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Bachelor's Thesis

**THE RESEARCH ANALYSIS OF THE
GREEN LABEL'S IMPACT ON THE
CONSUMER PURCHASE BEHAVIOR**

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International Business

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THESIS

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<p>Nowadays, environmental protection has drawn more and more people's attention. Therefore, many companies take Green Marketing as an important marketing strategy in order to sustain their own advantages in the fiercely competitive market environment. They take use of environmentally protective advertisements, eco-brand and eco-label to remind people's perception and awareness of green products, make it easier to define the attributes and characteristics of green products, and then consequently attract large number of customers to purchase green products. In theory, green marketing is a hot topic in academic research. This paper concentrates on the topic about the influence of green marketing strategies on purchase behavior. A survey has been done that concentrates on consumers' perception process on the green label, aiming at studying the effects of green label brings on purchase behaviors.</p> <p>I will read a lot of books on green marketing and consumer behavior, and find related materials to analyze. It's important to define the concept of green label and understand how consumers' psychological perception process goes. It may be helpful to construct a theoretical model about the influence of green label on purchase behavior. In order to discuss about these issues, I designed a survey questionnaire to analyze the influencing factors such as the awareness of green label, the knowledge of green label, the preference of green label and the trust of green label. Finally, I gained the data through the questionnaire collection and analysis the data by SPSS, use correlation to test the assumptions.</p> <p>The results basically show that consumers' trust of the green label has a positive correlation with their purchase behavior. It indicates that the trust is one of the most important driving forces to encourage consumers to promote purchase behavior. The further conclusions still need to be organized, but it will surely have some inspiration</p>	

on the companies' green marketing practice. It seems to be a general trend to improve consumers' awareness of green products and popularize the green label in a variety of ways. In addition, the personal interests and social benefits by using green label products are obvious.

Key words: Green Label, Trust, Purchase Behavior

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1. Introduction

1.1 Research background

As the world's economy is rapidly developing, the global environment is increasingly deteriorating. Protecting environment, creating a harmonious living environment has become one of the most important concerns of consumers. In China, people's ecological consciousness and environmental protection consciousness also have obviously improved. More and more people tend to choose green consumption. Driven by the green consumption, enterprises begin to take customer as the guide of the green marketing strategy. In the marketing process, they pay attention to the balance and coordination between enterprise and the consumer, social and environmental, as well as the sustainable development of the enterprises.

From the point of view of the enterprise, obtaining the corresponding green certification, printing the green label on the products and packaging, make it become an important clue for consumer to cognize green product attributes. It becomes a basic symbol to differ green products from the non-green products, which is a very effective green marketing strategy. The use of the label of environmental protection is helpful for the enterprise products to make differentiation, to win competitive advantages in the market. At the same time, it helps enterprise to improve its corporate image and product image, so as to win the trust and favor of customers. From the consumer's point of view, the green label is a kind of strong signal, conveying some invisible characteristics of the products to consumers, such as the quality of the products and the intrinsic value. In addition, it provides convenience to consumers in the purchase discrimination on green products, reducing unnecessary trouble.

At present, studies about green marketing strategies such as green marks, green advertising influencing customers' purchasing behavior has become a hot spot in the

academic field. Most of the research focused in the developed countries such as the United States, Australia, but the conclusions are sometimes contradictory. So, the related conclusion is only applicable to specific culture, time and geographical environment. For the green marketing is gradually popularized in the China market, this research is made at a right time. Therefore, this paper, from the perspective of enterprise, states the survey about how green label as a marketing strategy make influence on the customers' purchasing behavior.

1.2 Research content and purpose

In current, consumers' environmental protection consciousness is more and more intense. The number of enterprises that take green marketing strategy is larger and large. Under drive of the green demand and external pressure of competition, enterprises have to face the challenge of green marketing, and cultivate their own competitive advantage through the implementation of green marketing. Green label is a very important marketing tool for enterprises to follow the "green" wave. Therefore, when consumers are buying green products, how and to what extent green label make influence on consumers' purchase behavior, whether green label have a positive impact on consumer purchase decisions, are the topics that enterprises need to understand and to study, it will help the enterprises to make better use of green label marketing strategy.

Based on this, this paper research content and purpose are to find and analyze green label's impact on consumers' purchase behavior. In the past, most related research literature about this issue are the study on green marketing tools' influence on the customers' purchasing behavior (Elham and Nabsiah, 2003) and the green label system analysis (Liu Chengqing, 2010).

On the foundation of systematically arranging the relevant literature about green label

and consumer purchasing behavior, this paper constructs the green label effects on consumers' purchase behavior model. Through the data collection and analysis, the verification of the relationship in the model hypothesis, the aim is to understand the relationship between green label and consumer purchasing behavior, specifically to achieve the purpose of the following two aspects:

- (1) Constructing the green label effects on consumers' purchase behavior research model.
- (2) The empirical research on the above topic makes enterprises more fully understand consumers, and better analyze the green label psychological perception process of consumers in China. Then enterprises can work out the reasonable green marketing strategy, as well as improving consumers' green label cognition, understanding and trust, so as to stimulate consumer purchasing behavior of green products.

1.3 The frame structure

This paper will discuss the green marks and consumer purchase behavior relationship on the basis of reading the related theories, combined with China's specific national conditions. The literature review part mainly introduces that different scholars study on the definition of green marks and consumers' psychological cognition process, laying the foundation to the following analysis and hypothesis. Through the review of the literature to get the understanding of the consumers purchase behavior characteristics in each stage, using logical reasoning propose the research hypotheses. At the same time, based on the scale of other researchers, I will design a variable quantity inventory. The fourth part is the data collection and analysis. The designed paper questionnaire will inspect the reliability through the preliminary research, followed by an official investigation by using SPSS16.0 to analyze each variable factor analysis. Finally through the correlated analysis I will test whether the hypothesis is successfully formed. Then comes to the conclusion and marketing advice after summarizing the whole thesis,

according to the results of the study to put forward the corresponding marketing suggestions for the enterprise, and demonstrate the deficiencies.

