose this option also need to have knowledge about fabric. Shim (1995) who investigated into the disposal of apparel by college students found that girls and older students more likely to donate or redesign old clothes out of consideration for the environment. Therefore, modification is a good method but not suitable for the majority of people. The reuse textile recyclers also reported that they were more likely to modify and reuse garments for other purposes in order to extend the products’ life cycle (Shim, 1995; Morely, et al., 2009).
Passed on
Passing on the used clothes to family and friends could be seen as one of the re-use recycling options. Earlier studies of textile disposal demonstrate that donation and passing on to family and friends is the most common methods of textile disposal (Avery, 1967; Pitts, 1995). It is a tradition for households to pass on unwanted garments to family and friends, in order to prolong the garments’ life cycle. This is also an easy and convenient way of disposal, and requires little planning or preparation. Many consumers find that this method could also help them to build a much closer relationship with their family and friends. Therefore, this is a most common and popular method for textile disposal (Domina and Koch, 1999).

Previous researches focus on how to increase the re-using rate of old clothes, by considering issues such as reselling directly in second hand shops, or shipping to developing countries in order to increase life cycle (Hussey, 2009; Fletcher, 2008).

However, the rapid growth in garment purchasing frequencies has resulted in a new phenomena on as fast fashion, some clothes are just worn for a few times (Birtwistle and Moore, 2006). For example, H&M, TopShop and Zara and other fast fashion retailers sell garments at a very competitive price, but garments are just worn for no more than ten times (McAfee, et al., 2004).

Re-using old clothes is an effective method to extend product life cycle of garments, Kate Fletcher (2008) suggests to repair or recondition either the whole garments or parts of garments to keep them useful as long as possible (Fletcher, 2008). However, re-designing and repairing used clothes requires basic skills and tools. Domina (1999) finds that modifying and re-designing is not a popular recycle option, due to the amount of time and effort required, relevant knowledge about the product, and sewing abilities (Domina and Koch, 1999).

To understand consumers’ views on re-designing used clothes while making recycling
options, consumers’ recycling behaviours should be considered associated with their values and attitudes (Kahle, 1996). Previous research points out respondents prefer to re-use clothes as recycling options mainly for two reasons, environmentally motivated re-use and socially motivated re-use (Shim, 1995).

2.5.2 The convenience of recycle options

The degree of convenience of recycle options has also been considered as a key factor for consumers to decide their recycling behaviours. Donating to charity shops is one of the most well known and convenient methods, and being used by most respondents, and previous research finds out most consumers dispose their used clothes to charity shops (Birtwistle and Moore, 2007).

Considering the demographic and psychographic variables, consumers’ gender, age, marital status, education, income, occupation, social consciousness and social groups are having important differences in consumers’ recycling behaviours (Birtwistle and Moore, 2006).

Previous research also demonstrate consumers need information on types of textile products for it is conducive to reuse and disposal. They need to be informed about textile reuse options in local community (Domina and Koch, 1999). Tucker and Speirs (2002) have a research on how to increase recycling participation rate in England, how the behavioral aspects influence the recycling rates and how the strength of promotional campaigns might impact on the performance (Tucker and Speirs, 2002).

Salvation Army is likely to be a well known option for textile disposal, and it often requires little planning or preparation of customers. It is a convenient recycle option for many disinterested textile recyclers. The Association of Charity Shops (ACS) has
7,500 shops in the UK (Morely, et al., 2009). Consumers may consider using Salvation Army especially when the garments that are originally valuable, did not fit them, or are out of style. However, disinterested textile recyclers may be motivated more by the intrinsic rewards gained by helping the needy rather than wasting the garment and protecting the environment (Domina and Koch, 1999).

Previous research also find out cheaper clothes are more likely to be donated, due to the fact that cheaper clothes may be quickly un-wearable. Most consumers prefer to store expensive clothes even if they no longer wear them (Kotler, 2000). According to the previous research, the charities report to have received a large amount of clothes donated every year which ranging from 20 to 200 bin bags per week (Kate Fletcher, 2008). Those clothes are resold and exported to the developing countries to reuse, or to be recycled to make cleaning rags (Birtwistle and Moore, 2007).

In order to collect the clothes rapidly, most charity stores had built up good relationships with local companies and organizations. Door-to-door collection is not adopted anymore due to waste of effort and most charities have sufficient stock already (Birtwistle and Moore, 2007; Shim, 1995).

2.5.3 Re-design solution package

In recent years, recycled fashion becomes one of the hottest fashion trends, from luxury fashion to high street fashion. Vintage clothes as part of eco-fashion are becoming more and more popular since they are increasingly worn by celebrities. As vintage clothes are usually used and worn, they are re-sold after being re-conditioned and re-designed from original pieces (Gershon and Joel, 2005).

There are few reasons why fashion followers may choose vintage and recycled clothes
such as: unique design and style, good quality, value for money, the aspect being environmentally friendly. Therefore, as for consumers with passions for fashion, they are the potential market for re-design solution packages.

Consumers with passions for fashion are more likely to re-design used clothes and follow vintage fashion. However, modifying and re-designing of used clothes not only require relevant knowledge about fabric, but also need certain sewing skills (Domina and Koch, 1999). Shim (1995) also indicates that modifying is a good method but not suitable for the majority people. Most people lack knowledge and ability to re-design used clothes (Shim, 1995).

The re-design solution package is specially designed for the research; it can be used as one of the alternative recycling options that provide a more convenient method to modify used clothes. The main purpose of the solution package is to bring out and improve consumers’ skills at designing used clothes, and provide an alternative way of recycling.

The solution package aims to bring out consumers’ ability on re-designing used clothes, explore consumers’ creativities, and increase recycling rate of used clothes. Launching the new product to current fashion market will not only benefit the natural environment, but also bring profits to retailers.

<table>
<thead>
<tr>
<th>Product components for re-design solution package</th>
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</thead>
<tbody>
<tr>
<td>Basic tools</td>
</tr>
<tr>
<td>Thread, needles, tape measure, seam ripper, and scissors</td>
</tr>
<tr>
<td>Matched accessories</td>
</tr>
<tr>
<td>Pailltte, appliqué, buttons, and chiffons</td>
</tr>
<tr>
<td>Pre-designed pattern</td>
</tr>
<tr>
<td>Guide and instructions to explain how to cut out a new shape, and how to use matched accessories to create new designs</td>
</tr>
<tr>
<td>Advanced tools</td>
</tr>
<tr>
<td>Chiffon dope-dyed fabric colours, brush-pencil, and drawing patterns</td>
</tr>
</tbody>
</table>

Figure 2. 3 Product components for re-design solution package
The idea of the re-design solution package is developed from the mood broad that represented in Appendix D. To meet the different levels of consumer satisfaction, the mood broad considers different levels of tools to compose the solution package such as basic tools, matched accessories, pre-designed pattern, and advanced tools.

According to Figure 2.3, the re-design solution may contain the following components: Thread, needles, tape measure, seam ripper, appliqué, paillette, scissors, buttons, prepared design patterns, and chiffon dope-dyed fabric colours (Beaudry, 2008)
2.6 Consumer behaviours

The previous research has paid attention to consumer behaviour and values because consumer values can influence consumer behaviour on both textile recycling and purchasing decision on green clothes (Paolo, et al., 2009). Thus, this research focuses on the importance of information credibility, as public information and product knowledge would influence not only consumers’ purchasing power on green clothes, but also their recycling decision. Furthermore, in order to increase sale of green clothes, many fashion retailers are aiming to build green images and have launched environmentally friendly clothes.

Generally, consumer behaviour can be affected by both psychological and sociological factors (Signe and Clifford, 2005). The previous study has focused on green consumer behaviour and attitudes on purchasing decision; it is important to understand their thought and it will be helpful to spread the sustainable buying behaviour to mass market (Jones, et al., 1999).

Environmental value plays an essential role when consumers purchasing green products: values affect people's beliefs, which then has influence on personal norms that lead to consumers' pro-environmental behaviours (Reser and Bentrupperbaumer, 2005; Stern, 2000). In terms of consumers’ value, it is based on their daily behaviour, including attitudinal inconsistent behaviour. Signe and Clifford (2005) argue that adhering to a value does not mean that one is thinking about the value while they are making everyday decisions (Sign and Clifford, 2005)

Consumer behaviour regarding green product is related to their values and emotions. Previous researches also indicated that ecologically conscious consumers are collectivism, and they pay more attention to the principles of guiding their lives. This result is in line with the profile of environmentally friendly individuals (McCarty and Shrum, 1994).
Kahle (1996) also indicated that every individual has a specific value structure, and consumer value structure is based on their experience and education. Those who respect environment are more willing to buy green products, recycle used clothes, and take part in activities that seek for environmental protection (Kahle, 1996). In addition, higher consumers’ income also raises their willingness to purchase green products and turn them to be more environmental (Boks and Stevels, 2003).

2.6.1 Media and information reliability

Recently, the mass-media information has centered on environmental problems, and a number of studies investigated the influence of news media on the salience of environmental issues. The mass-media is responsible for drawing public attention, delivering information and knowledge to consumers, and increasing social responsibility (Signe and Clifford, 2005).

Previous researches on the environment and advertising found the media and public voices have great influence on consumer behaviour, from purchasing to recycling. For example, researchers have linked environmental concerns to positive response toward 'green' clothing advertisements (Kim, et al., 1997).

Several studies have suggested that specific, reliable and environment-conscious information help consumers make purchasing decision (Pieters, 1991; Kearney and De Young, 1995; Signe and Clifford, 2005). Consumers may not purchase products if the retailer does not deliver the environmental promises while offering inferior quality during the advertising and promotion (Ginsberg and Bloom, 2004). However a range of other factors are taken into account, including price, brand and availability in order to increase sustainable patterns of consumption (McDonald and Oates, 2006).
Both consumers’ knowledge and product awareness could be improved by media and advertising. As advertising brings communication between products and environmental issue, it will be easier to win consumers’ trust. Thus, the credibility of messages and advertising becomes a key element in generating product success, as consumers are more willing to trust advertisement with altruistic messages (Paolo, et al., 2009).

Paolo et al. (2009) mentioned both environmental knowledge and product knowledge have significant impact on consumer behaviours (Paolo, et al., 2009). Previous research also found consumers’ knowledge on recognizing “green products” can affect their decision process, such as how the information is delivered to consumers, how much information is used in decision making, and how well consumers’ are able to recognize information and symbols to define “green products” (Laroche, et al., 2001).

Based on Signe and Clifford’s study, (2005) it is suggested that successful advertising and message should follow three steps, including: create attention to consumers, create positive attitudes towards a behavioural solution, and transform positive attitudes into behaviour (Signe and Clifford, 2005).

2.6.2 “Green clothes” and information credibility

The media has great impact on altering consumers’ purchase habits and disposal decision, and increase the credibility of the message. Therefore, advertising should provide more information to encourage sustainable consumption in “green fashion” (Phau and Ong, 2007).

Textile and fashion industry has promoted environmental awareness in recent years. A
number of companies and retailers reported their efforts in taking environment responsibilities and promoting products from production, retail to consumption, in order to build a green image (Ultimate, 2001).

A recent research demonstrated that fashion media had greater influence on early fashion especially to younger fashion followers. They are willing to pay more every month for purchasing garments and are influenced by celebrities (Birtwistle and Moore, 2006). Previous study also identified early fashion innovators to be impulsive purchasers who are characterized by doing seeking self-gratification shopping (Lee, 2003).

Eco-fashion is promoted mainly in two ways, namely celebrities and fashion shows. Celebrities and media circulate environmentally friendly, eco-fashion, and green lifestyle (Okonkwo, 2007). However, early researches have found that eco-fashion consumers are inextricably linked to celebrity chic, and also looking for reliable public information (Kim, et al., 1997).

Media is aiming to target mass market, rather than just ‘green segment’. However, broad marketing target doesn’t necessarily bring positive consumer responses on environmental consciousness; when advertising delivery product and eco-friendly information efficiently, it will be easier for consumers to trust (Birtwistle and Moore, 2006). Generally, consumers are more willing to trust advertisement with altruistic messages (Paolo, et al., 2009).

A successful advertisement should be able to deliver the right information to consumers, and let them get the knowledge of the product's impactions on environmental and ecosystems (Kim and Damhorst, 1999). Consumers’ knowledge on green fashion and environment issues should be considered when messages for advertisement are being designed , as this will not only affect consumer behaviour on purchasing decision, but also increase recycle rates of used clothes (Laroche, et al.,
On the other hand, previous studies suggested that recycle behaviours do not necessarily lead to purchasing behaviour, for instance, an individual who recycles paper but does not buy recycled paper products (Laroche, et al., 2001). A number of studies also have found only a weak correlation between environmental concern and the choice of green products (Magnusson, et al., 2001; Grankvist, et al., 2004).

In addition, consumer attitude toward the advertisement can be influenced by the factors, including product package and promotion methods. For example, using recycled materials for advertising, such as recycled paper or recycled fabric for layout and throwaway copies will help build up consumers’ trust, knowledge, and confidence (Fletcher, 2008).

**Green Brands**

Product reputation and promotions are playing an indispensable role in persuading green consumers to make purchasing decision, as they are not only based on their own personal needs, but also based on their emotional needs (Codington, 1993). Green brands are able to send positive emotions signals to certain target group in the market, and make green consumers feel better while they are using the products (Patrick and Vanessa, 2006).

Marketing strategy with green brands is aiming to build brand awareness by delivering information on product's positive contribution to environment and ecosystems (Jones, et al., 1999). The strategy should also indicate that relevant environmental advantages of the product when comparing with conventional products. These advantages may refer to production processes, product use and/or product elimination (Meffert and Kirchgeorg, 1993; Peattie, 1995).
Creating a green image may enhance the emotional connection with the audience and thereby increasing customer loyalty (Ginsberg and Bloom, 2004). Previous studies found that consumers who accept green energy brands are generally would love to buy at higher price. But the majority of the consumers just want to be more environmentally consciousness, and they may not be originally interest in the environmental impact of their purchasing decision (Patrick, et al., 2005).

Some consumers may have an ideal self-concept of being environmentally concerned, but with no significant change towards a greener lifestyle, as the self-concept may be difficult to practice (Collin and Rainer, 1997). Thus, it is important for companies to create an image of concern for the environment; it might help these consumers by providing a practical example of their ideal self-concept. For instance, celebrities are often showing off their green lifestyle in front of media (Pickett-Baker and Ozaki, 2008).

Brand awareness is a powerful marketing tool to attract consumers, especially in green market. Green brands could be beneficial if they are promoted them with an image of nature, being environmentally friendly and social responsibility. Adding emotional value to green brands will enhance green product competence, and increase the individual benefits for consumers (Patrick and Vanessa, 2006). Therefore, increasing brand promotion is one of the key factors leading to product success.

Consumers usually have expectations of green products when they make purchasing decision; it is difficult for them to know whether the product they purchase will perform as they expected (Fowler, 2002). Thus, exploiting prior knowledge of green products could enhance consumers’ particular values, needs and goals, especially when promoting new brands and products (Hoyer and MacInnis, 2004). The credibility of the information consumers received about the products would also affect their final purchasing decision (Paolo, et al., 2009).
In addition, increasing brand awareness could not only attract consumers’ attention to products, but also increase their trust in product performance. Consumers would be more likely to choose brands which they knew that were manufactured and promoted by environmentally friendly processes (D’Souza, et al., 2006). Hence, leveraging on marketing effect is crucial in promoting green products, when the product is genuinely green and functions effectively (Pickett-Baker, 2008).
2.7 Conclusion remarks

The secondary research and the literature review of this study contain five major topics, including: environment and economy as the background of the study, sustainable operational strategy and marketing strategy, textile and environment, textile recycling and re-design solution package, and consumer behaviour regarding recycling and buying. These topics were selected by considering research purposes, and will further develop to hypotheses in Chapter Three.

Chapter 2.2: Environment and economy is the research background of this study, it considered the most noticeable environmental problems, environmental laws, and the economic crisis. This chapter provides guidelines and background knowledge for further research on sustainable development and industry issues,

Chapter 2.3: Sustainable business strategy involves environmental friendly operational strategy and sustainable marketing mix for green products; sustainable business strategy adds sustainable issues and values to traditional ones.

Chapter 2.4: Regarding to the sustainable business strategy discussed in Chapter 2.3, the research suggests textile industry could reduce pollution and waste by using environmentally friendly production process and sustainable marketing strategies. Green clothes should be produced by sustainable operational strategies and promoted by considering environmentally friendly marketing perspectives.

Chapter 2.5: This chapter aims to increase textile recycling by considering increase availability of recycling option, improve the convenience of recycling options, and introduce the design solution to increase recycling rate.

Chapter2.6: Consumer behaviour and attitude towards environmentally friendly could affect their purchasing behaviour and recycling decision. The research determines two suggestions for organizations to promote green products, increase information credibility and build a green image.
Chapter 3 Hypotheses development

Hypotheses can be defined as the initial hunches about the relationships between concepts, and a good hypothesis is a testable statement which may include a prediction (Bryman and Bell, 2007). Hypotheses development is based on primary researches and literature reviews, and the initial tentative ideas should be considered by associating with factors that can affect the performance of the hypotheses.

To understand the significance of factors and hypotheses, each hypothesis will be tested and statistically analyzed. The hypotheses test, which is also called confirmatory data analysis, aims to analyze experimental data and make statistical decisions. A null-hypothesis means that the results applied to research assumptions are true, and contain certain information that supports the hypotheses (Cramer, 2004).

The previous chapter has presented the recent researches and findings in the following areas with major topics including: environment and economics, sustainable marketing strategies, textile and fashion with environmentally friendly consciousness, consumer attitudes and behaviour towards green products, and impacts of economic crisis on green product industries.

In this chapter, there are four sets of hypotheses developed from the literature reviews, which will be further explained by taking into account the relevant factors. The hypotheses are grouped as follows:

- Re-selling used clothes as one of the recycling options
- Re-designing used clothes as a recycling option
- Consumers’ purchasing power of green clothes
- Impacts of economic crisis on green products
3.1 Hypotheses on Re-selling used clothes as a recycling option

Recycling is one of the most common and efficient methods for consumers to increase their efforts in reducing the amount of wasted products channeled to landfills (Shim, 1995). Consumers are encouraged to reuse products and other recyclable wastes, recent available recycle options can be divided into three main categories: disposal, re-selling as a recycling option, and re-use as a recycling option (Domina and Koch, 1999).

Re-selling is one of the most convenient recycle methods, and garments with best qualities are usually sold in charity shops and second hand shops. Recent popular re-selling options including: consignment, garage sale, and online sale (Fletcher, 2008). Textile recycling is a key solution to expand the value and provides an additional lifespan for the garments, in particular rapid growth of garment purchasing has resulted in the new phenomenon that some clothes will be worn only a few times (Birtwistle and Moore, 2006).

On the other hand, Fletcher (2008) indicates that businesses could not only gain profits from textile wastes, but also achieve sustainable fashion by recycling and re-using used textiles (Kate Fletcher, 2008). Consumer behaviour of re-selling used clothes is related to three major factors including consumer behaviour and attitude towards being environmentally friendly, convenience of available recycling options, and the residual value of used clothes. Therefore, the research proposed the hypotheses on re-selling used clothes as a recycling option.

- **H1A**: Consumer value and lifestyle have significantly positive influences on re-selling as a recycling option.
- **H1B**: Re-selling options are significantly more popular among consumers when old clothes have higher residual values and purchased at higher prices.
- **H1C**: The convenience of recycling options can significantly increase recycling rate of re-selling options.
3.1.1 Factors affecting the respondents’ recycle decisions regarding re-selling options

3.1.1.1 H1A: Consumer value and lifestyle have significantly positive influences on re-selling as a recycling option

Consumers are the end-user of products, and their values and behaviour directly impact their recycle decisions on used clothes. To understand consumers’ value structure, it is important to understand their everyday behaviours (Signe and Clifford, 2005).

Earlier studies find out that consumer behaviours regarding recycle decisions are associated with psychological characteristics of the garments, such as the condition, age style, durability, and the situational factors extrinsic to the product, for example: finances, storage space, and fashion changes (Jacoby, et al., 1977).

Previous research analyzes how both psychological factors and environmental awareness can influence recycle decisions (Lastovicka and Fernandez, 2005). Shim (1995) suggests that environmental attitudes have positive influence on several environmentally-oriented apparel disposal methods such as charity-motivated donation, environmentally-oriented donation, and environmentally-oriented re-using (Shim, 1995). Kahle (1996) also indicates that every individual has a specific value structure based on his/her experience and education. Those who respect environmentally friendly products are more willing to buy green products, conduct recycling manners, and take part in activities that promote environmental protection (Kahle, 1996).

Earlier studies also indicate that consumers with ecologically consciousness are collectivist, and collectivist who pay more attention to principles that instruct guiding their lives. This result is in line with the profile of environmentally friendly individuals (McCarty and Shrum, 1994). Increase of consumer income also raises
their willingness to purchase green products and become environmentalists (Boks and Stevels, 2003).

In addition, the media and public voices have great influence on consumer behaviours, from purchasing to recycling. Researchers have also studied environmental concerns in conjunction with advertising and promotional practices. For example, they have linked environmental concerns with positive responses to 'green' clothing advertisements (Kim, et al., 1997). Taking advertising credibility into consideration, consumers are more willing to trust advertisements with altruistic messages. Advertising brings about communications between products and environmental issues, which will be easier for consumers to trust (Paolo, et al., 2009).

Therefore, this study proposes that H1A: consumers’ values and lifestyle have significantly positive influences on their recycle decisions.

**3.1.1.2 H1B: Re-selling options are significantly more popular when old clothes have higher residual values and purchased at higher prices**

Rapid growth of garment purchasing frequency increases the wastages of natural resources and textile pollution (Birtwistle and Moore, 2006). Fletcher (2008) indicates that garments with the best qualities are traded in charity shops and second hand shops, rather than disposed directly. Thus, re-selling used clothes would not only reduce environmental wastes, but also bring profits to consumers (Fletcher, 2008).