2. Literature Review




2.1 The concept of green label

Green Label, also called Environmental Label, is a particular mark that the government management departments, or public organizations, according to certain environmental protection standard, index or regulation, issues to the voluntary applicants whose products and services meet the requirements. Label winner can put the label in the application of printing products and packaging (Wan Houfen, 2006). Green label is a verifying appraisal of the product's environmental performance. It shows to consumers that the product or service, compared with other similar products, service, not only the quality are qualified, but also meet all the requirements accord with environmental protection regulations in every process, including research, production, application, recycling disposal. The products or services are harmless or just a little negative impact to the environment; do not endanger human body health, which is advantageous for energy regeneration and recycling.

This kind of "evincive trademark" can guide consumers to consider more about the products with green label when they make buying decisions, in favor of improving consumer awareness of environment protection, also can promote enterprises to utilize the green manufacturing technology to produce environment friendly products. This is a very good way to mobilize public participation in environmental protection, and ultimately help care for the environment.

2.1.1 Common green label in China

In 1977, Germany took the lead in putting forward "Blue Angel" plan, launched "green label". China was founded "China Environmental Label Certification Committee" in May of 1993 and implemented green label certification system. After over ten years of development, China's green authentication work has made remarkable achievements. In addition to the ISO14000 standards to carry out the certification of environmental label products, China carried out the product authentication of organic food, green food and pollution-free food and energy saving products and water saving products, has formed a set of green product system owning Chinese characteristics to adapt to the realistic situation. Figure 2.1-1 shows that some common green label projects in China.

Name	Label Design	Meaning
Environmental Label Product		It means that the quality of the product is not only confirms to the specific requirements of environmental protection, but also has the advantages of low toxicity and less pollution, and saving energy resources compared with similar products.
Green Food		It refers to the food product that followed the principles of sustainable development, according to the specific mode of production, and can use the green food label confirmed by the specialized agencies.
Recyclable		It marks the goods or the packagings of the products are made of renewable materials, and are beneficial to environment and earth protection.

<p>China Energy Label</p>		<p>It is attached to the energy consumption product or its minimum packaging, meaning an information tag of product energy efficiency rating performance indexes. The aim is providing necessary information for users and consumers' buying purpose to guide and help consumers choose efficient energy-saving products.</p>
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Figure 2.1-1 common green label projects in China

2.1.2 The characteristics of green label

First of all, the green label proves that the products with green label comply with all the requirements stipulated in the environmental protection, for example, using the refrigerators which have Chinese environment label means that the proportion of CFCS in its refrigerant is 50% less than the traditional refrigerator. Secondly, the green label has the authority that it is endorsed by the government and registered by the third party, owning the proof of this commodity has identification ability and guarantee responsibility. Thirdly, it is timely and dynamic. As a result of the environmental technology continues improving and the need of dynamic management from the producers, the green label usually should be re-verified every three to five years. What's more, the percentage of the products with green label cannot be too high in the market, so it has the proportion restriction. At last, the green label registration owns the feature of being voluntary but not mandatory. It is more like a voluntary certification rather than a mandatory technology certification. (Li Jianxin, 2007)

2.2 The functions of the green label

The implementation of the green label plays a very important role for both the consumer and enterprise, and even to the global environment.

2.2.1 The green label's function for the enterprise

It can help producers to set up new ideas of the environmental management. It promotes the producers according to market orientation, consciously adjust their product structure and industrial structure, develop and adopt new technology, and encourage the development of good for the environment or products. In this way, it can reduce environmental pollution, adapting the environmental factors into each stage of the production, and it is conducive to inspire the motivation of enterprises to participate in environmental protection.

The ecological characteristics of green products are strengthened, and the image of the green logo products is improved, making consumers easily recognize these products, so as to promote sales.

It is in favor of the product differentiation and winning the competitive advantages in the market. At the same time, it cracks down on those fake green products, making their market smaller and smaller.

Implementing the green label can improve the corporate image and product image in order to win the trust and the favor of consumers.

Through the green label implementation, the enterprises can obtain the support from the

government, reduce the production cost of green products, so that more consumers can take the price of those green products, and finally expand enterprises' customer groups.

2.2.2 The green label's function for the consumers

It makes it easier for consumers to identify green products when they are shopping, reducing consumers' purchase time, in the meanwhile increasing the satisfaction of purchase.

It strengthens the consumers' consciousness of environmental protection to meet the green consumption demand.

It improves consumers' protection consciousness because it can help them to protect their legitimate rights and interests, preventing pay more for fake green products.

It helps to obtain accurate information. The green label can provide consumers an easy-to-understand impression. The consumers can have a fair evaluation of the products' environmental performance assessed by the authorities.

2.2.3 The green label's function for the state

Using the green label can enhance not only consumers' but also citizens' awareness of green products, and improve their environmental awareness. Linking the green label with consumption activities can enhance the consumers' attention of these products which can reduce environmental pressure, guide consumers to buy these products, and motivate people to participate in and support the environmental protection activities through their purchasing action. The green label can let the consumers always accept

environmental protection education in everyday shopping activities, help to raise consumers' awareness, and promote the transform of consumption pattern, which is beneficial to the whole country's economic construction and spiritual civilization construction.

It is beneficial to standardize the market competition order of the country. When the green label was not specifically used, fake green products were everywhere in the market, consumers cannot easily and clearly identify the products. The usage of the green label provides an objective and fair evaluation for the enterprises, offers customers very accurate and reliable information about the products' characteristics, in this way, it protects the legitimate interests of the consumers and firms, which is conducive to fair competition.

It not only brings benefits to the sustainable development of the country, but also promotes the international competitiveness for breaking the green trade barriers in international trade and making the progress of international trade smooth.

2.3 Consumer's psychological process analysis of the green label

According to < The investigation report of green consumption consciousness>, which was issued by China Environment Federation on May 14, 2009, about 59.8% of the consumers who were investigated did not have much understanding about green products. The low degree of green label cognition has become the main reason that consumers did not choose the green products. Understanding consumer psychological cognitive process of green label, analyzing different stages of psychological influence on consumer buying behavior can help enterprises to improve its targeted marketing strategy.

Green label is able to provide consumers with products related information in time. It is the effective tools to integrate the asymmetrical information between consumers and producers, which is an effective way of communication as well. These kinds of marks related to the environment are likely to influence and change consumer buying behavior, because consumers are willing to seek the information of environmentally protecting products, and to understand the product logo in order to make better decisions (Carlson, 2003).

Relevant research pointed out that consumer psychological cognitive process of the green label can be roughly divided into the following four stages as shown in figure 2.3-1: the transition from the cognition of green label to actively collecting information to learn knowledge about green label, and then produce a preference, finally establish trust on the green marks, so as to make purchase behavior on green products.

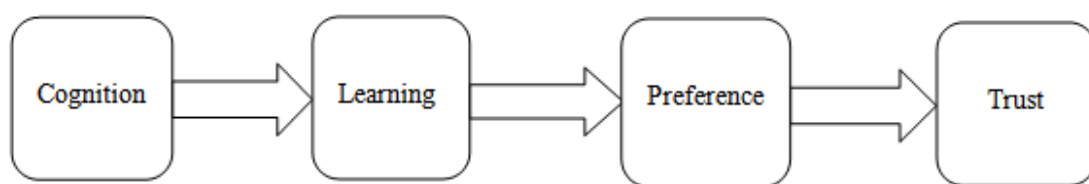


Figure 2.3-1 Consumer psychological cognitive process of the green label

2.3.1 The cognition of the green label

The cognition of the green label refers that consumers through some external factors such as advertising or packaging, gain the knowledge of logo design and its abstract meanings, which are what consumers feel and know about the green label. Consumer's perception of green logo is a process of information processing, mainly concentrated in the display and pay attention on the green label these two stages. The stage of display refers to the stimulus are shown within the scope of the consumers' sensory nerve,

making their senses have a chance to be activated. Paying attention refers to consumers' cognitive ability brief focused on a specific stimulation. Whether the display of the green labels such as size, shape, color, position can successfully draw consumer's cognition and attention is the premise to produce purchase behavior.

Knowing those green marks does not mean fully understanding the meaning of them. For example, the packing of certain product has the sign of "green food" , the consumers who are in the knowing stage may think the product is harmless to the body, environmentally friendly products. They may not absolutely understand that the complete and accurate meaning of the "green food" sign are included in. Consumers are easy to ignore that a series of process for manufacturing the product follows the sustainable development principle. At the same time, enterprises need specialized agencies to affirm so as to get the green label, and the food should be divided into class A and class AA green food according to the technical standards.

2.3.2 The understanding of the green label

In the field of consumer behavior research, knowledge is considered to be the important factors that affect all the stages of consumers' purchase decision-making process. To be specific, knowledge is a related and crucial factor to make influence on how consumers collect and organize information of products or enterprises. Knowledge or information affect the consumer buying decision process (Larouche, 2001).

Caswell and Mojduszka (2005), their research suggests that consumers are actively seeking the information about environmental protection or safety related to the product label, but their understanding of the term "green" on the logo of products has a degree of confusion. When consumers realize that a problem exists, and feel the need to take action to solve this problem, they will begin to collect relevant information. The information sources are mainly from the following five aspects: the memory source,

personal sources, public or independent source, business or marketing source and experience source (Fu Guoqun, 2003). For example, if consumers are interested in a green mark but only stay on the cognitive level, they will actively search for relevant information, such as reading newspapers, surfing the Internet to find and asking other persons' experience, etc. At this time, the relevant information from these channels make consumers gain a deeper understanding of this problem, and emerge certain effect on the behavior afterwards.

2.3.3 The preference of the green label

Consumer preferences refers that individual consumers hold an appetite and interest of a commodity or commodity combination, which means that they have the characteristics of being chronic and stubborn. The degree of this kind of preference will influence consumers buying attitudes and buying tendency, and the demand for a commodity is associated with the degree of consumer's preference for the goods. If other factors remain unchanged, the higher the degree of preference for certain goods, the more the demand of consumers for the goods.

Consumers' preferences in green labels refers to the degree of preference that consumers are fond of one certain green label or a certain category green icon. According to their own intend to prioritize, consumers make order to the alternative green labels, have special preferences on those labels with high rankings, and hen prefer to buy the products with these green logos at the first place. For example, consumers through external propaganda, or previous experience, gain the feeling that products owning Chinese Energy Efficiency Label do have energy-saving effect and excellent performance, resulting in a strong favor, then after the consumer's buying behavior, he/she will be more biased towards the products with Chinese Energy Efficiency Label.

2.3.4 The trust of the green label

Through the cognition and understanding process of the green labels, consumers can also produce psychological stage of trust. Because all sorts of green certification programs are set up by different agencies, different agencies are responsible for the authentication, so consumers can make a trade-off in psychological field, and set up a confirm on the most reliable agency and the green logo which are set up by this agency. Consumer's trust in green labels has decisive significance on their green purchase behavior, and the biggest problem of green logos is the credibility (CresPi and Marette, 2005).

Chase and Smith (1992) found that 70% of the respondents will be affected by the green labels and the information of environmental protection in the advertisements or on product packaging when they make their the buying decision, but most of the respondents think that product's environmental commitment is not credible in China.

With the rise and the development of green consumption, in order to attract consumers, many enterprises make the marketing that their products are "green", "environmentally friendly" and "recycled", these first party statement lacks credibility, cause consumers' confusion and chaos. Even if the products have passed the relevant green certification, consumers still have doubts whether they are really able to achieve environmental protection standard (Ginsberg and Bfoom, 2004). Some objective factors lead to the green attributes of consumers on green products into question. First of all, counterfeit green logo products are more and more on the market, these products are hitting the confidence of consumers' green buying behaviors. Secondly, some operation system of the green label is not standard, the regulation does not reach the designated position, the so-called green products is hardly likely to reach the standard of environmental

protection. If consumers lack trust on the green attributes of those green products and green labels, they often won't produce purchase behavior. (Liu Chengqing, 2011).