Previous statistics have indicated that charities receive large amounts of clothing as donations every year, ranging from 20 to 200 bin bags-full per week (Kate Fletcher, 2008). Those clothes are either re-sold, sent to developing countries for re-using, or recycled to make cleaning rags (Birtwistle, 2007). Hsunchi and Shuling (2007) define four motivations for consumers to use the re-sold as a recycling option including profit-driven monetary motives, utilitarian trade motives, emotional/social motives,
and house grooming motives (Hsunchi and Shuling, 2007). The original values and residual values of used clothes should be classified as profit-driven monetary motives and utilitarian trade motives.

Consumers’ recycling decisions are based on their value structures (Kahle, 1996). Therefore, the recycling rate of re-selling intends to be associated with consumer behaviours and attitudes towards environmentally friendly products and financial effects. Regarding financial effects and situational factors, price consciousness can affect the respondents’ recycle decisions (Jacoby, et al., 1997). Besides, Fletcher (2008) indicates that business could not only gain profits from textile wastes, but also achieve sustainable fashion by recycling and re-using used textiles (Fletcher, 2008).

Therefore, hypothesis H1B is in the following purpose, when the original sale prices of used clothes increase, consumers are more willing to put into application the re-selling options rather than disposal; and when the old clothes retain higher residual values, consumers will prefer to re-sell them.

3.1.1.3 H1C: The convenience of the recycling options can significantly increase recycling rate of re-selling options

The convenience of the recycling options has also been taken a key factor to influence recycling rate and consumers’ recycling decisions (Shim, 1995). Previous studies indicate that the convenience of recycling options could significantly influence the consumers’ recycling decisions. For example, donating to charity shops is one of the most well-known and convenient recycle methods, as charity shops have built up good relationships with local companies and provided a door to door collection service that consumers are calling for (Birtwistle and Moore, 2007; Domina and Koch, 1999).

Earlier studies also find out when consumers are making recycling decisions, they
need information on types of textile products conducive to reusing or recycling, and to be informed about the textile reuse options in the local communities (Domina and Koch, 1999). Tucker and Speirs (2002) also research on topics as how to increase the recycling participation rate in England, the behavioral aspects that influencing recycling rates and how the strength of promotional campaigns might impact the performance (Tucker and Speirs, 2002). The media and local communities make a great impact on changing consumers’ purchasing habits and disposal decisions (Phau and Ong, 2007). Increase consumer awareness on available recycling options in their communities could encourage them to make more efforts on reducing textile wastes.

In addition, demographic and psychographic variables such as consumers’ genders, ages, marital statuses, educations, incomes, occupations, social consciousness and social groups also enjoy different impacts on their recycling behaviours (Birtwistle and Moore, 2006).

Therefore, Hypothesis H1C proposes that the increased convenience of recycling options would increase consumers’ interests in re-selling used clothes rather than disposing.
3.2 Hypotheses on Re-designing used clothes as a recycling option

Morely, et al (2009) list several recycle options that are broadly used in the UK, including resale in the UK, export to re-use, wiper grade, recycle grade, and disposal (Morely, et al., 2009). This chapter focuses on increasing re-designing rate of used clothes as a recycling option, and the following hypotheses aim to increase modification by introducing a re-design solution package.

In order to determinate consumers’ views on the re-designing of used clothes when making recycling decisions, their recycling behaviors should be considered in connection with their values and attitudes (Luz, 2007). Previous research demonstrates that the respondents prefer to re-use clothes as recycle options for two reasons, environmentally motivated re-using and socially motivated to re-using (Shim, 1995).

Re-using of old cloths could be an effectively way of extend life cycle of garments, especially with modification and re-conditioning. Fletcher (2008) suggests repairing or reconditioning either the whole or part of the garments to keep them useful for a period as long as possible (Fletcher, 2008). However, re-designing and repairing used clothes require basic skills as well as tools. Domina and Koch (1999) suggest that modification and re-designing are not popular recycling options due to the amount of time and efforts required, specific knowledge of product and sewing ability (Domina and Koch, 1999).

In order to increase the respondents’ re-using rate of recycling used clothes, the research has designed an accessory package for marketing purpose. The idea of the new accessory package is based on bringing out consumers’ skills in re-designing used clothes and providing an alternative way of recycling. The package aims to express consumers’ abilities to re-design used clothes, explore their creativities, and increase recycling rate. Launching new product in the current fashion market will not
only benefit the natural environment, but also retailers.

Therefore, the research should consider three main factors that may influence consumers’ decisions regarding re-design of used clothes, including: purchasing frequency, information credibility, and availability of solutions. These factors are analyzed as the following hypotheses:

- **H2A**: Fashion consumers are significantly more interested in re-designing used clothes
- **H2B**: Information credibility could influence consumers’ recycling decision regarding re-designing of used clothes
- **H2C**: A re-design solution package would significantly encourage consumers to re-design used clothes as a recycling option
3.2.1 Factors affecting re-designing as a recycling option

3.2.1.1 H2A: Fashion consumers are significantly more interested in re-designing used clothes

Previous researchers indicate that garment lifecycle can be extended by three methods, with five methods including re-selling, re-using, re-designing, re-conditioning (Hussey, 2009; Fletcher, 2008). Re-designing used clothes has become one of the popular fashion trends in recent years; it is especially popular among fashion followers (Gershon and Joel, 2005). Thus, the research proposes that fashion consumers are significantly more interested in re-designing used clothes.

Increase of purchasing frequency of garments creates new textile wastes, as some clothes will be worn only a few times (Birthwistle and Moore, 2006). Globalization enables clothes to be made at lower cost, but they can be worn more than ten times (McAfee, et al., 2004). Fast fashion has increased the sales amount in the UK. According to BATC data, the sale volumes of textile and clothes have increased significantly since 1998. Although economic crisis has affected the textile and clothing industry, sale volume increased 2.04 million tones from 1998 to 2008 in the UK (Morely, et al., 2009).

In recent years, recycled fashion has become one of the hottest fashion trends, from designer brands to high street fashion. As part of eco-fashion, vintage clothes are becoming more popular due to their increasingly worn by celebrities in fashion shows. As vintage clothes are usually used and worn, they are re-sold in original pieces after re-conditioning and re-designing (Gershon and Joel, 2005).

There are a few reasons why fashion followers may choose vintage and recycled clothes, including unique design, good quality, value for money, and their properties of being environmentally friendly (McCarty and Shrum, 1994). Therefore, consumers with passions for fashion are potential consumers for re-design solution packages.
3.2.1.2 H2B: Information credibility can influence consumers’ recycling decision regarding re-designing of used clothes

Media and public information have great influence on consumer behaviours, from purchasing to recycling. This study suggests that information credibility can influence consumer behaviours regarding recycling decisions, and information with higher credibility will encourage consumers to re-design used clothes.

Previous research demonstrates that consumers’ knowledge of recognizing being environmentally friendly can affect processes of their decision-making, such as how the information is delivered to the consumer, how much information is used in decision making, and consumers’ abilities to recognize information and symbols (Laroche, 2001). Researchers have also studied environmental concerns in conjunction with advertising and promotional practices. For example, researchers have linked environmental concerns in a positive manner toward ‘green’ clothing advertisements (Kim, et al., 1997).

The media may change consumers’ purchasing habits and disposal decisions; they should provide more information to encourage sustainable consumption in fashion clothing by increasing consumers’ awareness (Birtwistle and Moore, 2006). Recent research demonstrated that the fashion media enjoys great influence on early fashion compared to younger fashion followers who are willing to pay much more every month on purchasing garments and are influenced by celebrities (Paolo, et al., 2009). Previous study also presents early fashion innovators as impulse purchasers seeking self gratification by shopping (Lee, 2003).

The media aim to target the mass market and increase market share, rather than just the ‘green segment’, but not all fashion advertising elicits a positive consumer response to environmental consciousness. When advertising brings about communications between products and environmental issues, it will be easier for consumers to trust (Fletcher, 2008). Generally, consumers are more willing to trust
advertisements with altruistic messages (Paolo, et al., 2009).

More comprehensive environmental issues may require higher credibility of the environmental donation messages. For example, many eco-fashion retailers promote their products as being made from organic cotton. However, it is difficult for consumers to understand the organic nature of products, and how much efforts they can make when purchasing them. Successful advertising should be able to deliver right information to the consumers and allow them to obtain the knowledge of how organic cotton could benefit both themselves and the environment (Kim, 1999).

In addition, other factors such as product package and display may also influence consumer attitudes towards advertisements. Using recycled materials for advertising, such as recycled paper or recycled fabric for layout and throwaway copies will enhance degree of consumers’ trust, knowledge, and confidence.

3.2.1.3 H2C1 A re-design solution package would significantly encourage consumers to re-design used clothes as a recycling option
Consumers with passions for fashion are more likely to re-design used clothes and wear vintage fashion. However, modifying and re-designing used clothes do not only require knowledge of fabric, but also need certain sewing skills (Domina and Koch, 1999). Shim (1995) also indicates that modifying is a good method but not suitable for the majority of people, since most people lack the knowledge and ability to re-design used clothes (Shim, 1995).

The re-design solution package can be used as one of the alternative recycle options to increase recycling rate and provide a more convenient method to modify used clothes. The package aims to express consumers’ ability to re-design used clothes, explore their creativities, and increase recycling rate. Launching a new product in current
fashion market will not only benefit the natural environment, but also bring profits to retailers. In recent years, re-designed and vintage clothes have become one of the hottest fashion trends (Gershon and Joel, 2005).

Therefore, the research proposes that the re-design solution package would significantly encourage consumers to re-design used clothes and spare no efforts in recycling, rather than disposing, or re-selling to charity shops.
3.3 Hypotheses on Consumers’ purchasing powers of “green clothes”

Increase market share of green clothes means not only reducing impacts of textiles environment and ecosystems, but also bringing profits to retailers. In recent years, the textile and fashion industry have increased promotion of environmental awareness. Many companies and retailers have reported their efforts in being environmentally responsible, and promoted products from designing, processing, retailing to recycling in order to build a green image (Ultimate, 2001).

Consumers’ purchasing decisions can be affected by product attributions, values, functions and prior satisfactions (Kotler, 1997). Roberts (1996) indicates that consumers’ buying criteria are based on price, convenience and the value of products (Roberts, 1996). The general selling prices of green clothes are higher due to the increased costs of the materials, processing, dispatching and promotions (Graviria, 1995),

However, previous study also proves that consumers’ purchasing behaviours of green products are linked to their social responsibilities rather than environmental consciousness (McGougall, 1993). In addition, both the mass media and retailers should increase the credibility of their advertising and message, as consumers may not purchase products if the retailer does not deliver the right environmental promises and offers inferior quality during the advertising and promotion (Ginsberg and Bloom, 2004).

Therefore, the research focuses on the three main factors, including: consumer values, changes in prices and information reliabilities, and proposes as following:

- H3A: Consumer values have significant influences when they purchasing green clothes
- H3B: Product functions and selling prices can influence consumers’ purchasing powers regarding green clothes
- H3C: Information credibility has a significant influence on green clothes
3.3.1 Factors affecting consumers’ purchasing powers of green clothes

3.3.1.1 H3A: Consumer values have significant influences when they purchasing green clothes

Earlier studies reveal that consumers’ attitudes are significantly good predictors of their willingness to spend much more money on green products (Laroche, et al., 2001). There are several factors that may influence the respondents’ purchasing decision, including their value structures, cultural differences, social classes, environmental variables and promotional strategies (Guijun and Alex, 2006).

Consumers’ self-concepts of environmental concerns could influence their purchasing decisions about green products. “Green” lifestyles are indicated by many environmentalists, and consumers’ environmentally friendly activities are increased while their environmentally friendly consciousness increases (Walker, 2000).

Respondents’ daily environmentally friendly performances are related to their values and behaviour with regard to environmental concerns. Homer and Kahle (1988) define the relationships of values, attitudes and environmentally friendly behaviour (Homer and Kahle, 1998). To understand consumers’ values, it is important to understand their everyday behaviours, including their attitudinal inconsistent behaviours. Signe and Clifford (2005) argue that adhering to a value does not mean that one is thinking about that value when making everyday decisions (Sign and Clifford, 2005).

However, retailers must be aware that consumer behaviour towards being environmentally friendly and purchasing of green products are not equally predicted, as the behaviour of “buying environmentally friendly products” is not a good predictors of consumers’ willingness to pay more for green products (Laroche, et al., 2001). This can be explained by two key concepts: practical thinking and bricolage.
Previous studies suggest that recycling behaviours does not necessarily lead to purchasing behaviour, for example, individuals who recycle paper may not purchase recycled paper products (Laroche, et al., 2001). A number of studies have also found only weak correlations between environmental concern and the choice of green products (Magnusson, et al., 2001; Grankvist, et al., 2004).

On the other hand, Sukhdial (1990) indicates that many consumers have high environmental concerns deem that the major environmental responsibility lies with the government and large organizations, and that this attitude is affecting consumers’ willingness to spend more on environmentally friendly products (Sukhdial, 1990).

### 3.3.1.2 H3B: Production functions and selling prices can influence consumers’ purchasing powers regarding “green clothes”

Generally, prices of green products are higher than that of coordinate products, which might be caused by the cost rise of materials, production processes, distributions and promotions of green products (Pickett-Baker and Ozaki, 2008; Graviria, 1995). Earlier studies also prove that consumers are price-sensitive when it comes to “buying green” and are unwilling to pay a premium price for green products (Mandese, 1991).

The selling price of green product depends on production functions and values; when product functions increase, consumers are more willing to pay higher prices (D’Souza, et al, 2006). For example, low energy consumption products can be sold at higher prices than others, and so an innovative pricing mechanism may need to be developed and marketed (Pickett-Baker and Ozaki, 2008). Clare D’Souza also point out that consumers with less price sensitivity are likely to pay more attentions to reading labels, while they seem to be unclear of their satisfactions with the information on the labels (D’Souza, et al., 2006).
Consumers with environmentally friendly consciousness are more willing to purchase green products, but they also need to consider a range of factors that may influence product values including: brand and availability in order to increase sustainable patterns of consumption (MacDonald and Oates, 2006). However, earlier studies reveal that marketers on average do not communicate with consumers when they change the prices, as not every consumer notices that the prices have changed or understands meaning of the change (Dickson and Sawyer, 1990).

In addition, consumers’ purchasing behaviours are also connected with their personal factors. Personal factors are defined as non-situational factors in previous studies and are seen as basic requirements of products (Guijun and Alex, 2006). Personal factors are also defined as non-situational factors. Non-situational factors are general factors of individuals such as personality, intellect, gender and race, brand image, quality, size and function of the product (Guijun and Alex, 2006).

3.3.1.3 H3C: Information credibility has a significant influence on “green clothes”

Earlier studies have indicated that consumers need specific and reliable information when making purchasing decisions on green products (Pieters, 1991; Kearney and De Young, 1995; Signe and Clifford, 2005). Not only advertising but also green brands can build the credibility of messages. Green brands can bring positive emotions to certain target group in the market and are able to make consumers feel better while using the products (Patrick and Vanessa, 2006).

This research should take into account effects of both standard and advanced information regarding green clothes. Standard information is often promoted by the mass media, and mainly focuses on the macro environmental issues and problems; while advanced information will pay more attention to environmentally friendly product issues.
Standard information about “green clothes”

Mass-media are responsible for drawing public attentions, delivering information and knowledge to consumers and increasing social responsibility on environmental issues. In recent years, the mass-media information has been focusing on environmental problems, and a number of studies have investigated influence of news media on the salience of environmental issues (Signe and Clifford, 2005).

Previous research certifies that consumers with ecological consciousness are collectivists who pay more attention to the principles guiding their lives (McCarty and Shrum, 1994). Those who respect environmentally friendly products are more willing to buy green products, conduct recycling actions, and take part in activities that seek environmental protection (Kahle, 1996).

Environmental problems and issues delivered by the mass media will increase consumers’ general knowledge of how to become environmentally friendly (Signe and Clifford, 2005). When the respondents’ knowledge rises, there will be significant increase in their environmentally friendly behaviours (Chan, 1999). Previous research also testified that consumers’ knowledge of recognizing green products can affect their process of decision making such as how the information is delivered to consumers, how much information is used in their decision making, and their ability to recognize the information and symbols that define green products (Laroche, 2001). Thereby, it is important to promote advantages of using green clothes, as well as its impact on the environment and ecosystems.

In addition, it is also important for companies to create an image of being that concerns about the environment; it might help these consumers by providing an example of their ideal self-concepts. For instance, celebrities are often boasting their green lifestyles in front of the media (Pickett-Baker and Ozaki, 2008).
Advanced information about “green clothes”

To increase consumers’ purchasing power of “green fashion”, consumers need both environmental awareness and knowledge of green products (Paolo, et al., 2009). The advanced information aims to delivery more product knowledge to consumers and increase product credibility. Consumers who consider environmental issues rather than social responses are significantly more interested in information of advanced products (Signe and Clifford, 2005).

Generally, not all fashion advertising elicits a positive consumer response to environmental consciousness. Advertising communications between consumers and products will increase the consumers’ knowledge and product credibility, and consumers are more willing to trust advertisements with altruistic messages (Paolo, et al., 2009).

Previous study demonstrates that when introducing green products to the market, it is important to exploit the prior knowledge of green products to consumers (Hoyer and MacInnis, 2004). Consumers usually have expectations of green products when making purchasing decisions; but it is difficult for them to know whether products they are purchasing will perform as well as they have expected (Fowler, 2002).

When consumers recognize the benefits claimed by purchasing “green fashion”, they are more likely to make purchasing decisions. Clare D’Souza also proves that consumers with less price sensitivity are likely to pay more attentions to reading labels, while they seem to be unclear of their satisfactions with the information on the labels (D’Souza, et al., 2006).

In addition, several other factors that may influence consumers’ purchasing decisions regarding green clothes are in existence, including eco-labels, product packages and layouts and promotion methods (Fletcher, 2008).
3.4 Hypotheses on impact of the economic crisis

The current global financial crisis has been continuously affecting major industries since 2007, and the global economy is undergoing a downturn continuously (Wilson and Eilertsen, 2010). According to the International Monetary Fund (IMF 2009a), the advanced economics fell by 7.5% in real GDP during the fourth quarter of 2008, and the decline was reduced slightly in the first quarter of 2009.

Many industries such as food, travel/holiday, clothes and electronic industries have been influenced by the financial crisis and challenged by the sales downturn. The credit crisis has increased prices in fashion market while major consumers are reducing their expenditures (Just – Style, 2009).

According to United Nations World Tourism Organization (2009), number of consumers spending their holidays had also decreased, international tourism started to be affected by the economic crisis since the second quarter of 2008, and the negative effects grew worse in the first quarter of 2009 (Papatheodorou, et al., 2010). Economic crisis also affected the electronic market due to changes from cheap energies to costly energies. Development of technology has led fast changes of electronic products; economic crisis has also intensified the price reduction of electronic products due to the decrease of demand (Lane, 2010).

During the economic crisis, consumers’ purchasing powers regarding green products can be influenced by their expenditures and values, especially regarding green clothes. The research develops two hypotheses about impacts of the economic crisis, including:

- **H4A**: The economic crisis will reduce eco-friendly consumers’ expenditures on green products
- **H4B**: The economic crisis will reduce consumers’ expenditures and purchasing frequencies regarding green clothes
3.4.1 Factors affecting green products during the economic crisis

3.4.1.1 H4A: The economic crisis will reduce eco-friendly consumers’ expenditures on green products

Consumers demand for green products are connected with price strategies, as the prices of green products is generally higher than those of mainstream products, which may result from the cost rise of materials; for example, organic products are more expensive than regular ones (Pickett-Baker and Ozaki, 2008).

The current economic crisis has had a significant impact on consumers’ purchasing powers, and their budgets are generally reduced due to the economic down, especially in the green products market with the reason that green products are usually sold at higher prices than mainstream products (Wilson and Eilertsen, 2010). Boks and Stevels (2003) point out that consumers are more willing to purchase green products when their income and budget increase (Boks and Stevels, 2003). Thus, the reduction of consumers’ expenditures will result in a sales decline.

Previous researchers find out that environmental value plays a primary role when consumers purchasing green products, as value affects people's believes, which then has an influence on personal norms that lead to consumers’ pro-environmental behaviours (Reser and Bentrupperbaumer, 2005; Stern, 2000). Previous research also mentions that consumers with ecologically conscious are collectivist, and they pay more attention to the principles guiding their lives. This result is in line with the profile of environmentally friendly individuals (McCarty and Shrum, 1994).

Thus, this research proposes that eco-friendly consumers are more likely to be influenced by the economic crisis when they purchasing green products, as green products are generally sold at higher prices.
3.4.1.2 H4B: The economic crisis will reduce consumer expenditures and purchasing frequencies regarding green clothes

Sustainable consumption was introduced as a remarkable sign of environmental protection by the fashion industry in 1990 (Jackson, 2004). In recent years, recycled fashion and eco-fashion have become the latest fashion trends and continuously promoted by celebrities and fashion magazines (Okonkwo, 2007).

Fashion is defined as a “want” rather than a “need” for the majority of female consumers, and consumers with passions for fashion and environmental awareness are more likely to purchase recycled or re-designed clothes (Fletcher, 2008), despite that eco-fashion and green clothes are usually sold at higher prices than mainstream garments (Josephie and Ritsuko, 2008).

However, recent research has found that the credit crisis has increased prices in the fashion market, and major consumers have reduced their expenditures (Papatheodorou, et al., 2010). The reduction of consumer expenditure could not only affect clothing retailers, but also bring about an economic downturn in developing countries. As Joe Ayling from Just-Style says the global recession is taking its toll on apparel and footwear supply chains in China (“Just – Style”, 2009).

The general sales figures have been increasing since 2010, and clothing is at the top of the sales when comparing consumer spending on everyday items. However, consumer confidence could take a further knock during the recovery phase as unemployment continues to rise, credit facilities remain tight and the housing market stays weak (Clothing Retailing-UK, 2009). The economic crisis is particularly increasingly and affecting the unemployment of female workers (Stiglitz, 2009).

Therefore, the research proposes that financial crisis is reducing consumer expenditure and frequency of green clothes, and the green clothing market is challenged by greater influences than fashion market.
3.5 Conclusion Remarks

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Figure 3.1 Content of hypotheses development

Chapter Three is based on four major research topics discussed in the literature review, including: re-selling as recycle, modification and re-designing used clothes for re-use, consumers’ purchasing powers of green clothes and impacts of economic crisis on green market. According to Figure 3.1, these four categories are further developed into eleven hypotheses, by considering factors that may impact these objectives. These hypotheses will be further developed into primary research in Chapter Four, and analyzed by a hypotheses test in Chapter Five.
• **Re-selling used clothes**
The recycling rate regarding re-sold options could increase by both profit-driven motivation as well as environmentally friendly motivation. The research proposes that consumers’ values and attitudes enjoy great influence on their recycling decisions; eco-friendly consumers are more willing to re-sell used clothes. Increase of the convenience and availability of recycling options could also encourage consumers to put re-selling options into application.