2.3.5 The green purchase behavior

The green purchase behavior refers to the consumers take consideration about the related environmental attributes or characteristics of the products in the process of their purchases, especially refers to those purchasing behaviors related to the environmentally friendly products or green products (Li Jianxin, 2011).

Consumer's green purchasing behavior is affected by many factors, such as cultural factors, social factors, personal factors and psychological factors, etc. At the same time, it also will be affected by the external marketing environment. The green labels, as one kind of green marketing tools, mainly have an effect on consumers' mental feelings, to provide consumers a strong psychological security, making consumers accept and trust the products. They satisfy consumers' purchasing motivation for product safety and environmental protection, in the meanwhile, produce consumers' purchase behavior. However, consumers' perception of green signs is a mental process, and consumers in different psychological stages will take various buying behaviors.

3 Research model and hypothesis

3.1 Research model

Consumers' selection of green products usually has the following several stages: at first, through advertising or packaging or other ways, consumers gain cognitive impression on green products, and then they will compare those green products with other

non-green products. Under the condition of lacking sufficient information, consumers will judge on the products by using the information they already have.

Because it's not easy for consumers to recognize the green attributes of products, many enterprises will paste on the products with a government or other special authority certification marks, such as green food certification, organic product certification, etc. At this time, the consumers will have an intuitive impression and judge from the green labels on the products' appearance or packaging. After a series of sufficient cognition and learning, consumers' general understanding gradually turns into the clear attitude or confidence, finally this kind of attitude and confidence decide whether consumers will buy the products.

For most consumers, green labels are still relatively new concepts, so consumers will have a psychological cognitive process, which is from knowing to understanding and then trust, finally produce purchase behavior. Therefore, in this paper, according to consumer psychological cognitive process of green labels, the research model on consumers' buying behavior of products with green labels is built. The research model is shown in the following figure 3.1.1.

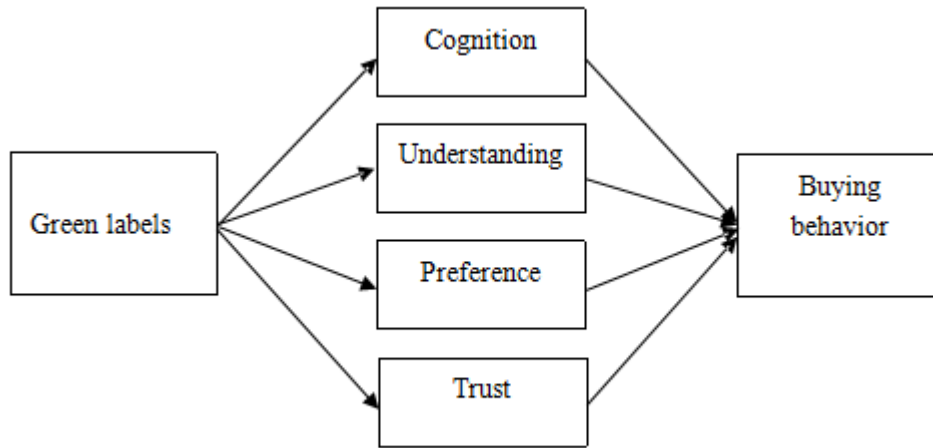


Figure 3.1-1 The research model on consumers' buying behavior of products with green labels

3.2 Research hypothesis

3.2.1 Consumer's perception of the green labels and purchase behavior

As to consumers, the green labels are authoritative green certifications, representing the products are environmentally friendly and safe. Therefore, consumers' accurate cognition of green products is very important to their green purchasing (Bonini and Oppenheim, 2008).

For this reason, the assumption 1 is put forward: consumer's perception of green labels has a positive influence on their buying behavior.

3.2.2 Consumers' understanding of the green labels and purchase behavior

Pedersen and Neergaard (2006) evaluated a variety of green marks, consumers more focus on some of these marks, but are confused about some other marks. The number of green labels is too large, and the category is too wide, which is beyond consumers' information processing and analyzing ability. In terms of green purchasing, consumers will be involved in the understanding and judgment about those products' environmental attributes or environmental characteristics in the buying process, therefore, the understanding and knowledge of green labels will affect green purchasing behavior. The more familiar consumers to the green labels, owning a deeper understanding of them, the more likely they are willing to buy those green products.

As a result, hypothesis 2: consumers' understanding of the green labels has a positive influence on their buying behavior.

3.2.3 Consumers' preference of the green labels and purchase behavior

In a long-term accumulating process of purchase experiences, consumers will emerge a favorable preference to some known brand or impressive product. Once the consumer prefers to a certain product, the frequency of his/her purchasing this product will increase to a large degree, and it is not easy to change their buying behavior. So, for some consumers who have had green consumption experiences, they may produce certain preferences for some products with the green labels, and they will have priority to buy those fixed products with the green logos when they make buying decisions.

Therefore, it comes up with hypothesis 3: consumers' preference of the green labels has a positive influence on their buying behavior.

3.2.4 Consumers' trust on the green labels and purchase behavior

Hansen and Kull (1994) found that, many consumers are suspicious about the information of green labels. Only when consumers fully trust on the green logos and the messages those logos express, they can put the green logos as the basis of their purchase decision, and consumers are more willing to believe those green logos certificated by authoritative departments.

Therefore, hypothesis 4 can be put forward: consumers' preference of the green labels has a positive influence on their buying behavior.

3.3 The measurement of variables

By reading relevant literature and making consumer interviews, a series of statements to measure all the variables has been designed. The specific measurement of all variables is shown in the figure 3.3-1.

Variables	Items	Contents
The perception of the green labels	1	When the green products are mentioned, I will firstly think of the green labels.
	2	I can think of at least one kind of the green labels now.
	3	I will pay attention on the green labels when buying

		products.
	4	I get most knowledge of the green labels from the information of products' packagings and instructions.
	5	I think the categories of the green labels are too much, making me feel difficult to remember and classify them.
The understanding of the green labels	6	I will check the relevant information about the green labels carefully when I buy the products.
	7	I am willing to understand the relevant information about the green labels through various information channels.
	8	I understand the certification authority of the green labels and the meaning it represents.
	9	I understand all kinds of relevant information about the green labels.
The preference of the green labels	10	Comparatively speaking, I prefer buying the products with green labels.
	11	I have special preference on the green labels of certain kind of products.
	12	I have special preference on certain kind of green label.
The trust on the green labels	13	I believe in any products owning green labels.
	14	I believe that the green labels on the products are reliable, which means they reach the green standard.
	15	I believe that the information about the green labels on the packaging or instruction is accurate.

	16	I believe the green labels certificated by authority.
Purchase behavior	17	The products with green labels are more attractive to me.
	18	The probability of buying the products with green labels is high.
	19	I am willing to pay more money to purchase the products with green labels.

Figure 3.3-1 The specific measurement of variables

4 Data collection and analysis

4.1 Questionnaire design

Based on the proposed model and the designed variables, the form of questionnaire is used as the main research method. This research method has combined the questionnaire form and interviews to some consumers, which is aimed at some proper extension and extension.

The survey questionnaire is mainly divided into three parts: the frontispiece, the scale measurement and the personal basic information of respondents.

The first part of the survey is setting the frontispiece, mainly includes the following contents: the purpose of the survey; the core concepts of the explanation and the main information about the green labels, in order to ensure the precision of the questionnaire; the appreciation for all the respondents.

The second part is the questionnaire, the main purpose is understanding consumers' awareness of green labels. All the questions have five scales, a total of 19 items, using five point scale options, respectively is "strongly disagree" and "not agree", "neutral", "agree" and "strongly agree". The first scale of the survey, there are 5 questions in total, is to research the cognition about the green labels of the respondents. The second scale of the survey is to know how well the respondents understand of the green labels, which has a total of 4 questions. The third scale is to survey respondents on their preference on the green labels with a total of 3 problems. The fourth part is the survey about the degree of respondents' trust in green labels, using a total of 4 questions. The fifth scale is using 3 questions to research about the respondents' green purchasing behaviors.

The third part is the personal basic information of respondents. This part includes gender, age, level of education, occupation, income, marital status and other information.

4.2 Research process

4.2.1 preliminary investigation and results analysis

In order to guarantee the validity of the survey questionnaire, a small-scale research has been made before the formal investigation, taking the form of questionnaire survey and giving some relevant guidance to the interviewees when they are filling in the forms. At the same time, paying more attention to talk to the respondents in order to solicit opinions about the design of the questionnaire and suggestions about the modification so that the further improvement can be made to ensure the quality of the questionnaire.

4.2.1.1 Sample structure analysis

During the preliminary investigation, there are a total of 60 questionnaires has been spread out. And 59 effective questionnaires has been responded, the effective recovery is

98.3%. Sample structure is shown in table 4.2-1:

Variables		Frequency	Percentage
Gender	Male	37	62.7%
	Female	22	37.3%
Age	Under 20	5	8.5%
	21-35	40	67.8%
	36-50	11	18.6%
	Above 51	3	5.1%
Level of education	High school or below	5	8.5%
	College	16	27.1%
	Bachelor degree	30	50.8%
	Master degree or above	8	13.6%
Occupation	Student	11	18.6%
	Company employee	32	54.3%
	Individual/private owners	3	5.1%

	Government institution staff	11	18.6%
	Freelance work	2	3.4%
Marital status	Unmarried	46	77.9%
	Married	13	22.1%
Income	Under 1000 yuan	8	13.6%
	1000-2000 yuan	11	18.6%
	2000-3000 yuan	19	32.2%
	3000-5000 yuan	16	27.1%
	Over 5000 yuan	5	8.5%

Figure 4.2-1 The preliminary investigation sample structure

4.2.1.2 The reliability analysis of the questionnaire

Reliability refers to the consistency or stability according to the result of the test tool, reflecting the degree of the truth about the indicator's characteristics that have been tested. The method of "Cronbach a" coefficient is suitable to evaluate scale for internal consistency. The values of "Cronbach a" are between 0 and 1, according to relevant statistics principle: if the value of "Cronbach a" is above 0.6, it represents that the reliability can be accepted, meaning the questionnaire has high internal consistency,

and this questionnaire can be thought of being stable and reliable. The figure is shown below:

Variables	Number of questions	“Cronbach a” coefficient
The cognition of the green label	5	0.686
The understanding of the green label	4	0.677
The preference on the green label	3	0.754
The trust on the green label	4	0.787
The green buying behavior	3	0.799

Figure 4.2-2 The reliability analysis of the variables

Through the analysis of the preliminary investigation, the data in the figure shows the values of “Cronbach a” are respectively 0.806, 0.686, 0.677, 0.754, 0.787, 0.799. These values are all more than 0.6, which means that the variables in the questionnaire have achieved comparatively high degree of reliability.

4.2.2 The formal research analysis

Through the reliability analysis in the preliminary research, the process of the formal investigation can be launched. Because the content of this research is the actual purchase behavior of consumers, not purchase intention, and actual adult consumers

tend to have this green purchase ability, the research object is mostly based on the relatively mature consumer groups, in the meanwhile, trying to reduce the proportion of students.