• **Re-design used clothes for re-use**
Re-design is one of the premier recycling options that require specific skills and efforts. The research proposes that fashion consumers are more willing to use modification as a recycling option than others, and a re-design solution package could improve consumers’ abilities and knowledge of re-designing. Consumers also need reliable and efficient information when they make recycling decisions. This study also proposes that consumers with higher expectation regarding green products are more willing to use premier recycling options rather than directly disposing and re-selling.

• **Purchasing power of “green clothes”**
The research proposes that consumers’ purchasing power regarding green clothes are related to their value structures, product functions, product selling prices, advertising and promotions. It also assumes that the increases the information credibility regarding green clothes will significantly increase the market share, and consumers are more willing to purchase green clothes with higher prices when information credibility increases.

• **Influences of economic crisis**
The research assumes that both the green market and the fashion industry are affected by the economic crisis, which has reduced consumers’ expenditure and their purchasing powers of green clothes.
PART 3:
EMPIRICAL STUDY
Chapter 4 Research Methodology

This Chapter presents the research methodology utilized in this study, which including research objectives, sample and data collection, and research design. It utilized both qualitative and quantitative methods, and used primary collection strategies, as well as content analysis of secondary sources. The majority of the research consisted of quantitative data collection methods.

4.1 Secondary research

Rowley and Slack (2004) indicate that literature reviews are important in supporting the identification of a research topic, question or hypothesis; identifying the literature to which the research will make contribution, and contextualizing the research within that literature; building an understanding of theoretical concepts and terminology; facilitating the building of a bibliography or list of the sources that have been consulted; suggesting research methods that might be useful; and in analyzing and interpreting results (Rowley and Slack, 2004)

Secondary research in this study was focused on issues concerning environment and economy, economic crisis as marketing opportunities, sustainable business strategy, eco-fashion, eco-label, textile recycling, and new product development.

However, secondary resources have limitations on biase and inaccuracies, and sometimes may also lack of consistency and perspective. In this research, the secondary data were collected via text books, academic journals, conference papers, news, and national survey, and so on. Text books are helpful to orient it in a field of literature and it always provides academic theories; Journals includes two types: academic journals and Non-peer-reviewed journals.
4.2 Primary research

Fowler (1988) define a survey as providing a quantitative or numeric description of some fraction of the population-the sample-through the data collection process of asking questions of people. Creswell (1994) suggests the data collection, in turn, enables a researcher to generalize the findings from a sample of responses to a population (Creswell, 1994). Questionnaires are one of the most popular methods of conducting scholarly research. Unlike other research methods, the respondent is not interrupted by the research instrument. Written questionnaires reduce interviewer bias because there is uniform question presentation (Jahoda, et al., 1962).

A questionnaire survey can provide accurate and relevant data through thoughtful design, testing, and detailed administration (McClelland, 1994). This research has developed a consumer questionnaire survey to collect data, it is aiming to evaluate consumer buying behavior and launch new products to the market.

4.2.1 Research objectives

The research objectives are developed from literature review, and there are four major objectives consisted, including:

- Increase recycling rate regarding re-sold options
- Increase re-designing rate by introducing re-design solution package
- Increase consumers’ purchasing powers of green clothes
- Determine impact of economic crisis in green market

These objectives are further developed into eleven hypotheses, by considering factors that may impact on these objectives. Thus, the dependent variables are defined as following: consumer value and daily activity, purchasing frequency, decision making influences, store/brands options, information reliability, available recycling options, re-design solution package, and personal information.
4.3 Sampling and Data Collection

The quantitative research requires sampling and data collection for survey design. In order to select target population, there are mainly three types of sample methods, including: simple random sample, systematic sample, and convenience sampling. In this research, convenience sampling is selected as it is the most basic form of non-probability sample. With random sampling, each unit of the population has an equal probability of inclusion in the sample (Bryman and Bell, 2007).

The effective and efficient sampling design should cross country issues; the research is taken by both UK and China. Sample size determination constitutes the other primary issue in sampling design, and the sample size should be determined after select target groups (Cavusgil and Das, 1997). In addition, any changes and differences of questionnaires should be addressed due to the cultural differences.

4.3.1 Research background

International marketing research

International marketing research is purposed to conduct either simultaneously or sequentially to facilitate marketing decisions in more than one country (Kumar, 2000). International marketing research involves same disciplines as domestic research, but it also has differences. The major differences could be seen as respondents in different countries have very different customs, cultures and expectations for the company or products (Cavusgil and Das, 1997).

Previous research found cross-cultural research had variety of methodological problem, including conceptual equivalence, instrumentation, measurement, data collection and data analysis (Mullen, 1995; Singh, 1995).
Researchers may also need to consider political, legal, economic, and social differences, when compare research results. For international marketing research, secondary information must be collected from each separate country and then combined, or compared. When the questionnaire is designed to launch a new product to the market, researchers should also consider the language differences, etiquette, non-verbal communication, and consumer values (Kumar, 2000).

- **Cultural differences**

There are a number of differences in the socio-cultural context should be consider as factors that will influence research results, such as language and cultural traits (Kumar, 2000). The cultural differences also refer to the differences between the Chinese and the UK respondents’ thoughts and knowledge. Same research practice in two cultural backgrounds will yield different research results, correct and smart translation would improve researchers to get right information and findings. Therefore, international research requires translators have good communication ability on both languages (Elaine Ann, “Cultural Differences Affecting Ethnographic Research Methods in China: A bicultural Viewpoint Based on the Chinese Model of Though”).

The Chinese people tend not to express their opinions directly, especially if they are perceived as negative or in disaccord. They prefer indirect and implicit communication, rather than direct verbal communication. As Chinese traditionally believes harmony over discord, thus respondents will tend to provide an answer they see as “appropriate” rather than give an accurate answer (Ho, 2006).

In addition, Chinese respondents can also influenced by a reputable brand or spokesperson; they are more trust on the brand rather than quality alone, and they are also willing to pay extra for a repeatable brand (Cavusgil and Das, 1997).
● City in UK: Manchester

Manchester is selected to participate in the research survey in the UK. Manchester with 464,200 estimated population; it is one of the most important economy cities in United Kingdom ("Population estimates for UK, England and Wales, Scotland and Northern Ireland, Mid-2008", 27/08/2009).

Manchester is an international city with high ethnic diversity (United Kingdom Census, 2001). It was historically famous with its textile industry. Nowadays, Manchester is a centre of the arts, media, higher education, financial and commerce. In 2008, it was ranked as the second best city to locate a business in the UK after London (“London and Paris named as Europe’s best cities for business”, 07/11/2008).

● City in China: Ningbo

After careful consideration, the Chinese survey questionnaire is participated in Ningbo. Ningbo is a very important economy city in East China, it is closed to Shanghai. With the population of 22 Millions, the city is famous of foreign trade industry. Ningbo Free Trade Zone is one of the 15 free trade zones authorized by the State Council of China, and it offers convenient ship transportation as it got second largest deepwater port (China Briefing developing cities: Ningbo).

Today, Ningbo has become a major exporter of consumer products, electrical products, textiles, food, and industrial tools. In 2008, Ningbo's economy grew 10.1 percent to 396.4 billion RMB (US$57 billion). The city's per capita output was $10,079, which is three times more than the national average (Chiang, 2007-07-09)
4.3.2 Target population

Target group is the population is selected to survey research associated with nations, cities, and regions (Bryman and Bell, 2007). This research is taken in both UK and China, and two cities are selected, Manchester and Ningbo.

Age and gender are considered as important factors for marketing segmentations and researches, and the social economic group should also take place in the survey (Hines, 2001). In this research, questionnaire was designed mainly focus on females respondents aged from under 21 to 45 years old, The main reason to choose these age groups is to understand respondents’ attitudes on green clothes and re-design used clothes as recycle options. Thus the survey is also targeting on those respondents whom are either interested in fashion or environmentally friendly.

Previous research found age variable has been explored in several green marketing researches. However, there are studies suggesting that there is no significant correlation between age and environmental behaviour (Arminda and Mário, 2009).

4.3.3 Sampling procedure and data collection process

The research survey is designed to use convenience sampling, as one of the most basic non-profanity sampling. Creswell (1994) define convenience sampling as when the participants are selected, in part or in whole, at the convenience of the researcher. The classic example of a convenience sample is standing at a shopping mall and selecting shoppers as they walk by to fill out a survey (Creswell, 1994)

The UK questionnaire survey was collected in Manchester Piccadilly garden, Piccadilly garden is the centre shopping area in Manchester city centre with large population flow. The China questionnaire survey was collect in Ningbo Tianyi Shopping Square, which is the largest shopping mall in the city centre. Respondents
are selected randomly apply to convenience of the researcher.

Each respondent were asked to fill in the questionnaire by self-administered, and the researcher will help them to explain anything if they have any problem. Besides, in order to introduce the new idea to respondents, the researcher also used a mood broad to explained the re-design solution package,

- **Sample size**

Sample size could affect the precision of the sample; and increase the sample size could reduce sample error. Due to the limitation applies to this empirical study; use minimum sample size could be helpful to increase effectiveness and efficiency (Alan, 2008).

Overall, there are 139 valid questionnaires were completed. 62 questionnaire surveys were self-administered to respondents whom are living in Manchester, and 77 questionnaires were participated in China.
4.4 Questionnaire Design

- Daily environmentally friendly issues
Consumers’ value structure and behaviour have significant impact on their purchasing and recycle decisions. The question 1 is aiming to find the degree of each environmental issue may affect respondents’ daily lifestyle. It contains 7 sub-questions, and gives respondents choices of daily environmentally friendly activities.

Fair trade certificate allows consumers to identify goods which meet agreed standards. Products based on agriculture products, including: fair trade coffee, food, and cotton (Fair Trade Foundation, http://www.fairtrade.org.uk/). The organic label is clearly marked on organic materials products. For example, organic foods are made in a way that limits or excludes the use of synthetic materials during production. Organic farming is helpful to produce positive environmental benefits, it release synthetic pesticides into the environment, use sustainable ecosystems, and use less energy for production (Hansen and Birgitt, 2001).

Carbon emission control is also called “cleaning up”. It is a new market opportunity, and industrial emissions are playing as key factors in the market. Both industries and individuals are responsible to neutralize or reduce carbon emissions (“Back to basics on climate change”, 2008).

- Purchasing frequency
Purchasing frequency can influence consumers’ buying behaviours and recycling decisions. Rapid growth in garment purchasing has resulted in a new phenomena that some clothes will be only worn a few times (Birtwistle and Moore, 2006). The purpose of question 2 is to understand respondents demand based on 4 categories of clothes, including coats and packets, t-shirts and tops, knitwear, and skirt and trousers.

These clothing categories are defined by materials; as different categories refer to
different recycle rate. For example: cotton, wool, linen, silk, polyester, nylon, acrylic and viscose have different impact on environment during the production and recycling (Fletcher, 2008).

- **Purchase decision factors**

Consumer value structure and attitudes could influence their purchasing behaviour and recycle decisions. The question 3 is aiming to understand what is important for respondents when they purchase clothes, and find out the degree of each factor may influence respondents purchase decision. Factors listed in the questionnaire including price, style, quantity, brand and environmentally friendly.

There are a few factors may influence consumers purchase decision. Brand awareness is a powerful marketing tool to attract consumers, when consumers are satisfied, they will remain loyalty to retailers/brands (Ewing, 2000).

The fashion industry changes trends and styles frequently. However, recent research defined fashion as hedonic motives for shopping rather than need. Arnold and Reynolds (2003) systematically developed a typology of hedonic shopping motivations, which includes adventure, gratification, role, value, social, and idea shopping motivations (Arnold and Reynolds, 2003).

- **Stores/brands options**

Store/brands are related to consumers shopping habit and value structure. There are 11 brands/stores listed in question 4, from lower economic class to higher economic class. It is aiming to find out which brands/stores are most popular by respondents, as the question asks respondents to rank 3 top choice, from 1 most frequent to 3 least frequent.

Previous research found high street retailers, such as H&M, TopShop and Zara and other fast fashion retailers sell garments at a very competitive price, but can be wore
no more than ten times (McAfee, et al., 2004). Different stores/brands are referring to
different market segments. Marketing segmentation can be defined by age, income,
lifestyle, and culture all appear to influence a specific and increasingly fragmented
market context (Hines, 2001).

- **Information reliability on ‘green clothes’**
  Consumers’ believes on green clothes are based on information reliability and
availability. The question 5 is aiming to find out the reliability of the information
promoted by mass media and retailers. When respondents purchasing ‘green clothes’,
how much information they received about their clothes being environmentally
friendly?

Environmental values play a primary role when consumers purchasing green products:
values affect people's beliefs, which then have influences on personal norms that lead
to consumers' pro-environmental behaviours (Reser and Bentrupperbaumer, 2005;
Stern, 2000). Green products are generally having better quality, which represented in
longer life-cycle. It benefits by improving raw materials, emerging consuming,
production efficiency, to product design (Peattie, 1995). Eco-fashion usually concerns
clothes made from raw, organic materials such as cotton grown without pesticides,
reused cloth, or materials made from recycled items (Luz, 2007).

Dyeing causes high level of pollution, there is a lack of consciousness about
sustainable uses of natural resource, such as water and energy (Metaxiotis, 2004).
Eco-fashion is aiming to reduce chemicals on both fabric and dyeing.

The consequences of increased transportation have been recognized as it brings a
number of environment problems, such as carbon emissions. Efficient transportation
could reduce carbon dioxides, the design for environment suggested that the
environmental impact of distribution can be reduced by: reduce weights of packages,
use recyclable packages, and choosing an efficient transport system (Ultimate, 2001).

- **Purchasing power of ‘green clothes’**
  The research is aiming to demonstrate consumers’ purchasing powers of green clothes. In order to understand respondents’ potential purchasing powers of ‘green clothes’, the question 6 has separated to 4 subtitles by price ranges from lower prices to higher prices.

  McDonald and Oates (2006) say “the reality of trying to operationalise green or ethical values in terms of concrete purchases”. Eco-friendly consumers generally prefer to purchase sustainable products, but they also need to consider a range of factors including price, brand and availability and that in order to increase sustainable patterns of consumption (McDonald and Oates, 2006).

- **Available recycling options for used clothes**
  In order to increase recycling rate, it is important to consider availability and convenience of recycle options. The question 7 listed 5 recently most used recycle options for clothes dispose, and it is also aiming to find out the degree of each options may used by respondents.

  Previous research indicates that few textile recycle options. Tanya Domina and Kathryn Koch suggest most commonly methods of textile disposal were the Salvation Army, passing on to family and friends and using as rags. These options are easier to practice and require the less planning or preparation, re-design modify requires more skills and not easy to generalize. (Domina and Koch, 1999)

- **Alternative options to increase recycle rate**
  When respondents make recycle options, what make them feel more interest to recycle their used clothes? In order to increase recycle rate, the question 8 suggested 5 alternatives recycle options as factors may influence respondents’ recycle decision.
There are basic three main factors that consumers want to re-use, recycle or discard old clothes. Including psychological characteristics of garment, such as condition, age style, durability and situational factors extrinsic to the product such as finances, storage space, and fashion changes (Jacoby, et al., 1977). The convenience of recycle options are also been considered as a key factor for consumers to decide their recycle behavior (Birtwistle and Moore, 2006). Shim (1995) examined the disposal of apparel by college students, found females and older students more likely to donate or re-design old clothing for environmental reasons (Shim, 1995).

Tucker and Speirs had research on how to increase recycling participation rate in England, the behavioural aspects influencing recycling rates and how the strength of promotional campaigns might impact on the performance (Tucker and Speirs, 2002).

- **Re-design used clothes**
The research is aiming to encourage consumers to re-design used clothes as a major recycling option. However, Domina and Koch indicate that re-design requires more skills, and it is not easy to generalize (Domina and Koch, 1999). The question 9 is aiming to find out whether respondents are interested in re-design used clothes or not. The question gives 6 options to choose, to understand what is particular important for respondents to attract their interests on re-designing.

- **Accessory package for re-design purpose**
In order to increase respondents’ interests on re-designing used clothes, this research has introduced a new accessory package as a re-design solution. The main purpose the new accessory package is to express consumers’ skills for re-design, and provides an alternative way of recycling. Re-use clothes require good skills on sewing, and encourage consumers to create (Fletcher, 2008). Launching the new product to current fashion market will not only benefit natural environment, but will also bring profits to retailers.
- Economic crisis on “green market”

The economic crisis has effect consumers’ income and expenditure. The question 11 is designed to understand the degree of influence caused by economic crisis on different industries, including food, clothes, electronic products and travel/holiday.

Initial research found the global financial crisis is continuously affecting major industries since 2007, and the global economy is keep downturn gradually (Wilson and Eilertsen, 2010). For example, United Nations World Tourism Organization (2009) reported tourism started effected by economic crisis since second quarter of 2008, and the negative effects grew worse in first quarter of 2009 (Andreas, et al., 2010).

4.4.1 Question formats

The question formats for this survey are adopted by multiple choice questions and rating scales. Both of those two ways are easier for customers to answer, because it's quite simple to only tick their answers on the box (Bryman and Bell, 2007). All questions are designed for rating scales format, and ask respondents to rate or evaluate options such as quality, price, daily activities, and etc; those options are designed with carefully graduated scale. This survey asks for the responses to each item question is placed on a 5-point scale, from 1 as least to 5 as most. Respondents are also asking to rate top three of their favorite store/brand choices with options provided in question five.
4.4 2 The research Framework

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Dependent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Daily environmental issues</td>
<td>Re-sold as recycling</td>
</tr>
<tr>
<td>• Purchase decision factors</td>
<td></td>
</tr>
<tr>
<td>• Store/brands options</td>
<td></td>
</tr>
<tr>
<td>• Alternative recycle options</td>
<td></td>
</tr>
<tr>
<td>• Daily environmental issues</td>
<td>Re-design as recycling</td>
</tr>
<tr>
<td>• Purchase frequencies</td>
<td></td>
</tr>
<tr>
<td>• Purchase decision factors</td>
<td></td>
</tr>
<tr>
<td>• Re-design solution package</td>
<td></td>
</tr>
<tr>
<td>• Daily environmental issues</td>
<td>Purchase power</td>
</tr>
<tr>
<td>• Purchase frequencies</td>
<td></td>
</tr>
<tr>
<td>• Store/brands options</td>
<td></td>
</tr>
<tr>
<td>• Information reliability</td>
<td></td>
</tr>
<tr>
<td>• Daily environmental issues</td>
<td>Economic crisis impacts</td>
</tr>
<tr>
<td>• Purchase frequencies</td>
<td></td>
</tr>
<tr>
<td>• Purchase decision factors</td>
<td></td>
</tr>
<tr>
<td>• Re-design solution package</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.1 Research framework

Figure 4.1 represents the framework of the research, and indicates that the dependent variables that may affect on each independent variable. The research is design to verify the hypotheses that developed in Chapter three.
4.5 Quantitative Data Analysis Procedure

SPSS and Excel are both used for data analysis in this research. All data collected from questionnaires are inputted into SPSS, which is analyzed by a widely used professional program for statistic analysis.

SPSS is a widely distributed software program for statistics marketing research purpose; its benefits based on low cost, comprehensive predictive analytics, easy solution for operation systems, and open and standard technologies. There are several methods used by SPSS in this research, including T-test, factor analysis, Cluster factor analysis, and logistic regression. After using SPSS created tables and coefficients, those data are also represented by Excel for a more convenient observation.

First of all, preliminary data analysis will participated along with destructive statistics of the sample and demographic statistics. Secondly, the study measures and purifies data by using Factor Analysis, this is aiming to reduce data quantity and avoid un-related data. Reliability and variability will be tested, and similar clusters will analyzed into the same cluster. Thirdly, there are two methods used for hypotheses testing, including regression test and t-test. The results of hypotheses testing will be further discussed by considering factors affected on each hypothesis.

In addition, in order to present a clear view of data analysis procedure, Figure 5.0 in Chapter 5.0 represents a structural overview of data analysis procedure and hypothesis testing.
Chapter Five: Data analysis, Results and Findings

5.0 Overview of Data analysis

5.1 Preliminary Data

5.1 1 Descriptive Statistic of the sample

5.1 2 Demographic Statistic

5.2 Measurement purification: Factor analysis

5.3 - 5.6 Hypotheses Testing: Results and Findings

5.3 Re-sold used clothes

H1A: -
H1B: +
H1C: -

5.4 Re-design used clothes

H2A: +
H2B: +
H2C: +

5.5 Purchase power

H3A: +
H3B: +
H3C: +

5.6 Economic crisis impacts

H4A: +
H4B: +

5.7 Summary of findings

Figure 5.0 The structure overview of data analysis procedure and hypothesis testing
5.1 Preliminary Data Analysis

In this research, the preliminary data analysis includes both descriptive statistics of sample and demographic statistics. Table 5.1.1 represents the descriptive statistics of the sample; it contains results of both mean and standard division for each sub-question that represented a holistic view of that data received from questionnaire survey. Table 5.2 shows the demographic statistics for age/gender; Table 5.1.3 is the comparison statistic of two countries regarding significant differences between groups; and Table 5.1.4 contains demographic statistics for re-design solution package.