This formal questionnaire was spread in two ways. One way is through the network questionnaire, by sending an email to friends and schoolmates to fill in the form. The other way is to distributing the printed forms near the major supermarkets and then recycle the questionnaire distributed. There were 180 questionnaires having been spread, 168 questionnaires have been effectively recycled, so the effective recycling rate was 93.3%. The statistical analysis of this survey was shown in table 4.2-3:

Variables		Frequency	Percentage
Gender	Male	76	45.2%
	Female	92	54.8%
Age	Under 20	13	7.7%
	21-35	133	79.2%
	36-50	15	8.9%
	Above 51	7	4.2%
Level of education	High school or below	8	4.8%
	College	24	14.3%
	Bachelor degree	118	70.2%
	Master degree or above	18	10.7%
Occupation	Student	37	22.1%
	Company employee	105	62.5%

	Individual/private owners	8	4.8%
	Government institution staff	12	7.1%
	Freelance work	6	3.5%
Marital status	Unmarried	131	77.9%
	Married	37	22.1%
Income	Under 1000 yuan	16	9.5%
	1000-2000 yuan	58	34.5%
	2000-3000 yuan	53	31.5%
	3000-5000 yuan	15	8.9%
	Over 5000 yuan	26	15.6%

Figure 4.2-3 The statistical analysis of the survey

In the survey questionnaire, the ratio of male and female was 45.2%, 54.8%, respectively. Because most of young people have no income or just gain a basic living expense, they are more prefer buying more the fast moving consumer goods, and they pay more attention to the price and quality. At the same time, young people's green concepts are relatively weak, so in the survey there was a percentage of only 7.7% under the age of 20. While older consumers because of body reason cannot effectively completed the questionnaire, so in the age distribution of the survey, 79.2% were

concentrated between the age 21 years old and 35 years old. It accounts for 70.2% of all the respondents' cultural degree are on the bachelor degree or above. The overall cultural level is high, but most of the respondents are company employees, and they are young with a relatively short length of working. Their income is relatively low, mostly in the range of 1000-2000 yuan, and 2000-3000 yuan these two income segments, accounting for the proportion of and 34.5% respectively in the whole investigated groups.

First of all, an analysis of the validity of the questionnaire should be made. The validity means the effectiveness, it refers to the accurate degree of the things needed to measure by specific measuring tools or methods. This paper mainly measures the structure validity of the scale, which has largest effect on the measurement result. Structure validity, through the method of factor analysis, can find out the relationship of a few random variables that can control multiple variables in all the variables, so as to analyze to what extent the questionnaire measure and verify the theory of variable structure. After the factor analysis If the results are accord with theoretical construction, it means that the scale has good structure reliability.

Before making the factor analysis to determine whether the variables in the questionnaire are suitable for this kind of analysis, the Bartlett sphere test and KMO test are necessary. Whether the factors in the Bartlett sphere test are independent, if the P value is significant, suggests that the factors are related. The relationship between variables presents as the partial correlation in the KMO test , and the KMO value ranges between 0 and 1, it is generally believed that the more the value is approximate to 1, the more suitable for factor analysis, and the values that all above 0.5 are suitable for factor analysis.

4.2.2.1 The factor analysis of the consumers' cognition, understanding,

preference and trust of the green labels

First of all, the KMO test and the Bartlett sphere test are made on all the variables, the specific results are presented in the figure 4.2-4. According to data of the KMO test, the value is 0.521, which is acceptable and suitable for factor analysis. In the Bartlett sphere inspection, it is shown as a significance level, which is $p = 0.000$, indicates that the factors are not mutually independent but has a correlation with each other.

Kaiser-Meyer-Olkin measurement		0.521
Bartlett sphere test	Chi-square	271.730
	Df	120
	Sig.	0.000

Figure 4.2-4 The KMO and Bartlett sphere test on the variables

Four factors are extracted using principal component analysis (pca), and through the Variance biggest orthogonal rotation method, the figure 4.2-5 can show the results.

Question	Factor			
	1	2	3	4
A1	-0.014	0.125	0.070	0.851
A2	0.299	0.128	-0.042	0.878
A3	0.057	0.422	0.538	0.654
A4	0.107	-0.077	0.238	0.761
A5	0.308	0.113	-0.106	0.785
A6	0.012	0.387	0.655	0.095
A7	0.170	-0.010	0.727	0.001

A8	0.063	0.520	0.709	0.092
A9	0.181	0.010	0.728	-0.135
A10	0.129	0.717	0.156	0.197
A11	0.091	0.804	0.260	0.109
A12	0.238	0.838	0.189	-0.086
A13	0.688	0.033	0.097	0.145
A14	0.841	-0.035	0.104	-0.081
A15	0.837	0.250	0.078	-0.042
A16	0.659	0.142	0.061	0.121
Extraction method: PCA (principal component analysis); Rotation method: orthogonal rotation method				

Figure 4.2-5 The matrix of all the variables after the rotation

In the table 4.2-5, the variables A13, A14, A15, and A16 each has high factor loading, all are between 0.659 and 0.841 in factor 1. And they are associated with the consumer's trust on the green labels. So these five variables are classified as one factor named "green label trust factor". In factor 2, variables A11, A12, and A10 have high factor loading, which are between 0.717 and 0.838, and they are related to consumers' preferences on the green labels. Therefore, these four variables are regarded as a factor named as "green label preference factor". In factor 3, variables A6, A7, A8, and A9 own high factor loading, their quantities are between 0.655 and 0.728, and they are related to consumers' understanding of the green labels, so these four variables are looked as a factor named "green label understanding factor". In factor 4, A1, A2, A3, A4, and A5 get relatively high factor loading that are between 0.654 and 0.878. They are related to consumers' cognition of green labels, therefore, the four variables are acted a factor named "green label cognition factor".

4.2.2.2 The factor analysis of purchasing behavior

It can be seen from the data in the figure 4.2-6, the KMO value of the sample is 0.649, meaning it is acceptable and suitable for the factor analysis. The result of the Bartlett sphere inspection presents a significance level $p = 0.000$, indicates that between the factors they are not mutually independent, and they are corelated with each other.

Kaiser-Meyer-Olkin measurements		0.649
Bartlett sphere test	Chi-square	33.202
	Df	3
	Sig.	0.000

Figure 4.2-6 The KMO and Bartlett sphere test on purchase behavior

The initial factor is extracted by the principal component method, and just one component is extracted in the analysis, the specific results are shown in figure 4.2-7. As it can be seen, the factors loading of A17, A18 and A19 are between 0.720 to 0.846, these three variables are regarded as the factor that are related to consumers' green purchase behavior, so the factor can be named as “green purchasing behavior factor”.