5.1.1 Descriptive statistics of the sample

Table 5.1.1 Descriptive statistic of the sample

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Std</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Recycle Plastic and Glasses</td>
<td>2.94</td>
<td>0.22</td>
<td>3</td>
</tr>
<tr>
<td>1.2 Buy Fair trade Label</td>
<td>2.20</td>
<td>0.38</td>
<td>93</td>
</tr>
<tr>
<td>1.3 Try to reduce CO$_2$</td>
<td>2.24</td>
<td>0.40</td>
<td>17</td>
</tr>
<tr>
<td>1.4 Look for Organic material</td>
<td>2.74</td>
<td>0.26</td>
<td>14</td>
</tr>
<tr>
<td>1.5 Try to reduce pollution in other ways.</td>
<td>2.70</td>
<td>0.23</td>
<td>12</td>
</tr>
<tr>
<td>1.6 Try to shop ethically</td>
<td>2.00</td>
<td>0.47</td>
<td>103</td>
</tr>
<tr>
<td>1.7 Shopping with human rights in mind</td>
<td>1.64</td>
<td>0.49</td>
<td>103</td>
</tr>
<tr>
<td>2.1 Coats &amp; Jackets</td>
<td>1.84</td>
<td>0.71</td>
<td>0</td>
</tr>
<tr>
<td>2.2 T-shirts &amp; Tops</td>
<td>2.31</td>
<td>0.86</td>
<td>0</td>
</tr>
<tr>
<td>2.3 Knitwear</td>
<td>1.49</td>
<td>0.57</td>
<td>0</td>
</tr>
<tr>
<td>2.4 Skirts &amp; Trousers</td>
<td>1.82</td>
<td>0.73</td>
<td>0</td>
</tr>
<tr>
<td>3.1 Price</td>
<td>2.35</td>
<td>0.50</td>
<td>14</td>
</tr>
<tr>
<td>3.2 Style</td>
<td>2.70</td>
<td>0.47</td>
<td>7</td>
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<tr>
<td>3.3 Quality</td>
<td>2.53</td>
<td>0.53</td>
<td>6</td>
</tr>
<tr>
<td>3.4 Brands</td>
<td>2.05</td>
<td>0.60</td>
<td>41</td>
</tr>
<tr>
<td>3.5 Environment friendly</td>
<td>1.58</td>
<td>0.63</td>
<td>61</td>
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<td>4.1 No.1</td>
<td>3.68</td>
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<td>0</td>
</tr>
<tr>
<td>4.2 No.2</td>
<td>3.63</td>
<td>1.01</td>
<td>7</td>
</tr>
<tr>
<td>4.3 No.3</td>
<td>3.78</td>
<td>1.13</td>
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<tr>
<td>5.1 Green clothes are quality controlled.</td>
<td>3.83</td>
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<td>19</td>
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<td>5.2 Green clothes use organic materials.</td>
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<td>24</td>
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<tr>
<td>5.3 Green clothes create less Carbon dioxide</td>
<td>3.30</td>
<td>1.00</td>
<td>36</td>
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<tr>
<td>5.4 Green clothes reduce pollution in dyeing</td>
<td>3.89</td>
<td>0.88</td>
<td>24</td>
</tr>
<tr>
<td>5.5 Green clothes use efficient transportation</td>
<td>3.54</td>
<td>0.99</td>
<td>31</td>
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<tr>
<td>Question</td>
<td>Mean</td>
<td>Standard Deviation</td>
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</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------</td>
<td>--------------------</td>
<td>---</td>
</tr>
<tr>
<td>5.6 Workers are treated more ethically</td>
<td>3.26</td>
<td>1.06</td>
<td>37</td>
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<tr>
<td>6.1 Under £30</td>
<td>2.86</td>
<td>1.44</td>
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</tr>
<tr>
<td>6.2 £30 - £50</td>
<td>2.52</td>
<td>1.25</td>
<td>0</td>
</tr>
<tr>
<td>6.3 £50 - £100</td>
<td>2.20</td>
<td>1.12</td>
<td>0</td>
</tr>
<tr>
<td>6.4 Above £100</td>
<td>1.99</td>
<td>1.08</td>
<td>0</td>
</tr>
<tr>
<td>7.1 Sale on web or in 2nd hand shop</td>
<td>1.82</td>
<td>1.00</td>
<td>0</td>
</tr>
<tr>
<td>7.2 Donate to Charity shops</td>
<td>2.22</td>
<td>1.07</td>
<td>0</td>
</tr>
<tr>
<td>7.3 Pass on to friends</td>
<td>2.81</td>
<td>1.11</td>
<td>0</td>
</tr>
<tr>
<td>7.4 Re-designed for re-use</td>
<td>1.93</td>
<td>0.90</td>
<td>0</td>
</tr>
<tr>
<td>7.5 Give to Jumble sale/Charity bags</td>
<td>2.73</td>
<td>1.08</td>
<td>0</td>
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<tr>
<td>8.1 Clothes being marked as Recyclable</td>
<td>2.09</td>
<td>0.63</td>
<td>26</td>
</tr>
<tr>
<td>8.2 Consider residual value of old clothes</td>
<td>2.30</td>
<td>0.59</td>
<td>25</td>
</tr>
<tr>
<td>8.3 Unique/special Design for you</td>
<td>2.39</td>
<td>0.64</td>
<td>21</td>
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<td>8.4 Available convenience of recycling options</td>
<td>2.21</td>
<td>0.65</td>
<td>34</td>
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<td>8.5 Supporting Charity &amp; other organizations</td>
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<td>0.66</td>
<td>17</td>
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<td>9. Re-design as a recycle option</td>
<td>3.31</td>
<td>1.45</td>
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<td>10 Re-design solution package</td>
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<td>1.28</td>
<td>0</td>
</tr>
<tr>
<td>11.1 Food</td>
<td>1.58</td>
<td>0.87</td>
<td>19</td>
</tr>
<tr>
<td>11.2 Clothes</td>
<td>1.57</td>
<td>0.87</td>
<td>20</td>
</tr>
<tr>
<td>11.3 Electronic products</td>
<td>1.89</td>
<td>0.95</td>
<td>12</td>
</tr>
<tr>
<td>11.4 Travel &amp; holiday</td>
<td>1.87</td>
<td>0.97</td>
<td>11</td>
</tr>
</tbody>
</table>

According to Table 5.1.1, question 1.1 to 1.7 are defined as ‘respondents’ daily environmentally friendly issues’. In the survey, each item question is placed on a 5-point scale, from 1 as least to 5 as most. Due to the cultural differences between the UK and China, the questionnaire used in China did not contain question 1.2, 1.6 and 1.7. Therefore, there are over 100 missing answers in both question 1.6 and 1.7, and 93 data are missed in question 1.2. This may affect the accuracy of the results, and should be considered in further analysis.

Questions from 3.1 to 3.5 are referring to ‘factors that may affect respondents’ purchase decision on clothes’. However, there are 61 missing answers on environmentally friendly (Question 3.5). Respondents that did not answer this question may have never considered issues about being environmentally friendly while purchasing clothes or they did not know where to purchase green clothes.
Table 5.1.1 defines question 5.1 to 5.6 as ‘reliability of the information regarding “green clothes’; however, each question has more than 20% missing data, especially the question 5.3 and question 5.6. This may be due to the fact that the actual information delivered to respondents is neither limited nor unreliable.

Question 10 is aiming to introduce an accessory package as re-design solution for used clothes and could be seen as one of the alternative recycling options. According to Table 5.1.1, both question 9 and 10 represents the number of respondents who are looking for a convenient way to re-work with their used clothes, and how will the accessory package them to re-design in a more convenient method.

From question 8.1 to 8.5, the results show that all alternative recycling options should effectively increase respondents’ interest in recycling used clothes. However, all results in these questions contain more than 15% missing data, which may result in inaccuracy, especially in question 8.4, it has 24% of the data are missing.

### 5.1.2 Demographic statistics

<table>
<thead>
<tr>
<th>Items</th>
<th>No. of respondents in The UK</th>
<th>No. of respondents in China</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1 Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 21</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>22-30</td>
<td>35</td>
<td>38</td>
</tr>
<tr>
<td>31-44</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>45-60.</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Over 60</td>
<td>2</td>
<td>n/a</td>
</tr>
<tr>
<td>12.2 Gender:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>53</td>
</tr>
</tbody>
</table>
Table 5.1.2 is the frequency table of demographic information for age and gender in both the UK and China. Respondents’ personal information involves age, gender and education. Compare the frequencies in Table 5.1.2, there are more respondents falling into age group ‘under 21 years old’ in China. However, the questionnaire in the UK did not contain question 12.3 (education), thus there are no data collected for education background in the UK.

Table 5.1.3: Mean comparison between two countries

<table>
<thead>
<tr>
<th>Items</th>
<th>Means</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 Try to reduce Pollution in other ways</td>
<td>0.76</td>
<td>1.24</td>
</tr>
<tr>
<td>3.3 Quality</td>
<td>2.53</td>
<td>2.99</td>
</tr>
<tr>
<td>5.3 Green clothes create less Carbon Dioxides</td>
<td>3.34</td>
<td>2.57</td>
</tr>
<tr>
<td>6.1 Under £30/¥ 200</td>
<td>3.15</td>
<td>2.62</td>
</tr>
<tr>
<td>7.2 Donate to charity shops</td>
<td>2.58</td>
<td>1.92</td>
</tr>
<tr>
<td>7.3 Pass on to friends</td>
<td>2.44</td>
<td>3.12</td>
</tr>
</tbody>
</table>

Table 5.1.3 compares mean scores for both the UK and China in six specific questions, and these questions represent there are significant differences between two regions by using t-test via SPSS.

- **Try to reduce pollution in other ways**
  The results in Table 5.1.3 show that the Chinese respondents are significantly more willing to choose ‘reduce pollution in other ways’. However, the data accuracy may be affected by culture differences in this case, and the question may be limited to some respondents as it is sweeping or illegible to understand. This is because the question is ‘if they are trying to reduce pollution in other ways in their daily life’, and the survey does not provide any available option or guideline to choose.

- **Quality as an important factor influencing consumers’ purchase decisions**
  The results in Table 5.1.3 shows that both two groups consider quality of clothes is an important factor when they making purchase decisions, and the Chinese respondents achieved a higher mean score than the UK ones. Chinese consumers consider product
quality as one of the most important when they purchase clothes; and the results should consider associated with consumer value structures and their incomes.

- **Green clothes create less Carbon Dioxide**

  Referring to Table 5.1.3, compare the two groups, UK respondents will significantly consider their carbon footprint more when they purchasing green clothes. The results also show that major UK respondents agree or are neutral about the fact that green clothes create less Carbon Dioxide, while the Chinese respondents are tend to disagree.

  The negative views of the Chinese respondents may be due to two reasons. Firstly, Chinese respondents may have little knowledge and awareness of the principles of low carbon dioxide living. The Chinese public media need to improve the promotion of environment problem issues, and guide consumers on how to engage low carbon dioxide living. Secondly, this may also be due to the limited amount of information provided about whether green clothes reduce carbon dioxide or not.

- **Donating to charity shops**

  The results indicate that the UK respondents use charity shops significantly more frequent than the Chinese respondents when they recycling used clothes, while generally the life cycle of garments is longer in China. The research also found that it is inconvenient for the respondents to donate used clothes to these organizations, as these organizations provide very limited collection services.

- **Passing on to family and friends to re-use**

  The Chinese respondents are significantly more likely to pass on used clothes to family members than the UK respondents. Earlier studies of textile disposal found that donations and passing on to family and friends were the most common methods of textile disposal (Avery, 1967; Pitts, 1995). It is a tradition for households to pass on unwanted garments to family and friends, in order to prolong a garment’s life.
Table 5.1.4 Demographic statistics for the re-design solution package

<table>
<thead>
<tr>
<th>Demographic and mean scores for re-design solution</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Respondents</td>
<td>41</td>
<td>98</td>
</tr>
<tr>
<td>Mean of re-design solution</td>
<td>2.68</td>
<td>3.60</td>
</tr>
<tr>
<td>Mean of Age group.</td>
<td>2.24</td>
<td>2.16</td>
</tr>
</tbody>
</table>

Table 5.1.4 represents that female respondents are significantly more willing to use the re-design solution package rather than male ones. Female consumers usually have more passions for fashion, and they would like to spend time and money on shopping (Fletcher, 2008). In addition, both male and female respondents fall in age group 22-30, are more interested in re-designing used clothes.

### 5.2 Measurement purification

Item reduction is aiming to avoid un-related data, and ensure all data are related to the construct of the research (Joseph, et al., 1998). Lower the number of variables can increase efficiency of data analysis, especially when there is a large quantity of data.

Item reduction is assumed to select a single variable from the selected variables for further use. When several variables are mainly reflect to a certain variable, the database can reduce number of variables to sets of variables (Joseph, et al., 1998). SPSS reduces reflected variable by using Factor Analysis, which will be used in the following research.

Item classification can be seen as purification of data, and it is aiming to increase data efficiency in further research. Similar data should be subdivided into homogeneous groups and unrelated data should be deleted as data reduction, as similar target groups are more likely to be receptive to hypothesis (Janssens, 2008). SPSS has recorded all data for standardization by using Cluster Analysis; it sorted similar individuals into clusters.
The results presented at this stage also include percentage of experienced variance Cronbach’s Alpha. Cronbach’s Alpha refers to data reliability, and reliability test is an assessment of the degree of consistency between multiple measurements of variables. It is aiming to ensure that responses are not too varied through time periods, and measurements can take any point of time period apply to reliability (Joseph, et al., 1998)

5.2.1 Item Reduction: Factor analysis

In order to ensure all the data are related to the construct of the research, factor analysis is been used for data purification. All the variables and data collected from questionnaires can be reduced to several factors by using exploratory factor analysis. Factor analysis is aiming to define the underlying structure in a data matrix, and it works as summarization and reduction (Joseph, et al., 1998).

Overview, the following research contains 9 independent as factors X, and 5 dependent as factors Y. Table 5.2.1 represented data collected from both the UK and China, and divided by exploratory factor analysis. The factor loading scores are calculated by rotated component matrix, and the scores must be at least 0.65 with a total sample of 139.

According to Table 5.2.1, ‘respondents’ daily issues’ can be divided into two factors, common environmentally friendly issues and particular environmentally friendly issue. ‘Particular environmentally friendly issues’ (X1.2) achieved 38.87 in explained variance percentage, with is a good score in data accuracy. Cronbach’s Alpha score is used to explain data reliability, and both two factors result in good reliability. In addition, the variable “try to reduce pollution in other ways” is not included, due to the fact that its score of factor loading is lower than 0.65.
Table 5.2.1 Respondents’ daily environmentally friendly issues

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X1.1</td>
<td>X1.2</td>
</tr>
<tr>
<td>1. Try to shop ethically</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>2. Try to reduce CO₂</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>3. Buy Fair Trade Label</td>
<td>0.76</td>
<td></td>
</tr>
<tr>
<td>4. Be environmental conscious when purchase clothes</td>
<td>0.92</td>
<td></td>
</tr>
<tr>
<td>5. Look for organic materials</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>6. Recycle plastic and glasses</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>7. Shopping with human rights in mind</td>
<td>0.70</td>
<td></td>
</tr>
</tbody>
</table>

Eigenvalue                                        3.27              3.11
Explained variance percentage                        40.92             38.87
Cronbach’s Alpha                                   0.69              0.78

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Common Environmental friendly Issues</th>
<th>Particular Environmentally friendly Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Only factor loading greater than or equal to 0.65 are included in this table

Table 5.2.2 Purchasing activities on clothes and textiles

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X2.1</td>
<td>X2.2</td>
</tr>
<tr>
<td>1. Coats and Jackets</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>2. T-shirts &amp; Tops.</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>3. Skirts &amp; Trousers</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>4. No.1 popular stores/brands</td>
<td></td>
<td>0.81</td>
</tr>
<tr>
<td>5. No.2 popular stores/brands</td>
<td></td>
<td>0.76</td>
</tr>
</tbody>
</table>

Eigenvalue                                    2.43                1.39
Explained variance percentage                    34.66               54.55
Cronbach’s Alpha                               0.77                0.56

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Purchasing frequency</th>
<th>Purchase stores/brands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Only factor loading greater than or equal to 0.65 are included in this table

According to Table 5.2.2, all factors that indicate that respondents’ purchasing activities are divided into two groups, as X2.1 refers to purchasing frequency, and X2.2 is defined as purchase stores/brands.

The generally agreed limited of Cronbach’s Alpha is 0.70, and in exploratory research it may decrease to 0.60 (Joseph, et al., 1998). However, the Cronbach’s Alpha of purchase stores/brands (X2.2) is lower than 0.60, which means the data reliability of purchase stores/brands is lower than average. As a result, purchase stores/brands
(X2.2) is referred to as data inaccuracy. Therefore, purchase stores/brands (X2.2) is not considered in the following research. In addition, independent variable “knitwear” is not counted in this research; as its factor loading score is lower than 0.65.

Table 5.2.3 Factors that may affect respondents’ purchase decisions

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X3.1</td>
<td>X3.2</td>
</tr>
<tr>
<td>1. Style</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>2. Quality</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>3. Price</td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>1.76</td>
<td>1.31</td>
</tr>
<tr>
<td>Explained variance percentage</td>
<td>43.88</td>
<td>32.76</td>
</tr>
<tr>
<td>Cronbach’s Alpha</td>
<td>0.57</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Factor Name: Personal factor | Price factor

Note: Only factor loading greater than or equal to 0.65 are included in this table

Table 5.2.3 has divided the three variables into two factor groups, resulting as style and quality became personal factor (X3.1), and price is defined as price factor (X3.2). X3.1 can be seen as respondent’s personal decision effects; Jocoby (1977) also define it as one of the non-situation factors. Price factor is referred as price factors (Jacoby et al., 1977).

Besides, the variance percentage in the price factor is greater than that of the personal factor, which means data in the price factor can be represented with better data reliability. Both factors’ Cronbach’s Alpha of the two factors are 0.57, which is slightly lower than average (0.60); this may cause data inaccuracy when these factors are considered in further research.

Information reliability will affect respondents’ purchase decision while they purchasing green clothes. The variables in Table 5.2.4 are separated into two groups, include: standard information about green clothes and advanced information that respondents may need for green clothes.

The explained variance percentage in standard information is greater than advanced
information, and both the data reliability scores in two factors are greater than 0.65 that represents good data accuracy.

Table 5.2.4 Factor analysis for Information reliability

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>X4.1</td>
<td>X4.2</td>
<td></td>
</tr>
<tr>
<td>1. Green Clothes are quality controlled</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>2. Green Clothes use efficient transportation</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>4. Green Clothes reduce pollution in dyeing</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>5. Green Clothes create less carbon dioxide</td>
<td></td>
<td>0.88</td>
</tr>
<tr>
<td>6. Workers are treated more ethically</td>
<td></td>
<td>0.74</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Standard information</th>
<th>Advanced information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eigenvalue</td>
<td>2.19</td>
<td>1.83</td>
</tr>
<tr>
<td>Explained variance percentage</td>
<td>36.53</td>
<td>30.53</td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
<td>0.70</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Note: Only factor loading greater than or equal to 0.65 are included in this table

Table 5.2.5 Alternative recycle options

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>X5</td>
<td></td>
</tr>
<tr>
<td>1. Clothes being marked as recyclable</td>
<td>0.80</td>
</tr>
<tr>
<td>2. Available convenience of recycling options</td>
<td>0.79</td>
</tr>
<tr>
<td>3. Consider residual value of old clothes</td>
<td>0.75</td>
</tr>
<tr>
<td>4. Supporting charity &amp; other organizations</td>
<td>0.74</td>
</tr>
<tr>
<td>5. Unique/special design for you.</td>
<td>0.67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Solutions to improve recycling rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eigenvalue</td>
<td>2.82</td>
</tr>
<tr>
<td>Explained variance percentage</td>
<td>56.44</td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Note: Only factor loading greater than or equal to 0.65 are included in this table

The research is aiming to increase recycling rate on used clothes, by introducing alternative recycling options. All factors in question 8 fall into the same factor group defined as ‘solution to improving recycling rate’. Both explained variance percentage and Cronbach’s Alpha achieved good score, as 56.44 on variance percentage, and a good score (0.81) on data reliability.
Table 5.2.6 Purchasing power of green clothes

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y1</td>
</tr>
<tr>
<td>1. £30-50</td>
<td>0.94</td>
</tr>
<tr>
<td>2. £50-100</td>
<td>0.93</td>
</tr>
<tr>
<td>3. Above £100</td>
<td>0.86</td>
</tr>
<tr>
<td>4. Under £30.</td>
<td>0.81</td>
</tr>
</tbody>
</table>

| Eigenvalue           | 3.15     |
| Explained variance percentage | 78.82  |
| Cronbach's Alpha     | 0.90     |

Factor Name: Purchasing power

Note: Only factor loading greater than or equal to 0.65 are included in this table

All variables in Table 5.2.6 fall into the same independent factor, which is defined as respondents’ purchasing power of green clothes. Respondents’ purchasing power achieved both good scores on explained variance percentage and Cronbach’s Alpha; this can resulted in good data accuracy. Purchasing power of green clothes is also further analyzed by hypotheses testing in the further research.

Table 5.2.7 Recycle options for used clothes

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y2.1</td>
<td>Y2.2</td>
</tr>
<tr>
<td>1. Give to Jumble/charity bags</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>2. Pass on to friends</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>3. Re-design for re-use</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>4. Donate to charity shops</td>
<td></td>
<td>0.83</td>
</tr>
<tr>
<td>5. Re-sell on web or 2nd hand shops</td>
<td></td>
<td>0.76</td>
</tr>
</tbody>
</table>

| Eigenvalue       | 1.54 | 1.44 |
| Explained variance percentage | 30.75 | 59.57 |
| Cronbach’s Alpha | 0.62 | 0.62 |

Factor Name: Re-use Re-sold

Note: Only factor loading greater than or equal to 0.65 are included in this table

Recycling options in Table 5.2.7 are divided into two factor groups, including re-use (Y2.1) and re-sold (Y2.2). Re-use is one of the most efficient ways to recycle used clothes; it achieved 30.75 in explained variance percentage, and 0.62 in Cronbach’s Alpha. Re-sell used clothes to trade is defined as a re-sold regarding recycling options,
and its variance percentage attained 59.57 while the Cronbach’s Alpha score achieved 0.62.

Table 5.2.8 Economic crisis influences

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Travel and holiday</td>
<td>0.87</td>
</tr>
<tr>
<td>2. Clothes</td>
<td>0.85</td>
</tr>
<tr>
<td>3. Electronic products</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Eigenvalue 2.38  
Explained variance percentage 59.54  
Cronbach’s Alpha 0.88

Factor Name Economic crisis

Note: Only factor loading greater than or equal to 0.65 are included in this table

In order to understand effects of economic crisis on “green products” market, it contains three variables in the same factor group, including travel/holiday, clothes and electronic products. The variance percentage is 59.54, and Cronbach’s Alpha is 0.88, which means the reliability of data is greater than average.

Table 5.2.9 Re-design for re-use

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Will you re-design your used clothes?</td>
<td>0.85</td>
</tr>
<tr>
<td>2. Accessory package for re-design purpose</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Eigenvalue 1.44  
Explained variance percentage 71.23  
Cumulative explained variance percentage 71.23  
Cronbach’s Alpha 0.60

Factor Name Re-design solution

Note: Only factor loading greater than or equal to 0.65 are included in this table

Table 5.2.9 focus on respondents’ interest in re-designing used clothes. In order to increase respondents’ re-use rate on used clothes, the research has designed an accessory package to bring out consumers’ ability on re-designing used clothes. The re-design solution (Y4) is aiming to find out barriers on re-designing, and help to
improve the accessory package for marketing.

According to Table 5.2.9, the re-design solution package achieved 71.23 on variance percentage, and 0.60 on Cronbach’s Alpha, which represented a good data reliability and accuracy for further research.

5.2.2 Summary of Factor Analysis

Factor analysis is developed from the literature review and hypothesis development in previous chapters. There are 9 factors defined as dependent variables (X), and 5 factors defined as independent variable (Y).

All factors are tested for data reliability, and factors with Cronbach’s Alpha score above 0.55 are selected for further analysis, as they are more applicable and validity for the following research.

To sum up the correlations of factors defined in chapter 5.2.1, Table 5.2.10 is the correlation matrix table for factor analysis. The correlation matrix table enables to present a clear description of correlations among defined factors. Thus, rows X1 to Y4 are correlated to columns X1 to Y4. The correlation figures are shown in Table 5.2.10.
### Correlations Matrix for Factor analysis

<table>
<thead>
<tr>
<th></th>
<th>X1.1</th>
<th>X1.2</th>
<th>X2.1</th>
<th>X2.2</th>
<th>X3.1</th>
<th>X3.2</th>
<th>X4.1</th>
<th>X4.2</th>
<th>X5</th>
<th>Y1</th>
<th>Y2.1</th>
<th>Y2.2</th>
<th>Y3</th>
<th>Y4</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1.1 Common Environmental friendly issues</td>
<td><strong>1.00</strong></td>
<td>0.55*</td>
<td>0.13</td>
<td>0.05</td>
<td>0.16</td>
<td>(0.01)</td>
<td>0.12</td>
<td>0.03</td>
<td>(0.11)</td>
<td>0.10</td>
<td>0.05</td>
<td>(0.02)</td>
<td>0.14</td>
<td>(0.10)</td>
</tr>
<tr>
<td>X1.2 Particular Environmental friendly issues</td>
<td>0.55**</td>
<td><strong>1.00</strong></td>
<td>0.14</td>
<td>0.06</td>
<td>0.07</td>
<td>0.12</td>
<td>0.12</td>
<td>0.01</td>
<td>(0.09)</td>
<td>0.05</td>
<td>(0.13)</td>
<td>(0.12)</td>
<td>0.06</td>
<td>0.03</td>
</tr>
<tr>
<td>X2.1 Purchase frequencies</td>
<td>0.13</td>
<td>0.14</td>
<td><strong>1.00</strong></td>
<td>0.23*</td>
<td>0.202*</td>
<td>(0.14)</td>
<td>0.09</td>
<td>(0.02)</td>
<td>0.03</td>
<td>0.04</td>
<td>0.30*</td>
<td>0.09</td>
<td>0.03</td>
<td>0.22*</td>
</tr>
<tr>
<td>X2.2 Purchase stores/brands</td>
<td>0.05</td>
<td>0.06</td>
<td>0.23*</td>
<td><strong>1.00</strong></td>
<td>0.26*</td>
<td>(0.17)</td>
<td>0.34**</td>
<td>0.16</td>
<td>(0.01)</td>
<td>0.13</td>
<td>0.11</td>
<td>0.11</td>
<td>(0.15)</td>
<td>0.08</td>
</tr>
<tr>
<td>X3.1 Personal factors</td>
<td>0.16</td>
<td>0.07</td>
<td>0.20*</td>
<td>0.25*</td>
<td><strong>1.00</strong></td>
<td>0.02</td>
<td>(0.11)</td>
<td>0.18</td>
<td>0.04</td>
<td>0.19*</td>
<td>0.15</td>
<td>0.14</td>
<td>0.06</td>
<td>0.09</td>
</tr>
<tr>
<td>X3.2 Price factors</td>
<td>(0.01)</td>
<td>0.12</td>
<td>(0.14)</td>
<td>0.17</td>
<td>0.02</td>
<td><strong>1.00</strong></td>
<td>(0.07)</td>
<td>0.09</td>
<td>(0.16)</td>
<td>0.16</td>
<td>0.10</td>
<td>(0.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4.1 Basic information</td>
<td>0.12</td>
<td>0.12</td>
<td>0.09</td>
<td>0.34**</td>
<td>(0.11)</td>
<td>(0.07)</td>
<td><strong>1.00</strong></td>
<td>0.45**</td>
<td>0.00</td>
<td>0.13</td>
<td>0.08</td>
<td>(0.09)</td>
<td>0.04</td>
<td>(0.07)</td>
</tr>
<tr>
<td>X4.2 Advanced information</td>
<td>0.03</td>
<td>0.01</td>
<td>(0.02)</td>
<td>0.16</td>
<td>(0.18)</td>
<td>(0.07)</td>
<td>0.49**</td>
<td><strong>1.00</strong></td>
<td>(0.03)</td>
<td>0.17</td>
<td>0.01</td>
<td>(0.10)</td>
<td>0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>X5 Solution to improve recycle rate</td>
<td>(0.11)</td>
<td>(0.09)</td>
<td>0.03</td>
<td>(0.01)</td>
<td>0.04</td>
<td>0.09</td>
<td>0.00</td>
<td>(0.03)</td>
<td><strong>1.00</strong></td>
<td>0.07</td>
<td>0.07</td>
<td>0.15</td>
<td>0.01</td>
<td>0.22*</td>
</tr>
<tr>
<td>Y1 Purchase power</td>
<td>0.10</td>
<td>(0.05)</td>
<td>0.04</td>
<td>0.13</td>
<td>0.19**</td>
<td>(0.16)</td>
<td>0.13</td>
<td>0.17</td>
<td>0.07</td>
<td><strong>1.00</strong></td>
<td>(0.29)**</td>
<td>(0.07)</td>
<td>(0.01)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Y2.1 Re-use as recycle options</td>
<td>0.05</td>
<td>0.18*</td>
<td>0.30**</td>
<td>0.11</td>
<td>0.15</td>
<td>(0.03)</td>
<td>0.08</td>
<td>0.01</td>
<td>0.07</td>
<td>(0.29)**</td>
<td><strong>1.00</strong></td>
<td>0.32**</td>
<td>0.03</td>
<td>0.31**</td>
</tr>
<tr>
<td>Y2.2 Re-sold as recycle options</td>
<td>(0.02)</td>
<td>0.12</td>
<td>0.09</td>
<td>0.11</td>
<td>0.14</td>
<td>0.16</td>
<td>(0.09)</td>
<td>(0.10)</td>
<td>0.15</td>
<td>(0.07)</td>
<td>0.32**</td>
<td><strong>1.00</strong></td>
<td>0.00</td>
<td>0.31**</td>
</tr>
<tr>
<td>Y3 Economic crisis</td>
<td>0.14</td>
<td>0.06</td>
<td>0.03</td>
<td>(0.16)</td>
<td>(0.06)</td>
<td>0.10</td>
<td>(0.04)</td>
<td>(0.04)</td>
<td>0.01</td>
<td>(0.01)</td>
<td>0.03</td>
<td>0.00</td>
<td><strong>1.00</strong></td>
<td>0.05</td>
</tr>
<tr>
<td>Y4 Re-design solution</td>
<td>(0.10)</td>
<td>0.03</td>
<td>0.22*</td>
<td>0.08</td>
<td>0.09</td>
<td>(0.00)</td>
<td>(0.07)</td>
<td>0.01</td>
<td>0.22</td>
<td>(0.02)</td>
<td>0.31**</td>
<td>0.31**</td>
<td>0.05</td>
<td><strong>1.00</strong></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

( ) Correlation is negative

Table 5.2.10: Correlations Matrix for factor analysis
5.3 Hypotheses testing with re-selling used clothes as a recycling option

Previous study indicated that statistical hypothesis test is a key technology of frequentist statistical inference and it has been widely used. The hypotheses test, which is also called confirmatory data analysis, aims to test experimental data and make statistical decision. Null-hypothesis means the results applied to research assumption are true, and contain certain information that supports the hypotheses (Cramer, 2004). The null hypothesis can be accepted or rejected depending on the results of the statistic significance (Joseph, et al., 1998).

Hypotheses on taking re-selling as a recycling option aims to validate the coefficient and significance between re-selling used clothes (Y2.2) and its related dependent variables, which include daily environmentally friendly issues, purchasing activities on clothes and textiles, purchasing decision effects, information reliability of green clothes, and alternative solutions to improve recycling rates.

Table 5.3.1 Factor analyses for respondents' recycling options for used clothes and textiles

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Give to Jumble/charity bags</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>2. Pass on to friends</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>3. Re-design for re-use</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>4. Donate to charity shops</td>
<td></td>
<td>0.83</td>
</tr>
<tr>
<td>5. Re-sell on web or 2nd hand shops</td>
<td></td>
<td>0.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Eigenvalue</th>
<th>Explained variance percentage</th>
<th>Cumulative explained variance percentage</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 / Y2.1</td>
<td>1.54</td>
<td>30.75</td>
<td>30.75</td>
<td>0.52</td>
</tr>
<tr>
<td>Factor 2 / Y2.2</td>
<td>1.44</td>
<td>28.82</td>
<td>59.57</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Factor Name: Re-use, Re-sold

Note: Only factor loading greater than or equal to 0.65 are included in this table

According to Table 5.3.1, the Factor Analysis defined factor group Y2.2 as “re-sold” option for recycling used clothes. Y2.2 suggests that two recycling options including donating to charity shops, and re-selling on web and second hand shops.
Hsunchi and Shuling (2007) define four motivations for consumers to use the re-sold as a recycling option, including: profit-driven monetary motives, utilitarian trade motives, emotional/social motives, and house grooming motives (Hsunchi and Shuling, 2007).

Previous research shows that 25% of UK clothes and textiles are recycled through recycling banks, charity shops and door-to-door collections. From 2003 to 2008, the recycling rate and re-using rate of clothes and textiles has increased from 324,000 to 523,000 (“Maximizing reuse and recycling of UK clothing and Textiles EV0421”, 2009).

Garments with the best qualities are usually sold in charity shops and second hand shops, and others are re-designed into unique pieces (Fletcher, 2008). On one hand, the number of second-hand shops has increased significantly; on the other hand, they have made contributions to the local economy by enhanced efforts. Sale on the Internet enables consumers to sell used clothes in a more convenient and broad way such as Ebay etc. (Hsunchi and Shuling, 2007).

5.3.1 Coefficient test: Logistic regression

The hypothesis testing aims to find the coefficient and significance between dependent and independent variables. As one of the most popular statistical analysis methods, logistic regression is widely used in international marketing serials, for instance, it can be applied to predict consumers’ propensities to purchase a product (Hyman and Young, 2001).

In order to find the right model to fit the analysis, the logistic analysis offers alternative data distribution assumptions (Serkan, et al., 2007). The advantages of
using logistic regression include: it allows independent and dependent variables enjoy different distributions; neither assumption on linear relationship exists nor homogeneity of variance is assumed (Joseph, et al., 1998).

Therefore, a logistic regression test is utilized to explain a categorical variable, and divided into two groups on the basis of interval-, ratio-scaled and categorical variables (Janssens, 2008). The research intends to predict the probability of occurrence and divide dependent variables into 2 groups, in Cluster factor analysis.

### 5.3.2 Item classification: Cluster analysis

In order to increase data efficiency in logistic regression, similar data should subdivide into homogeneous groups and unrelated data should be deleted for data reduction; as similar target groups are more likely to be receptive to hypothesis (Janssens, 2008).

SPSS has recorded all data for standardization, which will be used in Cluster analysis. Cluster analysis is aiming to sort individuals into clusters, with high similarity existing between individuals in the same cluster, and low similarity in different clusters. It divided individuals or objects into clusters, and then put the similar objects into the same cluster (Joseph, et al., 1998; Janssens, 2008).

SPSS provides 3 procedures for cluster analysis, including hierarchical cluster analysis, k-means cluster, and two-step cluster. The following analysis represents data collected from both the UK and China by using cluster analysis. All available data are analyzed by hierarchical cluster analysis to indicate how many clusters are in existence, and divided into groups by k-mean cluster. In this research all available data will use a two-step solution to represent the database.
Table 5.3.2 Cluster analysis for recycling options of used clothes

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>No. in Cluster 1</th>
<th>No. in Cluster 2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y2.1 Re-use</td>
<td>1.80</td>
<td>3.00</td>
<td>63</td>
<td>76</td>
<td>0.00</td>
</tr>
<tr>
<td>Y2.2 Re-sold.</td>
<td>1.56</td>
<td>3.08</td>
<td>97</td>
<td>42</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Previous Factor Analysis divides the recycling options into 2 groups, which are defined as re-using and re-selling of used clothes. As for re-using options, there are 63 responses in Cluster 1, and its meaning falls into frequency of “few times”. Cluster 2 contains 76 responses, and achieves 3.00 for mean score, which falls in “sometimes” as frequencies. Cluster 1 in the re-selling options remains 97 responses, with a mean score of 1.56, and 42 responses achieved 3.08 in Cluster 2.
5.3.3 Results and Findings

The logistic regression has demonstrated that there are significant differences between re-selling options (Y2.2) and its dependent variables, such as particular environmentally friendly issues (X1.2), purchasing stores/brands (X2.2), price effects on purchasing decisions (X3.2) and alternative solutions to increase recycling rates (X5) that means the research results show that X1.2, X2.2 X3.2 and X5 have significant impacts on respondents’ recycling decisions.

Table 5.3.3 Logistic regressions for re-selling as a recycling option

<table>
<thead>
<tr>
<th>Items</th>
<th>B</th>
<th>Wald</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. X1.2 Particular environmentally friendly issues</td>
<td>-1.03</td>
<td>9.24</td>
<td>0.00</td>
</tr>
<tr>
<td>2. X3.2 Price factors on purchase decision</td>
<td>0.61</td>
<td>4.60</td>
<td>0.03</td>
</tr>
<tr>
<td>3. X5 Alternative options to increase recycle rate</td>
<td>-0.61</td>
<td>5.32</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Negelkerke $R^2$ 0.28

Chi Square 18.42

Factor Name Y2.2: Re-sold

- Particular environmentally friendly issues

Rejected: H1A: Consumer value and lifestyle have significantly positive influences on re-selling as a recycling options.

Particular environmentally friendly issues (X1.2) refer to consumer behaviours and attitudes toward being environment friendly, which includes the following variables: looking for organic materials, recycling plastic and glasses, shopping with human rights in mind, and being environmentally friendly when purchasing clothes. Gonzalez (2000) indicates that in the perspectives of marketing, consumers’ lifestyles and value structures can help companies to identify their marketing segmentations and strategies (Gonzalez, 2000).

Birtwistle and Moore (2007) find out that most consumers dispose their used clothes to charity shops. Those clothes are re-sold, sent to developing countries for re-using, or recycled to make cleaning rags (Birtwistle and Moore, 2007). Currently, re-selling
used clothes is one of the most convenient solutions, as many charities and organizations provide door-to-door collection and consumers need very little to do for the garments (Domina and Koch, 1999).

According to Table 5.3.3, the regression coefficient -1.03 indicates that when respondents achieve higher scores on particular environmentally friendly issues (Y2.2); they are less willing to sell used clothes directly to second hand shops or on the Internet. Therefore, H1A: Consumer value and lifestyle have significantly positive influences on re-selling recycling options is a false hypothesis as the results show a negative growth, which can also present that consumers with higher environmental awareness, are less willing to re-sell used clothes as a recycling option.

This result can be explained as when respondents increase environmental consciousness in their daily lives, they are more willing to use other premier recycling options. Although re-selling is defined as the most common and convenient recycling option, consumers can make very little effort when they re-sell used clothes. Domina and Koch (1999) argue that disinterested textile recyclers may be motivated more by the intrinsic rewards gained by helping the needy rather than wasting the garment and protecting environment (Domina and Koch, 1999).

Kahle (1996) also indicate that every individual has a specific value structure based on his/her experience and education. Those who respects being environmentally friendly are more willing to buy green products, undertake recycling behaviours and taking part in activities that seek environmental protection (Kahle, 1996).

However, previous research exemplifies that behavior of “recycling” and “buying environmentally friendly products” do not serve as good predictors of consumers’ willingness to pay more for green products. Retailers must be aware of consumers’ environmentally friendly behaviours and purchasing green products are not equally predicted (Laroche, et al., 2001).
**Price factors on purchasing decisions**

*True: H1B: Re-selling options are significantly more popular when old clothes have higher residual values and purchased at higher prices.*

‘Price factors on purchasing decisions’ (X3.2) presents that price changes can affect respondents’ purchasing decisions when buying clothes, and in addition it can also influence respondents’ decisions on recycling methods significantly.

Earlier studies define four motivations for consumers to re-sell used clothes regarding recycling options, including: profit-driven monetary motives, utilitarian trade motives, emotional/social motives, and house grooming motives (Hsunchi and Shuling, 2007). Price factors are defined as financial effects and situational factors, price consciousness can affect respondents’ recycling decisions (Jacoby, et al., 1997), and price factors should be considered with profit-driven monetary motives and utilitarian trade motives.

The result of regression coefficient is 0.61, which refers to that when respondents are more sensitive to price change, they are more willing to re-sell used clothes. Therefore, the results present H1B: re-selling options are significantly more popular when old clothes have higher residual values and are purchased at higher prices is a true hypothesis, and increase of clothing prices will lead to the raise of recycling rate, especially the re-selling options.

Generally, respondents will consider residual values of worn clothes when they making recycling decisions and many respondents may increase their recycling rates with financial reasons. The increases of consumers’ incomes also raise their willingness to purchase green products and become environmentalism (Boks and Stevels, 2003). However, others researchers discover that cheaper clothes are more likely to be donated, due to that they may be quickly un-wearable (Domina and Koch, 1999).
Re-selling options are especially popular when garments that are originally valuable become out of style and do not fit consumers any more (Domina and Koch, 1999). However, disinterested textile recyclers may be motivated more by the intrinsic rewards gained by helping the needy rather than wasting the garment and protecting the environment (McCarty and Shrum, 1994).

- **Alternative options to increase recycling rates**

  **Rejected: H1C: The convenience of recycling options can significantly increase recycling rate of re-selling options**

  The increase of alternative recycling solutions intends to attract respondents’ interests in recycling used clothes rather than disposing and increase recycling rates. The results presented in Table 5.3.3 indicate that the increase of alternative solutions of recycling used clothes (X5) will significantly raise the recycling rates with regard to re-selling options.

  The convenience of recycling options is defined as one of the key options to influence consumers’ recycling decisions. Previous research discovers that donating to charity shops is one of the most well-known and convenient methods that have been used by most respondents (Domina and Koch, 1999). The regression coefficient -0.61 indicates that when there are more alternative recycling options available, respondents are less willing to re-sell used clothes as a recycling option (Y2.2).

  Thus, H1C: the convenience of recycling options can significantly increase recycling rates of re-selling options is rejected, which means that consumers are interested in making more efforts by using premier recycling options according to their availabilities, e.g. modification and re-designing. Despite that re-selling old clothes is one of the most popular and convenient recycling options that is used by major respondents. Domina and Koch (1999) argue that disinterested textile recyclers may be motivated more by the intrinsic rewards that gained by helping the needy rather
than wasting the garment and protecting environment (Domina and Koch, 1999).

Previous research also find out consumers need information on types of textile products conducive to re-using or recycling, and informed about textile reuse options in local communities (Domina and Koch, 1999). Tucker and Speirs have conduct research on the topics of how to increase recycling participation rate in England, the behavioral aspects influencing recycling rates and how the strength of promotional campaigns might impact the performance (Tucker and Speirs, 2002).
5.4. Hypotheses testing with re-design solution for used clothes

Table 5.3.4 Factor analyses for Re-design solution for re-use

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Will you re-design your used clothes?</td>
<td>0.85</td>
</tr>
<tr>
<td>Accessory package for re-design purpose</td>
<td>0.85</td>
</tr>
</tbody>
</table>

| Eigenvalue | 1.44 |
| Explained variance percentage | 71.23 |
| Cronbach’s Alpha | 0.60 |

| Factor Name | Re-design solution |

Note: Only factor loading greater than or equal to 0.65 are included in this table

The factor analysis has defined the re-design solution for used clothes (Y4) as a hypothesis. Re-using clothes can not only increase recycling rates, but also benefit the ecosystem and environment. Fletcher (2008) suggests repairing or reconditioning either the whole or parts of garments to keep them useful as long as possible (Fletcher, 2008). However, re-designing and repairing used clothes require both basic skills and tools. Other researchers also point out that modification and re-designing are not popular recycling options due to the amount of time and efforts required, consumers also need specific knowledge of fabric and use sewing skills (Domina and Koch, 1999).

In order to increase respondents’ re-using rate on used clothes, the research has designed an accessory package for marketing. Idea of the new accessory package is based on bringing out consumers’ skills to re-design used clothes, and providing an alternative way of recycling. The package aims to bring out consumers' abilities to re-design used clothes, explore their creativity and increase recycling rates. Launching new product to current fashion market will not only benefit natural environment, but also bring profits to retailers.

According to Table 5.3.4, re-design solution (Y4) achieves 71.23 on explained variance percentage, and 0.60 on Cronbach’s Alpha, which symbolizes good data reliability and accuracy for further research in logistic regression.
5.4.1 Coefficient test: Logistic regression

Logistic regression is one of the most popular statistical analysis methods; it is widely used in international marketing serials, such as predicting consumer’s propensity to purchase a product (Hyman and Young, 2001). The logistic regression represented the coefficient and significance of dependent variables and independent variables, as it is used to explain a categorical variable, by dividing them into two groups, on the basis of interval-, ratio-scaled and categorical variables (Janssens, 2008).