	Factor 1
A17	0.720
A18	0.839
A19	0.846
Extraction method: The principal component method	

Figure 4.2-7 The matrix of green purchasing behavior

4.3 Data Analysis

The focus of the analysis is mainly on the relationship between the perception of the green labels and the purchasing behavior. It refers the factor that the relationship between the cognition of the green labels, the understanding of the green labels, the preference on the green labels and the trust on the green labels and the green purchasing behavior. The result is shown in the figure 4.3-1 below.

The interrelationship					
		The cognition of the green labels	The understanding of the green labels	The preference on the green labels	The trust on the green labels
Purchase behavior	Person relationship	0.277	0.253	0.190	0.495
	Significance	0.000	0.000	0.0115	0.000
	N	168	168	168	168

Figure 4.3-1 The analysis about the relationship between the perception of the green labels and the purchase behavior

Known from the figure 4.3-1, the significance level of the consumer preferences and buying behavior of the green labels is $P=0.115 > 0.05$. The values' correlation is not significant, so the hypothesis H3 of this article is false. On the other hand, the value P of the significance level between the consumers' cognition, understanding and trust on the

green labels, and buying behavior significance level is 0.000, meaning that these three variables are significantly associated with green purchasing behavior.

Among the three related variables, between the consumers' buying behavior and the cognition, understanding of the green labels, their correlation coefficient is low. the ratio of the correlation coefficient is 0.277 and 0.253 respectively, showed a weak correlation between them. Thus it proves that the hypothesis 1 (H1) and hypothesis 2 (H2) was established. And the coefficient correlation is 0.495 between the trust and buying behaviour, representing significantly high and proving hypothesis 4 (H4) is established. It can be inferred that consumers' trust on the green labels is an important motivation for them to buy the products with the green labels.

As to hypothesis 1, most consumers are rational now, and they would not produce purchase behavior at the first-time when they recognize green label products directly. Consumers will experience a purchase decision-making process, through information gathering and subjective judgment to understand the relevant products, resulting in generating a feeling of trust, and finally make purchase action. This also reflects from one side that most consumers' environmental awareness is weak.

As to hypotheses 2, for the reason that there are various kinds of green labels at present stage on the market, even consumer fully understand all the labels they can not blindly trust those labels. What's more, quite a part of these products with green labels are exposed that they does not meet green standards and norms in the actual operation process, make consumers have doubt on the green labels. Accordingly, consumers are just at the stage of understanding but not at the stage of trust, it is difficult for them to make purchase behavior.

For hypothesis 3, in the investigation process, it has been found that most consumers' environmental protection consciousness is not strong, the frequency to buy green products is low, the number of green labels they can cognize is also small. As a result, it

is almost impossible to produce preference on the green labels. For those consumers that have profound buying experiences, they own a more comprehensive understanding of the green labels due to long-term purchasing green products, therefore, this part of the consumers are more likely to gain their preferences on green labels.

5 Conclusion and Marketing suggestion

5.1 Research results

The first achievement is that consumer's perception and understanding of green labels, has a weak correlation with their buying behavior, consumer's preferences on green labels are not related with their purchase behavior. This may be because Chinese consumers' environmental awareness is weak at the present, they care more about the economical and practical values of the products. At the same time, too many green labels on the market make consumers cannot effectively identify the real green products.

The second research result is that the green labels can guide consumers to have certain cognition, understanding, and trust on green products , however, it is not necessarily able to produce green purchasing behavior. Because the buying behavior of consumers are connected with many other factors, such as consumer's own environmental awareness, the price of products, product category, and so on.

The third conclusion is that consumer's trust in the green labels and their relevant green purchasing behavior have significantly positive correlation. That is to say, without consumers' trust, it is difficult for them to produce actual buying behavior, so establishing the trust in the green labels is an important force prompt for consumers to make purchase actions.

5.2 Marketing suggestion

Through the empirical research, this paper verifies the hypothesis that consumer's trust in the green labels has positive influence on consumer's green purchasing behavior. This shows that in the process of green marketing, the enterprises should pay more attention on how to increase the awareness of the green labels, and fully understand and utilize green labels' positive role in promoting consumer buying behavior.

5.2.1 Enhance consumers' cognition and understanding of the green labels

In the increasingly fierce market competition environment, the enterprises can make full use of the green logos to spread the green products and even the enterprise culture to consumers, in this way, it can help to improve the environmental protection consciousness of consumers, at the same time it can quickly meet the green needs of some consumers. Nevertheless, green logo is a new concept for most consumers, so when enterprises make the publicity of green products, it is also important to popularize the related knowledge about the green production, green processing and green labels, in order to lay a good foundation for the future long-term development. For example, Enterprise can highlight the position of green marks on the product packaging, manuals or company website. In the meanwhile, combined with the characteristics of the products, explain the green labels through simple and effective words and instructions. These tips can make consumers more easily get the meaning of all kinds of green signs, quickly understand the added value of products that green marks bring. In addition, in the instruction paper, enterprises can introduce the environmental protection activities hosted by the enterprises in recent years or the following activities which are ready to carry out this year, or the enterprises can list their programs about the environmentally

protective production and their actions on establishing their market and social responsibility. These methods can let the consumers give full of their trust to the enterprises, and call for more consumers to actively participate in the environmental protection activities launched by the enterprises.

5.2.2 Increase propaganda benefits to use green products

In the process of marketing communication, enterprises can emphasis on the consumer's personal interests that the green label products bring, for instance, those green marked food is safer, the green marked appliances are more power-saving, etc. In the mean time, it is good to try to reduce the perceived risk of consumers to buy the green logo products, make the consumers feel that the green products are not only support environmental protection, but also have reliable quality.

5.2.3 Emphasize on the social responsibility

The use of green labels is a kind of performance about corporate social responsibility. in the process of explaining the meaning of the green logos, the particular social benefits brought by the consumers' purchasing on the green logo products should be highlighted. It is aimed at raising the basic obligations and responsibilities as a social citizen, emphasizing its positive role in the environmentally protective actions, make the consumers feel they can make their own contribution to the nature and the whole society by purchasing green products.