The research is aiming to predict the probability of occurrence and divide dependent variables into 2 groups, which are divided in Cluster Factor Analysis.

5.4.2 Item classification: Cluster analysis

Cluster analysis is aiming to sort individuals into clusters, with high similarity exists between individuals in the same cluster, and low similarity into different clusters. It divided individuals or objects into clusters, and put the similar objects into the same cluster (Joseph, et al., 1998; Janssens, 2008). There are three procedures provided for cluster analysis by SPSS, including hierarchical cluster analysis, k-means cluster, and two step cluster.

<table>
<thead>
<tr>
<th>Table 5.3.5 Cluster analysis for Re-design for re-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y4 Re-design solution</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>2.28</td>
</tr>
</tbody>
</table>

The re-design solution package aims to bring out and improve customers’ abilities to re-design used clothes for re-use. There are 65 responses in Cluster 2 with a mean score of 4.24, the result means those respondents are willing to use re-design in a convenient and flexible method. However, the cluster 1 in Y4 shows that 65 respondents do not want to use re-design as recycling options, with a mean score of 2.28.
5.4.3 Results and findings

Table 5.3.6 Logistic regression for Re-design solution for re-uses

<table>
<thead>
<tr>
<th>Items</th>
<th>B</th>
<th>Wald</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. X2.1 Purchasing frequency</td>
<td>1.04</td>
<td>81.23</td>
<td>0.01</td>
</tr>
<tr>
<td>2. X4.2 Advanced information of “green clothes”</td>
<td>0.56</td>
<td>2.94</td>
<td>0.07</td>
</tr>
<tr>
<td>3. X5 Solutions to increase recycling rate</td>
<td>0.60</td>
<td>4.52</td>
<td>0.04</td>
</tr>
<tr>
<td>Negelkerke $R^2$</td>
<td>0.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi Square</td>
<td>20.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor Name</td>
<td>Y4: Re-design solution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The logistic regression test has represented significant differences among re-design solutions (Y4), purchasing frequency (X2.1), advanced information for green clothes (X4.2), and alternative options to improve recycling rates (X5), which means the research results show that X2.1, X4.2 and X5 have significant impacts on respondents’ re-designing decisions.

● Purchasing frequency

True: H2A: Fashion consumers are significantly more interested in re-designing used clothes

Respondents’ purchasing frequencies (X2.1) of clothes contain three categories, that including the following variables: purchasing rates of coats & jackets, T-shirts & tops and skirts & trousers. According to Table 5.3.6, the coefficient of purchasing frequencies is 1.04, which means when respondents increase their purchasing frequencies of clothes, they are more willing to use re-design solution as a recycling option.

Previous researches focus on how to increase re-using rate of old clothes, by considering issues such as re-selling directly to re-use, or shipping to developing countries in order to increase life cycle (Hussey, 2009; Fletcher, 2008). However, rapid growth of purchasing frequencies of garments has resulted in a new phenomenon as fast fashion, some clothes will be worn only for a few times.
(Birtwistle and Moore, 2006). At the same time, fast fashion consumers have significantly higher purchasing rates than others (Luz, 2007).

The results in Table 5.3.6 indicate that consumers with higher purchasing frequencies of clothes, are more sensitive to changes of fashion trends. The re-design solution package is target at consumers that have passions for fashion and are interested in exploring their fashion ideas and creations rather than direct recycling. Those consumers are more likely to use re-design solution packages. Therefore, the results indicate that: “Fashion consumers are significantly more interested in re-designing used clothes” is a positive hypothesis.

In addition, many respondents prefer to re-use clothes as a recycling option for two reasons, environment-motivated re-using and society-motivated re-using (Shim, 1995). Thus, the re-design solution package should not only target consumers with passions for fashion but also those being environmentally friendly.

- **Advanced information about “green clothes”**
  
  *True: H2B: Information credibility could influence consumers’ recycling decision regarding re-designing of used clothes*

  Advanced information about green clothes (X4.2) involves two variables, including green clothes create less carbon dioxide and workers are treated more ethically when producing green clothes.

  Table 5.3.6 indicates that the advanced information about “green clothes “can significantly affect respondents’ wiliness to use re-design solution packages, and its coefficient (0.56) is supporting that H2B: Information credibility could influence consumers’ recycling decisions regarding re-designing of used clothes is a true hypothesis.

  The results also indicate that respondents, who are looking for advanced information
about green products, are more interested in re-designing used clothes rather than re-selling and disposing. Consumers need specific information when purchasing new products and they need to be notified about advantage of using the package. This means respondents that enjoy more environmental consciousness and knowledge on being environmentally friendly are more willing to use re-design solution package to modify used clothes.

Respondents with more knowledge of “green products” are more environmentally conscious, and the results show that they are also more willing to use re-design solution package to recycle used clothes. Previous research find out that consumers’ knowledge to recognize “green products” can affect their process of making decisions, which is also related to issues of how the information is delivered to consumers, how much information is used in decision making, and consumers’ abilities to recognize information and symbols (Laroche, et al., 2001).

As a public promotion, media has great influence on consumer behaviours, from purchasing to recycling. Researchers have also studied environmental concerns in conjunction with advertising and promotional practices. For example, they have linked environmental concerns to positive responses towards “green clothing” advertisements (Kim, et al., 1997)

- **Alternative options to improve recycling rates**
  
  *True: H2C: A re-design solution package would significantly encourage consumers to re-design used clothes as a recycling option*

  The increase of alternative recycling options (X5) aims to attract respondents’ interests in recycling used clothes rather than direct disposing or re-selling. Alternative recycling options contain five variables that may affect respondents’ decisions, such as clothes being marked as recyclable, available convenience of recycling options, taking residual values of old clothes into consideration, and
supporting charity and other organizations.

In this research, launch the re-design solution package to the market could be defined as one of the alternative recycling options. The results show that when they are more willing to increase recycling rates through alternative recycling options, respondents are significantly more willing to use re-design solution for used clothes. Table 5.3.6 indicates that the coefficient of ‘alternative options’ are 0.60, which means the results is positively supporting H2C: A re-design solution package would significantly encourage consumers to re-design used clothes as a recycling option.

The re-design solution package can be used as one of the alternative recycling options, providing a more convenient method to modify used clothes. Previous researches suggest: despite that it marks a good method, modification is not suitable for majority people, who lack knowledge and abilities to re-design used clothes (Domina and Koch, 1999; Shim 1995). In addition, increase other available recycling options may also enhance consumers’ interests in re-designing used clothes (Birthwistle and Moore, 2007).
5.5 Hypothesis testing with purchasing power of “green clothes”

Table 5.3.7 Factor analysis for Respondents' purchasing power of green clothes

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>£ 30-50</td>
<td>0.94</td>
</tr>
<tr>
<td>£ 50-100</td>
<td>0.93</td>
</tr>
<tr>
<td>Above £ 100</td>
<td>0.86</td>
</tr>
<tr>
<td>Under £ 30</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Eigenvalue 3.15
Explained variance percentage 78.82
Cronbach’s Alpha 0.90

Factor Name          Purchasing power

Note: Only factor loading greater than or equal to 0.65 are included in this table

Consumers’ purchasing decisions can be affected by their value strictures, product attributions and functions, and their prior satisfaction with being environmentally friendly (Kotler, 1997). Going “green” is not only adding value to clothes, but also resulting in price increase. Generally, prices of green products are higher than that of coordinated products. This may due to the cost raise of materials. Government registration and regulations are also encouraging consumers to purchase green products, manufacturers and retailers who are selling green products could also get benefits from government policies (Pickett-Baker and Ozaki, 2008),

The research aims to increase respondents’ potential purchasing powers regarding green clothes. When respondents’ regular shopping stores introduce green clothes, will consumers consider purchasing at higher prices; and how much will they be able to afford?

According to Table 5.3.7, the hypotheses testing is related to respondents’ purchasing powers of green clothes (Y1). The results indicate that Y1 achieves good scores on both variance percentage and Cronbach’s Alpha; thus the results present a good data accuracy.
5.5.1 Coefficient test: T-test

In order to find out the significant difference between two groups, a T-test is used as one of the most frequently used tests of statistical inferences (Joseph, 2002). When the logistic regression is not applied to the hypotheses testing a T-test is applied for further research.

A t-test is one of the most used statistical hypothesis tests; it is aiming to assess the statistical significance of the difference between two sample means for a single dependent variable (Joseph, et al., 1998). When the statistical significances increase, the differences between two groups will also increase refer to the change. Therefore, a cluster factor analysis is used to divide the dependent variables into 2 groups.

5.5.2 Item classification: Cluster analysis

Cluster analysis is used to reduce data and divide them into two groups, as similar target groups are more likely to be receptive to hypothesis (Janssens, 2008). SPSS has recorded all data for standardization, and it will be used in Cluster analysis. Cluster analysis is aiming to sort individuals into clusters, with high similarity existing between individuals in the same cluster, and low similarity in different clusters. It divided individuals or objects into clusters, and put the similar objects into the same cluster (Joseph, et al., 1998; Janssens, 2008).

SPSS provided 3 procedures for cluster analysis, including hierarchical cluster analysis, k-means cluster, and two step cluster. In this research all data will use a two cluster solution to represent database.
Table 5.3.8 Cluster analysis for Purchasing power of green clothes

<table>
<thead>
<tr>
<th></th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>No. in Cluster 1</th>
<th>No. in Cluster 2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1 Purchasing power</td>
<td>1.97</td>
<td>4.31</td>
<td>112</td>
<td>27</td>
<td>0.00</td>
</tr>
<tr>
<td>Cluster name:</td>
<td>Low price premier</td>
<td>High price premier</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.3.8 divided ‘purchasing power’ (Y1) into two clusters, as Cluster 1 with mean score of 1.97 is referred to price increase ‘Less than 15% more’, and it can be defined as ‘low price premier’. Cluster 2 is referred to price increase ‘50-30% more’, and it could be defined as ‘high price premier’. The majority of respondents are falling into Cluster 1, as only 27 respondents are classified in Cluster 2.
### 5.5.3 Results and findings

Table 5.3.9 T-test for respondents’ purchasing power of green clothes

<table>
<thead>
<tr>
<th>Items</th>
<th>Low Mean</th>
<th>Low Std</th>
<th>High Mean</th>
<th>High Std</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1.1 Common environmental friendly issues</td>
<td>0.30</td>
<td>2.33</td>
<td>1.22</td>
<td>1.74</td>
<td>0.03</td>
</tr>
<tr>
<td>X3.1 Personal factor on purchase decision.</td>
<td>2.05</td>
<td>1.80</td>
<td>2.57</td>
<td>0.45</td>
<td>0.01</td>
</tr>
<tr>
<td>X4.1 Standard information for “green clothes”</td>
<td>2.50</td>
<td>2.53</td>
<td>3.79</td>
<td>0.98</td>
<td>0.00</td>
</tr>
<tr>
<td>X4.2 Advanced information for “green clothes”</td>
<td>1.33</td>
<td>3.11</td>
<td>3.36</td>
<td>1.49</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Factor Name</strong></td>
<td><strong>Y1: Purchasing power of “green clothes”</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Only Significant less than or equal to 0.06 are included in this table

- **Common environmentally friendly issues**

  **True: H3A: Consumer values have significant influences when they purchasing “green clothes”**

  ‘Common environmentally friendly issues’ (X1.1) refers to respondents’ basic environmentally friendly consciousness and performances. Three variables are included in ‘common environmentally friendly issues’: shopping ethically, reducing carbon dioxide and buying fair trade labeled products.

  According to Table 5.3.9, there is a significant difference between respondents’ common daily environmentally friendly performance and their purchasing powers. Respondents with higher price premier expectations achieved higher means (m=1.22), while lower price premier expectations resulted in lower mean scores. This means consumers with more concerns on environmentally friendly issues are likely to be able to pay more for green clothes. Therefore, the results support that H3A: “consumer values have significant influences when they are purchasing green clothes” is true.

  ‘Common environmentally friendly behaviours’ in this research is also defined as “green” lifestyles, and consumers’ lifestyles are related to their environment
consciousness (Walker, 2000). Respondents’ daily environmentally friendly performances refer to their values and behaviours on environmental concerns. Homer and Kahle (1988) argue that the relationship among values, attitudes and environmentally friendly behaviour is affected by consumers’ internal orientations and external values (Homer and Kahle, 1998). Consumer behaviours regarding purchasing green clothes can also be influenced by social motivations rather than being environmentally friendly.

On the other hand, retailers must be aware that consumer behaviours of being environmentally friendly and purchasing green products are not equally predicted, as behaviour of “buying environmentally friendly products” is not good predictors of consumers’ willingness to pay more for green products (Laroche, et al., 2001). Previous studies indicate that recycling behaviours do not necessarily lead to purchasing behaviours, for example, individual who recycles paper might not buy recycled paper products (Laroche, et al., 2001).

- **Personal factors on purchasing decisions**

  *True: H3B: Production functions and selling prices can influence consumers’ purchasing powers regarding “green clothes”*

   Personal factors can impact respondents’ purchasing decision on clothes. Two variables are involved in personal factors on purchasing decision (X3.1), including clothing style and quality. Previous research also indicated few factors that may influence respondents’ purchasing decisions, such as cultural differences, for instance, environmental variables and promotional strategies (Homer and Kahle, 1998). Nevertheless, personal factors are defined as a non-situational factors and it was seen as basic product requirements when consumers make purchasing decision (Guijun and Alex, 2006).
According to Table 5.3.9, respondents with higher price premier expectations achieved greater mean (2.57) than those with lower price expectations, and these respondents are significantly more willing to pay extra for green clothes. The results indicate that respondents with higher expectations on style and quality, are more willing to pay extra money for green clothes. Therefore, the hypotheses results are supporting that H3B: production functions and selling prices can influence consumers’ purchasing powers regarding green clothes is true.

Consumers’ purchasing powers on green product are related to product functions as well as its impacts on the environment. Green consumers generally prefer purchasing sustainable products, but they also need to consider a range of factors including brand and availability in order to increase sustainable patterns of consumption (MacDonald and Oates, 2006).

Consumers’ individual and psychological factors can also affect their purchasing decisions, as well as retailers’ marketing strategies and retailing plans (Kotler, 2000). Personal factors are also defined as non-situational factors. Non-situational factors are which serve as general factors of individuals, such as personalities, intellects, genders and races for an individual; and brand images, qualities, sizes and functions for the products (Guijun and Alex, 2006).

- **Standard information about green clothes**

  *True: H3C: Information credibility has a significant influence on green clothes*

  Previous Factor Analysis defines standard information about green clothes as X4.1, including: quality control, using efficient transportation and reducing pollution during the dyeing process.

  According to Table 5.3.9, respondents with higher expectations on information regarding green clothes are significantly more willing to pay higher price premier, as
the mean score shows $3.79 > 2.50$. This also means respondents have higher expectations and satisfactions with standard information, are more willing to pay extra for green clothes. Thus, the results prove that the hypothesis: “Information credibility has a significant influence on green clothes” is true.

Previous research indicates that respondents’ believes on public information can affect their purchasing decisions significantly (Signe and Clifford, 2005). When product values and consumer believes increase, the products are more likely to be purchased. For example, low energy consuming products could be sold at higher prices than others, so an innovative pricing mechanism may need to be developed and marketed (Pickett-Baker and Ozaki, 2008).

One the other hand, when respondents’ knowledge about ecological issues rise, there will be a significant increase in their environmentally friendly behaviours (Chan, 1999). Previous research find out that consumers still have few opportunities purchasing a green product than to purchase mainstream products, unless they are aware of the purchasing options of green products in the market (Rand Corporation, 2004).

In addition, previous study also suggests that the behaviour of “recycling” and “buying environmentally friendly products” do not serve as good predictors of consumers’ willingness to pay more for green products (Laroche, et al., 2001).

- **Advanced information about “green clothes”**
  
  *True: H3C: Information credibility has a significant influence on “green clothes”*

  In this research, advanced information about green clothes (X4.2) involves two variables, including green clothes create less carbon dioxide and workers are treated more ethically when making green clothes. Previous Cluster Factor analysis defines mean score for higher price premier is 3.36, and the result of lower price premier is
By comparing the two groups regarding advanced information about green clothes (X4.2), the research draw a conclusion those respondents with higher price premier expectation are significantly more willing to pay extra for green clothes. This means consumers with higher expectations and satisfactions with advanced information are significantly willing to spend more on green clothes. Thereby the results are supporting that H3C: “Information credibility has a significant influence on green clothes” is positive.

Consumers with advanced information are more environmental conscious and knowledgeable about green clothes. Previous study certifies that when introducing green products to the market, it is important for the retailers to exploits prior knowledge of the green products with regard to marketing perspectives (Hoyer and MacInnis, 2004). Consumers usually have expectations on green products when making purchasing decisions; it is difficult for them to know whether the product they are purchasing will perform as well as expected (Fowler, 2002).

Therefore, the information delivered to respondents is helpful for them to understand the green products’ functions, and the benefits it will bring about belong to price increase. In order to delivery messages efficiently, environment label could be used as one of the most efficient methods to distribute green clothes. D’Souza, et al., (2006) also exemplify that consumers with less price sensitivity are likely to pay more attentions to reading labels, while they seem to be unclear of their satisfactions with information on labels (D’Souza, et al., 2006).

In addition, there are several other factors that may influence consumers purchasing decisions of green clothes, including eco-labels, product packages and outlay and promotion methods (Fletcher, 2008).
5.6 Hypothesis testing with impact of the economic crisis regarding “green market”

Table 5.3.10 Factor analysis for Economic crisis influences

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1 Y3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Travel and holiday</td>
<td>0.87</td>
</tr>
<tr>
<td>2. Clothes</td>
<td>0.85</td>
</tr>
<tr>
<td>3. Electronic products</td>
<td>0.76</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>2.38</td>
</tr>
<tr>
<td>Explained variance percentage</td>
<td>59.54</td>
</tr>
<tr>
<td>Cumulative explained variance percentage</td>
<td>59.54</td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
<td>0.88</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor Name</th>
<th>Economic crisis</th>
</tr>
</thead>
</table>

Note: Only factor loading greater than or equal to 0.65 are included in this table.

The global financial crisis has been continuously affecting major industries since 2007, and the global economy is undergoing a downturn gradually (Wilson and Eilertsen, 2010). Especially that the reduction of interest rates, continued provision of ample liquidity, credit easing, public guarantees, and bank recapitalization have appreciably lowered concerns about a systemic failure (Papatheodorou, 2010).

Hypotheses with the economic crisis impacts (Y3) contain three variables, including travel/holiday, clothes and electronic products, Rosalind Wells the NRF chief economist says that the economic crisis will reduce number of consumers that spend time on their holidays (Just-Style, 2009). According to United Nations World Tourism Organization (2009), the international tourism started to be affected by economic crisis since the second quarter of 2008, and the negative effects grew worse in the first quarter of 2009 (Papatheodorou, 2010).

The fashion industry is beginning to deal with economic crisis, rising commodity prices and imminent recession. Joe Ayling from Just-Style reported that thousands of factories in China need to be closed down; the global recession is taking its toll on apparel and footwear supply chains (Just – Style, 2009), which is also effecting...
energy saving market due to changes from cheap energies to costly energies. The development of technology leads to fast changes in electronic products; economic crisis also increases the price reduction on electronic products due to the decrease in demands (Lane, 2010).

5.6.1 Coefficient test: T-test

A t-test is one of the most used statistical hypothesis tests; it is aiming to assess the statistical significance of the difference between two sample means for a single dependent variable (Joseph, et al., 1998). When the statistical significance increases, the differences between two groups will also increase due to the change. Therefore, a cluster factor analysis is used to divide dependent variables into 2 groups.

5.6.2 Item classification: Cluster analysis

Cluster analysis is used to reduce unrelated data and divide variable ones into two groups, as similar target groups are more likely to be receptive to hypothesis (Janssens, 2008). SPSS has recorded all data for standardization, and it will be used in Cluster analysis. Cluster analysis is aiming to sort individuals into clusters, with high similarity existing between individuals in the same cluster, and low similarity in different cluster. It divided individuals or objects into clusters, and put the similar objects into the same cluster (Joseph, et al., 1998; Janssens, 2008).

Table 5.3.11 Cluster analysis for Economic Crisis regarding "Green products"

<table>
<thead>
<tr>
<th>Cluster name</th>
<th>Cluster 1 Mean</th>
<th>Cluster 2 Mean</th>
<th>No. in Cluster 1</th>
<th>No. in Cluster 2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y3 Economic crisis</td>
<td>-2.91</td>
<td>1.60</td>
<td>23</td>
<td>112</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Cluster name: Not affected  Affected
The research uses Cluster Factor Analysis to classify two clusters for economic crisis on “green products” in Table 5.3.11. Cluster 1 with mean score of -2.91 is selected by 23 responses, and 112 responses are falling into Cluster 2. Cluster 1 with negative mean score indicated that respondents are named as “not affected”, and the mean score of Cluster 2 (1.60) is referred to “affected”.
5.6.3 Results and findings

Table 5.3.12 T-test for economic crisis on green market

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std</th>
<th>Mean</th>
<th>Std</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. X1.1 Common environmental friendly issues</td>
<td>-0.61</td>
<td>3.03</td>
<td>0.90</td>
<td>1.91</td>
<td>0.04</td>
</tr>
<tr>
<td>2. X1.2 Particular environmental friendly issue</td>
<td>-0.73</td>
<td>2.29</td>
<td>0.31</td>
<td>2.12</td>
<td>0.05</td>
</tr>
<tr>
<td>3. X2.1 Purchasing frequencies</td>
<td>1.37</td>
<td>0.49</td>
<td>1.93</td>
<td>0.62</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Factor Name: Y3: Economic crisis in green industries

Note: Only Significant less than or equal to 0.06 are included in this table

• Common environmentally friendly issues

True: H4A: The economic crisis will reduce eco-friendly consumers’ expenditures on green products

Refer to Factor Analysis in Table 5.2.1, it defines respondents’ common environmentally friendly consciousness and performances as X1.1; there are three variables in common environmentally friendly issues, including shopping ethically, reducing CO₂ and buying fair trade labeled products.

According to Table 5.3.12, when respondents make purchasing decisions regarding green products during the economic crisis, there are significant differences between the “affected” (Group 1) and the “not affected” (Group 2). The result means respondents with more concern about common environmentally friendly issues are more likely to be affected by economic crisis.

Generally, prices of green products are higher than that of mainstream products. This may due to the cost raise on sustainable materials, for example, organic products are more expensive than regular ones (Pickett-Baker and Ozaki, 2008). Respondents with higher mean scores refer to those who are more likely to be affected by economic crisis when purchasing green products. Therefore, the results indicate that H4A: The economic crisis will reduce eco-friendly consumers’ expenditures on green products is a positive hypothesis.
However, Tienhaara (2009) points out that the economic crisis is an opportunity to move on climate change by considering the causes of the crisis and the use of fiscal stimulus. Green new deals such as emission trading are introduced as collective response for the crisis (Tienhaara, 2009).

In addition, Innovation of technologies can also help green products to reduce costs and make product improvements. Green product innovation is known as GPIs, which aims to help green products to achieve better performances, reduce costs, being more environmentally friendly, and become more competitive (Peattie, 1992).

- **Particular environmentally friendly issues**

  *True: H4A: The economic crisis will reduce eco-friendly consumers’ expenditures on green products*

  Particular daily environmentally friendly issues are defined as X1.2, they contain four variables, including looking for organic materials, recycling plastic and glasses, shopping with human rights in mind and being environmentally friendly when purchasing clothes.

  Table 5.3.12 represent that there is a significant difference between means scores for both the “not affected” (Group 1) and the “affected” (Groups 2). Respondents, who have more concerns about particular daily environmental issues, are significantly more affected by economic crisis when they purchasing green products due to the selling price of green products being higher than that of mainstream products, for example: Organic products are more expensive than regular ones (Pickett-Baker and Ozaki, 2008).

  Recent study also expresses that the economic downturn has significantly reduced consumer expenditures (Pickett-Baker and Ozaki, 2008). Thus, respondents who have
more environmentally friendly consciousness are more likely to purchase “green products”, and their purchasing powers could be reduced by the economic crisis. The results of particular environmental issues indicate that H4A: “The economic crisis will reduce eco-friendly consumers’ expenditures on green products” is a positive hypothesis.

Previous research find out that environmental value plays as a primary role when consumers purchasing green products, as values affect people's beliefs, which then has influences on personal norms that lead to consumers' pro-environmental behaviours (Reser and Bentrupperbaumer, 2005; Stern, 2000). Besides, the economic crisis is not only effecting “green products” in their selling prices, but also bringing marketing opportunities for environmentally friendly products, as increasing market share of “green product” could be seen as one of the strategies to reduce impacts of the economic crisis (Wilson and Eilertsen, 2010; Tienhaara, 2009).

- Purchasing frequencies
  
  True: H4B: The economic crisis will reduce consumer expenditures and purchasing frequencies regarding “green clothes”

Respondents’ purchasing frequencies of clothes are defined as X2.1, and the factor contains three variables, including: purchasing rates of coats & jackets, T-shirts & tops, and skirts & trousers. The economic crisis has significant impacts on respondents’ purchasing frequencies of green product, especially products with higher price premier.

According to Table 5.3.12, respondents with higher mean scores, are slightly more affected by the economic crisis when they purchasing “green products”. This means respondents with higher purchasing frequencies are more likely to be affected by the crisis, due to that the crisis has reduced consumers’ spending during the economic crisis, and it also proved that H4B: The economic crisis will reduce consumer
expenditures and purchasing frequencies regarding “green clothe” is a positive hypothesis.

Recent research finds out that the credit crisis has increased prices in fashion market, and the majority of female consumers reduce their spending on clothes (Stiglitz, 2009; Just-style, 2009). The general sale has been improving since 2010. According to Mintel (2009), clothing is on the top of the sale when comparing consumers’ spending on everyday items. However, consumer confidence could take a further knock during the recovery phase as unemployment continues to rise, credit facilities remain tight and the housing market stays weak (Clothing Retailing-UK, 2009).
### 5.7 Summary of findings

<table>
<thead>
<tr>
<th>Findings</th>
<th>Hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Re-selling used clothes</strong></td>
<td></td>
</tr>
<tr>
<td>REJECTED H1A</td>
<td>Consumer value and lifestyle have significantly positive influences on re-selling as a recycling options</td>
</tr>
<tr>
<td>Not Rejected H1B</td>
<td>Re-selling options are significantly more popular when old clothes have higher residual values and purchased at higher prices</td>
</tr>
<tr>
<td>REJECTED H1C</td>
<td>The convenience of recycling options can significantly increase recycling rate of re-selling options</td>
</tr>
<tr>
<td><strong>Re-designing used clothes</strong></td>
<td></td>
</tr>
<tr>
<td>Not Rejected H2A</td>
<td>Fashion consumers are significantly more interested in re-designing used clothes</td>
</tr>
<tr>
<td>Not Rejected H2B</td>
<td>Information credibility could influence consumers’ recycling decision regarding re-designing of used clothes</td>
</tr>
<tr>
<td>Not Rejected H2C</td>
<td>A re-design solution package would significantly encourage consumers to re-design used clothes as a recycling option</td>
</tr>
<tr>
<td><strong>The purchasing power of “green clothes”</strong></td>
<td></td>
</tr>
<tr>
<td>Not Rejected H3A</td>
<td>Consumer values have significant influences when they purchasing green clothes.</td>
</tr>
<tr>
<td>Not Rejected H3B</td>
<td>Product functions and selling prices can influence consumers’ purchasing powers regarding green clothes</td>
</tr>
<tr>
<td>Not Rejected H3C</td>
<td>Information credibility has a significant influence on green clothes</td>
</tr>
<tr>
<td><strong>Economic crisis impacts</strong></td>
<td></td>
</tr>
<tr>
<td>Not Rejected H4A</td>
<td>The economic crisis will reduce eco-friendly consumers’ expenditures on green products</td>
</tr>
<tr>
<td>Not Rejected H4B</td>
<td>The economic crisis will reduce consumer expenditures and purchasing frequencies regarding green clothes</td>
</tr>
</tbody>
</table>

---

**Figure 5.7 Findings for hypotheses testing**

- **Re-selling as recycle**

The research indicates that consumers are more willing to re-sell used clothes when they have higher residual values, and re-sold used clothes can be considered as a profit motivation rather than an environmental motivation.

Consumers’ recycling decisions are based on their value structures; however, those consumers with more environmentally awareness are more likely to use other premier recycling options rather than re-selling directly to charity shops. Besides, increasing
convenience of recycling options would not lead to an increase in the use of re-selling options; since eco-friendly consumers are interested in using other premier recycling options that require more efforts according to their abilities, such as modification.

- **Re-design used clothes**

Consumers purchase clothes with higher frequencies; they are more sensitive to fashion trends and more interested in re-designing used clothes for re-using. There are two solutions to increasing the re-designing rate: increasing the information reliability and introduce a re-design solution package.

Reliable information could encourage consumers to be more environmentally friendly, as respondents with more environmental consciousness and knowledge of being environmentally friendly are more willing to use a re-design solution package to modify used clothes. The re-design solution package also brings out skills and knowledge of modifying used clothes, which could increase the re-designing rate.

- **The purchasing power of “green clothes”**

The results suggest that increased information reliability would enhance the potential market of green clothes. Consumers need reliable information and product knowledge when making purchasing decisions. Eco-friendly consumers are looking for advanced information about green products, and those consumers are more willing to purchase green clothes. Besides, respondents with higher expectations of style and quality are more willing to pay extra money for green clothes.

- **Economic crisis**

The economic crisis could reduce consumer expenditures on green clothes. Fashion consumers with higher purchasing frequencies are influenced by the crisis, as their expenditures have reduced. Respondents, who have more concerns about being environmentally friendly; are significantly more affected by the economic crisis when purchasing green products.
PART FOUR: RECOMMENDATION, LIMITATION, AND CONCLUSIONS
Chapter 6 Conclusion, Recommendation and Limitation

6.1 Introduction

The relationship between economic growth and the environment is complicated, as they continuously affect each other rather than being opposite. The recent economic crisis and government regulations are continuously reducing the impact on the environment and ecosystem. However, the economic crisis has created opportunities for green products and the fashion industry, as green clothes are one of the most popular trends in the textile industry.

This study aims to achieve sustainable development in the fashion industry, by exploring sustainable issues related to operational strategies and marketing strategies. The sustainable development of fashion industry could reduce the impact on textile pollutions, increase the recycling rate, and create a new marketing share for green clothes. Textile recycling as the end of the garment life cycle, should be considered together with sustainable operational strategies; and from the perspective of marketing strategy, increasing the market share of green clothes could benefit both organizations and the environment.

The conclusion of this research study draws based on findings gained from literature review and the research results. There are four major topics discussed in Chapter Two, including: the environment and the economy, sustainable business strategies, textile and the environment, and consumer behaviour. These four topics are not only the theoretical backgrounds to the research, but also defined as the factors that may affect the hypotheses development in Chapter Three.

The empirical research was designed with cross-section factors, and international marketing research issues were considered while designing the survey, such as differences in language, culture, social responsibility, data collection and analysis. The target group of the research is females aged 21 to 45; all of the data were
collected by convenience sampling. Overall, there were 139 usable pieces of data collected from the UK and China, and these data were further analyzed by hypotheses testing via SPSS.

Along with an environmentally friendly operational strategy and sustainable marketing strategy, the fashion industry could consider the following findings and suggestions, in order to achieve sustainable development. Textile recycling should be considered based on an environmentally friendly production process, and the green clothes should be marketed with sustainable marketing strategies.

● Environmentally friendly consumers prefer to use premier recycle options
Textile recycling is one of the end use options of a garment, and increasing the recycling rate would reduce pollution and waste. Although many organizations provide convenient services for re-sold recycling options; consumers with higher expectations of being environmentally friendly are more willing to make efforts to use used clothes, and they would like to use premier recycle options rather than directly re-sell to charity shops, such as modifying used clothes for re-use.

Re-selling used clothes is one of the most convenient recycling options. Consumers re-sell used clothes mainly for two reasons, namely profit motivation and being environmentally conscious. Old clothes with higher residual value are more likely to be re-sold to charity shops. The results indicated that the respondents’ values and lifestyle have a significant impact on their recycle decisions; as respondents with environmentally friendly concerns are more willing to use the premier recycle options.

● Consumer behaviour towards “recycling” does not result in “buying”
Consumers’ recycling and buying decisions related to their value structure, based on
his/her experience and education (Kahle, 1996). Environmentally friendly consumers are more willing to purchase green products, recycle used clothes, and take part in activities that seek environmental protection.

However, previous researches find out behaviours of “recycling” and “buying environmentally friendly products” was not a good predictor of consumers’ willingness to pay more for green products. Retailers must be aware that consumer behaviours towards being environmentally friendly and purchasing green products are not equally predicted (Laroche, et al., 2001). Especially when consumers choose to re-sell used clothes as a recycling option, they are more profit motivated than environmentally friendly motivated.

- **Information credibility are important for both recycling and purchasing**
Consumers need specific information when making recycling decisions and purchasing green products. This study found that information credibility could influence consumers behaviour regarding recycling, and that information with higher credibility will encourage consumers to use premier recycle options, such as modification and re-design. The results also found that 16-24% of respondents indicated that there is not enough information when they purchasing green products.

Respondents with more knowledge of “green products”, they are more environmentally friendly conscious, and the results show that they are also more willing to use a re-design solution package to recycle used clothes. Previous research points out that consumers’ knowledge to recognize “green products” can affect their process of making decisions, and decision making is also related to how the information is delivered to consumer, how much information is used in the decision making, and the consumers’ ability to recognize information and symbols (Laroche, et al., 2001).
• **Re-design solution package as a new marketing opportunity**

The current economic crisis brings market opportunities for the green industry; the recent media and public also promoted recycled fashion as a new trend. Many retailers introduce recycled collections and sell the re-designed clothes at competitive prices. However, consumers can re-design used clothes from their own garments and create their own styles. Increasing the re-design rate of used clothes could not only bring profits to organizations, but also reduce textile waste.

The re-design solution package aims to express and improve the customers’ ability to re-design used clothes for re-use, it provide a convenient and efficient method to express consumers’ ideas and creativity with regard to fashion. However, reliable information and advertising is required to promote the package as a new product, and the credibility of the information can influence consumers’ purchasing choices.

According to Table 5.3.6, fast fashion has increased consumers’ purchasing frequency with regard to clothes, and higher purchasing frequencies also lead to market opportunities for re-design solution packages. This is because the re-design solution package is targeting consumers with passions for fashion and higher purchasing frequency.

A re-design solution package is one of the alternative recycle options. The results show that when the respondents are more willing to increase the recycling rates through adopting alternative recycling options, they are significantly more willing to use re-design solutions for used clothes.

• **“Green clothes” should be promoted through reliable information**

The research found that respondents looking for advanced information about green clothes are more environmentally conscious and willing to pay more for green fashion. However, the results in Table 5.3.9 represented that 16-24% of respondents refer that
there is not enough information when they purchasing green clothes.

In order to increase consumers’ awareness of environmental problems, understand the advantages of using green clothes, and have product knowledge when they make recycle decisions, good advertising and messages should communicate with consumers and deliver the right information in an effective, cost saving strategy (Paolo, et al., 2009).

Previous chapters have defined several ways to increase the awareness of green products and product credibility, including building green brand images, and using environmentally friendly packages and environmental labels. The following research has paid attention to environmental labels, as these enable consumers to distribute products easily, give them certain information about the products, and express their impact on the environment in an efficient method (Signe and Clifford, 2005).

- **The influences of the economic crisis on “green clothes”**

The global economy has been falling since the financial crisis in 2007, and it had a great impact on many industries, such as food, travel/holiday, clothes and electronic products (Wilson and Eilertsen, 2010).

Consumer value and life styles could significantly affect their purchasing power with regard to green products during the period of the crisis. According to Table 5.3.12, those respondents who are more environmentally conscious, are more likely to be affected by an economic crisis when they make purchasing decisions on green clothes. This may be due to the fact that the general prices of green products are higher than equivalent products, and consumer expenditure has fallen due to the crisis (Pickett-Baker and Ozaki, 2008).
The economic crisis has reduced consumer expenditure, especially in the fashion industry. The reduction in expenditure also results in a sales decline; this means that consumers with higher purchasing frequencies are significantly more affected by the crisis when they make purchasing decision. However, the crisis also brings marketing opportunities for the green market, especially for new energy products and emission trading (Stiglitz, 2009).
6.2 Contributions

6.2.1 Marketing strategies for the re-design solution package

In recent years, both the mass media and retailers have responded to environmental pollution, and promoted green fashion as a new trend. Although the general sale of clothing has reduced since the economic crisis, recycled fashion has been recognized as a new marketing opportunity (Tienhaara, 2009; Mintel, 2009). Recycle used clothes for re-use will not only reduce the impact on the environment and ecosystem, but also bring profit to green fashion retailers.

Consumers can create recycled fashion from their used clothes, rather than purchasing recycled clothes from recycled stores. Thus, the re-design solution brings new marketing opportunities for fashion retailers. For marketing purposes, the re-design solution package should be produced and promoted towards environmentally friendly strategies, and the research indicates that three main factors are needed to be considered when launching the new product to the market, including product, target group and promotion.

Table 5.3 in Chapter Five shows that majority of respondents have neither ability to re-design nor time to re-design used clothes for re-use. The regression analysis has indicated that consumers with passions for fashion are significantly more likely to use a re-design solution package as a recycling option, while previous research has indicated that modifying and re-designing used clothes not only requires knowledge of fabric, but also needs certain sewing skills (Domina and Koch, 1999; Shim, 1995).

- **Product**

The re-design solution package aims to help consumers to express their fashion ideas in practice, by preparing convenient tools for sewing and giving guidelines for design. According to Figure 2.1, the product design of the accessory package can be divided into four categories: basic tools, matched accessories, pre-designed patterns, and
advanced tools. The package should include the following implements: thread, needles, a tape measure, a seam ripper, appliqué, paillette, scissors, buttons, prepared design patterns, and chiffon dope-dyed fabric colours (Beaudry, 2007).

The selection of basic sewing tools in the re-design solution package is from traditional knitting packages, as this basic equipment can be used for standard sewing (Wills, 2000). Matched accessories and pre-designed patterns are used as advanced tools, and they aim to provide a convenient method of modification. For example, pre-designed patterns can guide consumers to create a new shape from a used T-shirt, including changing the length of the garment and sleeves, and changing the shape of the neck and pattern. Thereby, it is necessary to use pictures and instructions to provide guidelines for consumers, especially for beginners without any experience.

Prepared pictures and drawings bring unique designs to the garments. Advanced tools, such as chiffon dope-dyed fabric colours, brush-pencils, and drawing patterns, can be used to create personal and artistic originality. However, using chiffon dope-dyed fabric colours requires basic drawing skills. To help beginners to explore their ideas in practice, it is important to provide drawing patterns and guidelines. In addition, the advanced tools can be used for both garments and footwear modification.

At the same time, a re-design solution package is one of the alternative recycle options. The results show that when respondents are looking for alternative recycling options, they are significantly more willing to use re-design solutions for used clothes.

- **Target consumers**
  According to Table 5.3.6, fast fashion increased consumers’ purchasing frequency with regard to cheaper prices, and many clothes only worn for few times. The increased purchasing frequencies and recycling rate also lead to market opportunities for a re-design solution package; this is because the re-design solution package is targeting consumers with passions for fashion and shop with higher frequencies.
The results from Table 5.1.4 show that female respondents are significantly more willing to use re-design solution packages than males. Female consumers have great passions for fashion, are also would like to spend time and money on shopping (Fletcher, 2008). In addition, both male and female respondents in the age 22-30 group are more interested in using re-design solution packages.

Thus, the re-design package aims to bring a convenient re-design option to consumers. Its major target consumers should be young female aged from 22 to 30 years old, who love fashion and want to explore their creative ideas, because the new package will help them not only reduce costs and spending on clothes, but also express their unique ideas and designs in practice.

● Promotion

Consumers’ purchasing behaviour regarding the re-design solution package is related to their attitudes towards environmentally friendly consciousness and interests in designing. The re-design solution package should not only be promoted as an environmentally friendly product, but also as a new fashion trend.

However, earlier studies have indicated that too much expenditure on the media is causing a profit loss for retailers (Anthony, 1996; Simon and Mark, 2005). As a new green product, a re-design solution package should be marketed and promoted with a more environmentally friendly, efficient and cost saving strategy, especially since the economic crisis has reduced many retailers’ expenditures on media and promotion.

The retailers should encourage consumers to use the new re-design solution package, by delivering advertising and messages in an efficiently method, and listing the advantage and impacts of the product for both the environment and consumers. In store promotions are one of the most effective strategies of attracting consumers’ attention, especially loyalty consumers (Jamieson, 1996). In addition, the package design of the product is also important to attract consumers’ attention, for example:
using recycled paper and material for product packaging will be helpful in defining the product and attracting consumers’ attention.

6.2.2 Using Eco labels to increase information credibility in the fashion industry

Table 5.7 in Chapter Five represented that hypotheses testing results and findings, and the results of H2B and H3C are positive to the hypothesis, which indicated that “information reliability” has a significant impact on consumer purchasing behaviour and recycling decisions. Both the media and eco-labels could efficiently delivery the correct information from the market to consumers and the research suggests that the standardization of fashion labels could allow the delivery of the correct information to consumers with less costs (Moorman and Slotegraaf, 1999).

Environmental labels are recently being recognized as an important marketing tool for identifying green products and increasing the information provision about products and services. It acts as a guide for consumers, as it can provide a set of useful information for consumers to make purchase decisions (D’Souza, 2000). There are several standards and organizations provide guide lines and quality controls regarding environmentally friendly, for instance: ISO Standards, European Eco-labels, Fair-trade labels, RoHS, and Oeko-tex Standard.

Most of the current information campaigns in the market focus on attracting consumers’ attention and changing their expectations of the product. Correct information can also create positive attitudes towards a behavioral situation, and a positive attitude can be transformed into consumers’ purchase decisions (Ball-Rokeach, et al., 1984).

However, consumers are lack of generally knowledge about the types of labeling procedures adopted by organizations, and may have difficulties to recognize symbols.
Retailers need to promote their green products mainly in two forms: the impact of the product itself on environment and the impact of producing the product and its production process (Moorman and Slotegraaf, 1999). Eco-labels need to be made known to the consumer in order produce the intended effect (Signe and Clifford, 2005).

The research suggests that the standardization of fashion labels will be easy and convenient for consumers to recognize green products, and understand the product’s functions and their impact on the environment. A Labeling standard is a specific format required by the labeling policy, and usually firms have no discretion about the presentation of the information. Products that meet certain standards of environmental performance receive an ‘Eco-label’, and ‘Eco-label’ provides analyzed information about these products (Signe and Clifford, 2005; D’Souza, 2000).

- **Standardization of fashion labeling**

When consumers make purchasing decision on green clothes, they generally have limited information and little product knowledge. Delivering right information to consumers will increase not only their environmental comments, but also increase the consumers’ positive attitudes (Thomas, 2008; Tietenberg and Wheeler, 2001). From business view, standardization of fashion labels brings benefits to organizations, such as product quality control, increase brand awareness, reduce costs on promotion, and delivery information efficiently.

Accurate labeling can help consumers to understand why the garments they purchase are environmentally friendly, and their impact on the environment. Labeling is a good method for delivering the content and production of a garment to consumers, and it is less costly and easier to practice. In the current fashion market, there are two perceptions of labeling that are widely used. The first one indicates the specific information, such as garment care and content labels. The other one contains
information about fashion trends, clothing design, look, theme and details (Thomas, 2008). In addition, accurate labeling can help consumers to judge the validity of advertisements and celebrates hyperbole, make their own decision to make efforts to protect the environment (Grankvist, et al., 2004).

However, it is very difficult to define and standardize fashion labels, as there is much information that should be provided, and the clothing production process is complex and long, too much information could be difficult to read and understand (Middleton, 2007). Therefore, the eco-fashion label should not only provide information about advantages of using green clothes for consumers, but also promote its impact on the environment. Therefore, consumers can contrast the advantages and threats to make a precise decision.