5.2.4 Enhance consumer confidence on the green labels

The survey data show that many consumers are willing to or even positively search for knowledge about green labels, read information related to the green signs. And it seems

that more and more consumers tend to have a trust in authority and the certification published by the authority. At this point, enterprises must ensure that the green logos on their products have gained the certification of authority, and is worthy of consumers' trust and purchase, at the same time the provided information on the green products is accurate. These means are beneficial for the long-term development of the enterprises in the future.

5.2.5 Government guidance

The government can make some environmental protection measures to support the growth and spread of green labels. For example, for those companies that have passed the certification, the government adopt the corresponding incentive measures, so as to reward the costs of producing green products, in order to encourage more consumers to buy green products. Additionally, the government can propagandize the related knowledge about green signs in multiple channels, to advertise the benefits of using green products to consumers, so as to improve consumers' awareness of green labels, and to promote consumers green purchasing behavior. Further more, the government should strengthen the management and supervision of the green marks, standardize identification and information of the green signs, enhance consumers' confidence on the green labels.

6 Supplement

6.1 The advantages of the research

At present, the study of green purchasing behavior are mostly concentrated on the perspectives of consumers, such as consumers' values, environmental attitudes,

environmental knowledge, environmentally friendly behaviors, which can have impact on the consumer purchasing behavior, improve their environmental attitudes to stimulate the green purchasing by strengthening consumers' environmental knowledge. In the global competition environment, however, most companies should adopt the corresponding green marketing strategies to stimulate consumption. If enterprises want to stand out in so many competitors, they have to test and validate the corresponding marketing strategies, in order to optimize these strategies, and expand consumer groups.

On the current stage, the amount of researches about the green consumer behavior based on the view of enterprise is relatively small, and the number of study about the specific marketing strategy on the influence of green consumption behavior is also small. Therefore, the innovation of this paper is from the perspective of enterprise marketing, emphatically analyzing consumers' psychological cognitive process of the green labels, and how the green labels affect the buying behavior of consumers on different perception stages, so as to formulate effective marketing strategies.

6.2 The disadvantages of the research

In this paper, there are also some disadvantages, mainly because the research is made under the condition of not taking consideration about product categories to analyze the green labels' influence on consumer buying behavior. In fact, different types of green logo products have different influences on the buying behavior of consumers. Food or cosmetic products, for instance, will directly relate to the health and safety of consumers, so consumers are more concerned about whether the food will get the green mark; And the green family appliances products will not cause much damage to consumers' personal interests, consumers can take different buying behaviors decided by different values.

In addition, this article does not subdivide green consumers, green marks will produce different effects on different types of green consumers' buying behaviors. In current, green consumers can be divided into four kinds: deep degreed green consumers, price sensitive green consumers, rational consumers and new entering green consumers. Deep degreed green consumers are more willing to study the related knowledge about the green labels and choose products according to their trust in those green labels. On the contrary, price sensitive green consumers are not willing to pay higher prices for green products, as a result, green symbols have little impact on their purchasing behaviors.

7 Appendix

The questionnaire research about consumers' perception on the green labels

Dear Madam/Sir,

I am a student from Turku University of Applied Sciences, my major is International Business. Currently I am conducting a survey about green labels. Green labels refer to certain kinds of graphics that stick on or print on the products or product packagings, to indicate that the product production, use and processing are accorded with the requirement of environmental protection, there is no harm to human health, and it is beneficial to resource regeneration and recycling. I sincerely hope you can spare a few minutes to complete this questionnaire. The results will be for academic research only, and the information you provide I will be strictly confidential. Thank you for your participation and support!

Part 1 The figure about the perception of the green labels

The following items are the descriptions about the perception of the green labels, please choose one situation conform with you.

Number	Contents	Strongly	Disagree	Neutral	Agree	Strongly
1	When the green products are mentioned, I will firstly think of the green labels.	1	2	3	4	5
2	I can think of at least one kind of the green labels now.	1	2	3	4	5
3	I will pay attention on the green labels when buying products.	1	2	3	4	5
4	I get most knowledge of the green labels from the information of products' packagings and instructions.	1	2	3	4	5
5	I think the categories of the green labels are too much, making me feel difficult to remember and classify them.	1	2	3	4	5
6	I will check the relevant information about the green labels carefully when I buy the products.	1	2	3	4	5
7	I am willing to understand the relevant information about the green labels through various information channels.	1	2	3	4	5
8	I understand the certification authority of the green labels and the meaning it represents.	1	2	3	4	5
9	I understand all kinds of relevant information about the green labels.	1	2	3	4	5
10	Comparatively speaking, I prefer buying the products with green labels.	1	2	3	4	5

11	I have special preference on the green labels of certain kind of products.	1	2	3	4	5
12	I have special preference on certain kind of green label.	1	2	3	4	5
13	I believe in any products owning green labels.	1	2	3	4	5
14	I believe that the green labels on the products are reliable, which means they reach the green standard.	1	2	3	4	5
15	I believe that the information about the green labels on the packaging or instruction is accurate.	1	2	3	4	5
16	I believe the green labels certificated by authority.	1	2	3	4	5
17	The products with green labels are more attractive to me.	1	2	3	4	5
18	The probability of buying the products with green labels is high.	1	2	3	4	5
19	I am willing to pay more money to purchase the products with green labels.	1	2	3	4	5

Part 2 Background materials

1. What is your gender?

A. Male B. Female

2. What is your age?

A. Below 20 years old B. 21-35 years old C. 36-50 years old

B. D. Over 51 years old

3. What is your education level?

- A. High school or below high school B. Junior college education
C. Bachelor degree D. Master degree or above Master degree

4. What is your occupation?

- A. Student B. Company employee C. Individual/Private owner
D. Government institution staff E. Freelance work F. Other

5. What is your marriage status?

- A. Married B. Unmarried

6. What is your income?

- A. Under 1000 yuan B. 1000-2000 yuan C. 2000-3000 yuan
D. 3000-5000 yuan E. Over 5000 yuan

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