In order to make the label more recognizable, the fashion industry could learn from food labeling. Recent systems have created a specific set of symbols that can present clear useful information. For example, the regulation prescribed warning labels with specific patterns, words, font size, font typeface, and message locations. Firms must follow the regulation by using these warning labels. Schkade and Kleinmuntz (1994) suggest standardized displays can benefit consumers by attracting their attention, making it easier for consumers to understand, and helping them to make purchase decisions (Schkade and Kleinmuntz, 1994).

Learning from the information labels has been used in the food industry, the fashion industry would have to consider how to alert the consumers to the less favorable aspects of the content and manufacture; for example, creating symbols for bad standards and toxic chemicals (Britten, 2005). Adding symbols would make the label easier to read and visually attract the consumers’ attention; it is also suitable for consumers with different ages and educational backgrounds, as too many words are difficult for children and older consumers to read.
In addition, Britten (2005) also suggests using technological assistance via a swing ticket which is similar to a barcode. When scanned, this swing ticket would hold eco-fashion information, which could then be read on one of the hand-held devices carried by the consumer (Britten, 2005; Signe and Clifford, 2005).

Accurate labeling could also benefit consumers when they making recycling decision. In order to encourage consumers to re-use or recycle certain apparel items, recyclers need information on the types of textile products that are conducive to reuse or recycling. For example, labeling the garments that are 100 percent recyclable will help consumers to understand and remind them to use recycle options. Promoting local textile reuse options will also encourage consumers to channel unwanted textiles in the direction that most closely reflects their intentions (Thomas, 2008).

6.2.3 Compared and contrasted data collected from UK and China

This research was designed from a cross-sectional perspective, rather than from a longitudinal one. The questionnaire survey was conducted both in the UK and China, and Manchester and Ningbo are selected to compare and contrast for further research.

The cross-sectional perspective should be considered as a key factor that may influence the data accuracy. Due to the significant differences between the two regions selected in the survey, such as their population, language, culture, education and income. The research results may only represent the researched region and these data cannot be compared directly and efficiently. There are some interesting findings between the two regions and this research is aims to find the significance of similarities and differences between respondents in the UK and China.

From international marketing perspective, Noronha (2002) defined six major factors
that may influence Chinese respondents’ view when they participate in questionnaires, including: abasement, adaptiveness, harmony with the universe, harmony with people, respect for authority, and interdependence and sincerity (Noronha, 2002). These factors must be considered, as they will affect the respondents’ values and attitudes when the respondents purchase clothes and answer questionnaires.

Table 5.1.3 in Chapter Five shows the mean scores and significances for both regions by using a t-test via SPSS. There are six variables showing the significant differences between the two regions, including: trying to reduce pollution in other ways, the qualities of clothes, green clothes create less Carbon Dioxides, green clothes selling more than £30, donating used clothes to charity shops, and passing them to friends.

- **Limited information about ‘Try to reduce pollution in other ways’**
  The results in Table 5.1.3 show that the Chinese respondents are significantly more willing to choose ‘reduce pollution in other ways’. However, the data accuracy may be affected by culture differences in this case, and the question may be limited to some respondents as it is sweeping or illegible to understand. This is because the question is ‘if they are trying to reduce pollution in other ways in their daily life’, and the survey does not provide any available option or guideline to choose.

There are two main factors that may influence the data accuracy. Firstly, due to the differences in the available methods, the Chinese respondents have different views on the meaning of ‘other ways’. Secondly, the Chinese respondents are more reluctant to express negative views, especially when these are related to their personal life. As the Chinese traditionally believe in harmony over discord, thus the respondents will tend to provide an answer they see as “appropriate” rather than accurate (Ho, 2006)
Quality as an important factor influencing consumers’ purchase decisions

The results in Table 5.1.3 shows that both two groups consider that quality of clothes is an important factor, when consumers make purchasing decisions, and the Chinese respondents achieved a higher mean score than the UK ones.

Chinese consumers consider product quality as one of the most important factors when they purchasing clothes; and the results should consider with consumer value structure and incomes. Consumer value is based on their culture, education, income and social groups. The general product life cycles of garments in China are longer than in the UK (Fletcher, 2008). This may also be affected by consumers’ view on attitude towards fast fashion (Luz, 2007).

Promote “green clothes” create less Carbon Dioxide

Referring to Table 5.1.3, compare the two groups, UK respondents will significantly consider more about carbon footprint when they are purchasing green clothes. The results also show that majority of UK respondents agree or are neutral about the fact that green clothes create less Carbon Dioxide, while the Chinese respondents are tend to disagree.

The negative views of the Chinese respondents may be due to two reasons. Firstly, Chinese respondents may have little knowledge and awareness of the principles of low carbon dioxide living. The Chinese public media need to improve the promotion of environment problem issues, and guide consumers on how to engage low carbon dioxide living. Secondly, this may also be due to the limited amount of information provided about whether green clothes reduce carbon dioxide or not.

Purchasing power on “green clothes”

The research aims to explore consumers’ potential purchasing power with regard to
green clothes. When the selling prices of clothes are under £30, the Chinese respondents are willing to pay less than 15% extra for green clothes, which are significantly lower than the UK respondents, while the UK respondents would like to pay 15-30% extra to be more environmental friendly.

UK respondents have more potential purchasing power with regard to green clothes, and there are two factors that should be considered when comparing the two regions. First, the average age of the Chinese respondents is lower than that is in the UK (2.04 < 2.37), which affects the respondents’ average income level and shopping behaviours. Second, the economy in developing countries is significantly different from that in western countries. The original prices of clothes and consumer values could also change their ability to pay extra prices.

In addition, some Chinese respondents’ answers may not reflect their behaviours due to the fact that they are too humble and harmony to give negative responses. This will also influence the data accuracy.

- **Donating to charity shops as recycling**

The results indicate that the UK respondents use charity shops significantly more frequent than the Chinese respondents when they recycle used clothes. Therefore, the life cycle of garments is generally longer in China.

Previous research found that Chinese people traditionally like to help others, but there are a very limited number of Chinese charitable organizations, especially outside the large cities. The recent major charitable organizations in China are helping schools to improve the education systems in poor areas (Chan, 2006). However, the research found that it is inconvenient for the respondents to donate used clothes to these organizations, as these organizations provide very limited collection services.
● **Passing on to family and friends to re-use**

The Chinese respondents are significantly more likely to pass on used clothes to family members than the UK respondents. Earlier studies of textile disposal found that donations and passing on to family and friends were the most common methods of textile disposal (Avery, 1967; Pitts, 1995). It is a tradition for households to pass on unwanted garments to family and friends, in order to prolong a garment’s life.

Family values have a key impact in this case, as Chinese families are traditionally close to each other, and they have a better community (Ho, 2006). Thereby, Chinese families are more likely to pass on used clothes to their family members and friends, as they have closer family relationships.
6.3 Research limitations

In order to explore ideas and finding from this study for further research, it is necessary to consider the research limitations and further opportunities arising from the study. Overall, this research was designed with limitations with regard to both primary and secondary researches.

- Literature review

The major secondary data are collected from books, journals, electronic resources, reports and conference papers. However, the economy and fashion changes rapidly during the research period. There are limited data available for the latest academic records, especially when considering data and resources in the lights of the economic crisis.

On the other hand, according to the hypotheses results, the topics indicated in the literature reviews may not be exhaustive for the primary research. Other factors may influence the hypotheses, but there are not enough findings that indicated in literature reviews, e.g. sustainable development in developing countries, internet promotion for green products, and impacts of inflation on green products. These factors need to be considered in further research.

- Primary research

This research was designed from a cross-sectional perspective, rather than from a longitudinal one. Previous research found that cross-cultural research suffered from a variety of methodological problems, including conceptual equivalence, instrumentation, measurement, data collection and data analysis (Mullen, 1995; Singh, 1995).

The survey was conducted in both the UK and China, and Manchester and Ningbo are chosen for comparison. The research has considered the background of these regions
carefully; however the two cities have significant differences in terms of their culture, population, education, and income. It is difficult to compare the data directly, and the overall data accuracy may also have an influence in the research. Besides, the limitation of the regions has downgraded the quality of the research, as it only reflects the results from the Manchester and Ningbo areas.

At the same time, the surveys used in the UK and China were slightly different due to the language and culture differences. Some questions asked in the UK may not be able to be applied directly to the Chinese respondents, which will affect the data accuracy when comparing the two groups.

In further research, it is also necessary to increase sample size and respondents’ participation, as a limited number of respondents will influence the data accuracy. This is because of the fact that the researcher’s target group is a very large population and the results might vary to some degree if the sample size is too small.

More international marketing issues should be discussed in further research, associated with the educational background and income of the different groups. Special attention should be paid to green fashion, as the Chinese respondents’ attitudes and views on fashion trends are also different from those of the UK respondents.

In addition, this research uses convenience sampling to collect data and this may reduce the quality of the data on the target populations. As with random sampling, each unit of the population has an equal probability of inclusion in the sample (Alan, 2007).

- **Re-design solution package**

  The idea of the re-design solution package is based on the secondary research, and the idea has been developed and presented to respondents via pictures and mood boards.
However, when the respondents answer the questionnaires, it is still quite difficult for them to understand the major product functions, and the benefits that they are able to gain beyond the product itself.

The research found that the re-design solution package is one of the convenient methods of re-using old garments, and it also has potential market opportunities. In order to develop the re-design package and launch it on the market, further research is needed for both product development and marketing strategies.
Appendix A: UK Questionnaire Survey
Please Fill In Our Questionnaire & Protect The Environment

This questionnaire is designed to assess your opinion about avoiding waste, protecting the environment, and the innovation of new products to the green market. Please help us by filling in the questionnaire, your opinions are important for us and will enable us to put your views to retailers.

1. Do you consider environmental issues in your daily life? What do you normally do? (Please ✓ the most appropriate one for each below)

   - Recycle Plastic and Glasses
   - Buy Fair trade Label
   - Try to reduce CO₂
   - Look for Organic materials
   - Try to reduce Pollution in other ways.
   - Try to shop ethically
   - Shopping with human rights in mind

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<tr>
<th></th>
<th>Always</th>
<th>Most times</th>
<th>Sometimes</th>
<th>Neutral</th>
<th>Not care</th>
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<td></td>
<td></td>
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<tr>
<td>Buy Fair trade Label</td>
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<tr>
<td>Try to reduce CO₂</td>
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<td>Look for Organic materials</td>
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<td>Try to reduce Pollution in other ways</td>
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<tr>
<td>Try to shop ethically</td>
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<tr>
<td>Shopping with human rights in mind</td>
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2. How often do you purchase clothes? (Please ✓ the most appropriate one for each below)

   - Coats & Jackets
   - T-shirts & Tops
   - Knitwear
   - Skirt & Trousers

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<th>Fortnightly</th>
<th>Monthly</th>
<th>Few times every year</th>
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<tr>
<td>Skirt &amp; Trousers</td>
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</table>

3. What is important for you when you purchase your clothes? (Please ✓ the most appropriate one)

   - Price
   - Style
   - Quality
   - Brand
   - Environment friendly

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<td>Style</td>
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<td>✓</td>
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<tr>
<td>Quality</td>
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<tr>
<td>Brand</td>
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<tr>
<td>Environment friendly</td>
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4. Where do you normally purchase your clothes? (Please RANK your top 3 choices, from 1most frequent to 3 less frequent)

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</tbody>
</table>

5. When you purchase “Green” clothes, how much do you believe information you receive about your clothes being environment friendly? (For each statement below, Please ✓ the most appropriate one for you)

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Not enough information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green clothes are quality controlled.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green clothes use organic materials.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green clothes create less Carbon dioxide.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green clothes reduce pollution in dyeing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green clothes use efficient transportation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workers are treated more ethically</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

100% recyclable
6. If your regular fashion stores introduced “Green” clothes, will you consider buying them? (Please ✔ what all price differences that would be affordable for you?)

<table>
<thead>
<tr>
<th>Original price</th>
<th>Above 100% more</th>
<th>Above 50% more</th>
<th>50-30% more</th>
<th>30-15% more</th>
<th>Less than 15% more</th>
<th>Same price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under £30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£30 - £50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£50- £100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above £100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. How do you normally dispose of your old clothes? (Please ✔ the an appropriate one for each below)

<table>
<thead>
<tr>
<th>Disposal Method</th>
<th>Always</th>
<th>Most times</th>
<th>Sometimes</th>
<th>Few times</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sale on web or in 2nd hand shop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Donate to Charity shops</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passed on to friends</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-designed for re-use,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give to Jumble sale/Charity bags.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. What would make you feel more interested in recycling your used clothes rather than sending to jumble sales?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Very important</th>
<th>Important</th>
<th>Neutral</th>
<th>Not care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes being marked as Recyclable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consider residual value of old clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unique/special Design for you.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available convenience of recycling options.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supporting Charity &amp; other organizations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Are you interested in re-designing your used clothes? (Please ✔ an appropriate choice)

<table>
<thead>
<tr>
<th>Option</th>
<th>Strongly effected</th>
<th>Slightly effected</th>
<th>Neutral</th>
<th>Not thought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, I usually do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, but only a few times.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, I would if I could.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, only in convenient ways.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No, I don’t know how to do so.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No, never think about that.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. If there was an accessories package that would give you a more convenient way to re-design your used clothes, would you be interested in learning how to re-design? (Please ✔ an appropriate choice)

<table>
<thead>
<tr>
<th>Option</th>
<th>Strongly effected</th>
<th>Slightly effected</th>
<th>Neutral</th>
<th>Not thought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, I think so</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, if I have enough time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, if it is convenient enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No, I prefer to use other recycling methods.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No, I don’t think so</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Is the current economic crisis affecting your buying decisions on “Green” products?

<table>
<thead>
<tr>
<th>Category</th>
<th>Strongly affected</th>
<th>Slightly affected</th>
<th>Neutral</th>
<th>Not effected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic products.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel &amp; holiday.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Please give your personal information:

<table>
<thead>
<tr>
<th>Age:</th>
<th>Under 21</th>
<th>22-30</th>
<th>31-44</th>
<th>45-60</th>
<th>Over 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank you very much for your help
Appendix B: Chinese Questionnaire Survey
为了更好地了解您对环保产品的需求，让资源利用更大化。请帮助我们填写以下问卷调查。感谢您的时间和合作，让我们为了地球的美丽，共同努力！

1. 请问在日常生活中，会有以下几种的环保意识么？（请在符合的选项中打勾）

<table>
<thead>
<tr>
<th>环保行为</th>
<th>非常在意</th>
<th>有时在意</th>
<th>少在意</th>
<th>从不在意</th>
</tr>
</thead>
<tbody>
<tr>
<td>回收旧电池</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>回收废纸</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>回收塑料和玻璃瓶</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>买更多绿色产品</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>关心温室效应和环境保护</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>尝试减排二氧化碳和汽车尾气</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. 请选择您平时购物衣服的频率。（请在符合的选项中打勾）

<table>
<thead>
<tr>
<th>购物频率</th>
<th>每周都会买</th>
<th>每个月都会买</th>
<th>每季度都会买</th>
<th>一年买几次</th>
</tr>
</thead>
<tbody>
<tr>
<td>外套</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T恤和单衫</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>毛衣</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>裙子和裤子</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. 当您购买衣服的时候，您最看重的是什么呢？（请在符合的选项中打勾）

<table>
<thead>
<tr>
<th>选择项目</th>
<th>非常在意</th>
<th>有时在意</th>
<th>少在意</th>
<th>从不在意</th>
</tr>
</thead>
<tbody>
<tr>
<td>价格</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>款式</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>质量</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>品牌</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>环保性</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. 请问您经常在哪里购买衣服呢？（请在以下选项中挑选3个。频率最高的请选择“1”，频率最低的请选择“3”）

地摊________ 服装市场________ 个性小店________ 淘宝________ 大型购物中心________

大型国际购物中心________ 国产知名品牌________ 国际知名品牌________

其他（请注明）________________________________________

5. 当你购买环保型的衣服时，你认为卖家提供的衣服的信息和材料，是值得信赖的么？（请在符合的选项中打勾）

<table>
<thead>
<tr>
<th>选项内容</th>
<th>非常同意</th>
<th>基本同意</th>
<th>有点同意</th>
<th>没有意见</th>
<th>不同意</th>
<th>非常不同意</th>
<th>没有足够的信息</th>
</tr>
</thead>
<tbody>
<tr>
<td>环保服装的质量更好</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>环保服装使用了绿色材料</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>环保服装能减少温室效应</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>使用了环保型的染料</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>制造商通过了ISO9002的验收</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>工厂制造商更遵守劳工法</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. 如果您经常光顾的服装品牌推出了环保系列服装，请问您会考虑购买么？您能承受多大的价格上涨呢？（请在以下不同的价位中选择合适的选项）

<table>
<thead>
<tr>
<th>原来的价格</th>
<th>增长 100%以上</th>
<th>增长 50%</th>
<th>增长 30-50%</th>
<th>增长 15-30%</th>
<th>增长低于 15%</th>
<th>同样的价格</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 元以内</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200-500 元</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500-1000 元</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000 元以上</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. 请问您是如何处理您的旧衣服的？（请在符合的选项中打勾）

- 总是这样
- 经常这样
- 偶尔这样
- 从不这样
- 没有考虑过

在网上出售  □  □  □  □  □
卖给垃圾回收商  □  □  □  □  □
送给朋友或亲戚  □  □  □  □  □
在旧的衣服上重新设计  □  □  □  □  □
直接扔到垃圾桶  □  □  □  □  □

8. 再什么样的情况下，您更加愿意回收您的旧衣服，而不是把它们扔到垃圾桶呢？（请在符合的选项中打勾）

- 非常在意
- 有时在意
- 很少在意
- 从不在意

衣服上标明“可回收”字样  □  □  □  □
衣服有很高的剩余价值  □  □  □  □
独特的设计和款式  □  □  □  □
更加方便的回收方式  □  □  □  □
更多支持慈善事业  □  □  □  □

9. 您会经常重新设计您的旧衣服并继续使用么？（请在符合的选项中打勾）

- 是的，我常常这样做
- 是的，我曾经尝试过
- 是的，如果我有时间，我愿意尝试
- 是的，如果没有方便的条件的话
- 不，我不知道如何去做
- 不，我从来没有考虑过

是的，我有时间  □  □  □
是的，我曾经尝试过  □
是的，如果我有时间，我愿意尝试  □
是的，如果没有方便的条件的话  □
不，我不知道如何去做  □
不，我从来没有考虑过  □

10. 如果现在推出一款多功能针线包，能让您更好的学会如何把旧衣服变废为宝。请问您会有兴趣么？（请在符合的选项中打勾）

- 是的
- 不，我选择其他回收方式
- 不，我从来没有考虑过

是的  □
不，我选择其他回收方式  □
不，我从来没有考虑过  □

11. 请问现在的金融危机，影响了您购买环保产品的能力吗？（请在符合的选项中打勾）

- 非常影响
- 有点影响
- 影响不大
- 没有影响

食物  □  □  □  □
衣服  □  □  □  □
电子产品  □  □  □  □
旅游  □  □  □  □

12. 请问提供一些您的个人信息，我们将对其保密。（请在符合的选项中打勾）

- 年龄：21 以下 □ 22-30 □ 31-44 □ 45-60 □ 60 以上 □
- 性别：男 □ 女 □
- 最高学历：初中 □ 高中 □ 职业技校 □ 大专 □ 本科 □ 研究生 □ 博士 □ 其他 □

再次感谢您时间和合作，谢谢！
APPENDIX C:
INTERVIEW
QUESTIONNAIRES
This questionnaire is designed to assess your opinions about avoiding waste, protecting the environment, and the innovation of new products to ‘green clothes’ market. Please help us by filling the following questions; your opinion is important for our Sustainable Fashion and Environment Research study (University of Manchester). All your personal information and data are protected and will only use for our research study.

Please give details to the following questions:

- Do you have a low carbon lifestyle? If yes, how do you try to reduce carbon dioxide in your everyday activity?

- Have you ever considered environmental friendly when you purchase clothes? Have you purchased Vintage clothes?

- Do you believe the current ‘green fashion’ trend is really environmental friendly? If No, what made you distrust?

- Do you know any clothing retailer who’s selling ‘green clothes’ in the current market? If No, which store or brand do you normally purchase clothes?

- When you purchase clothes, which of the following elements could attract you to pay extra price for ‘green clothes’? (Please ✓ All your choices.)
  - Marked as 100% recyclable
  - Use organic materials
  - Meet quality standard
  - Reduce pollution on dyeing.
  - Labeling Standardizations for ‘green clothes’.
Low carbon dioxide produced. □ Others please give:

Which one of the above elements is the most attractive one for you? And why do you think it is the most important one?

When green clothes increase sell prices, what price differences can you afford?

Have you ever considered re-designing your old clothes? If yes, what problems do you have when you re-design your old clothes?

The accessories package is aiming to help consumers to re-design used clothes, explore their ideas in a more convenient way. What figures would you like to see in the re-design accessories package? (Please ✔ All your choices.)

- Thread
- Needles
- Tape Measure
- Seam Ripper
- Appliqué
- Paillette
- Scissors
- Buttons
- Prepared Design patterns
- Chiffon Dope-dyed fabric colours

Please give, which of the above figures are important to you, and which of them can attract you to re-design. For example: prepared design pattern provided, matched accessories prepared, and less sewing skills required.

Is the current financial crisis affecting your shopping behaviour? For example, food, clothes, traveling, and electronic products. Are you optimistic on its influences?
• Please give your contact information:
  Name:

  Age group:  Under 21 ☐  22-30 ☐  31-44 ☐  45-60 ☐  Over 60 ☐

  Gender:  Male ☐  Female ☐

  Highest education level:

  Doctorate (PhD) ☐  Masters ☐  Baccalaureate ☐  Diploma ☐
  Associated ☐  A-level ☐  GCSE ☐  Others ☐

  Email address:

---------------------------------------------------------------------------------------------------------------------------------

The end

Thank you very much for your participation.
APPENDIX D: MOOD BOARD
Mood board for the concept of Re-design solution. Please refer to Chapter 2.5 3.
Mood board for Standardization of Fashion labels. Please refer to Chapter 6.2 2.
References:


Chiang, L. (2007-07-09). Bridge to Shanghai should give Ningbo's economy a lift


DEFRA (Dec 2009). Maximising reuse and recycling of UK clothing and Textiles EV0421, DEFRA.


12(7): 595-612.


