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Experiment: Does Providing Explanations about the Rewards for Keeping a Product and the Environmental Impact of Product Returns Influence Consumers' Decisions to Make a Return?

by

[redacted]

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ABSTRACT

Information disclosure influences people's behaviour to a certain extent. Yet retailers know very little about the extent to which they influence consumers in actual return scenarios. Whether disclosure can be used to create new marketing strategies is the subject of this paper. In this paper, two experiments are conducted to investigate the extent to which disclosure affects consumers' willingness to return goods, based on the application of disclosure in a real-world return scenario. Experiment 1 was designed around environmental factors: if a retailer discloses to consumers the environmental information that a return will cause, does this influence consumers who are willing to return to change their decision to do so? The design of Experiment 2 introduced a retention incentive policy and designed four different inventory incentive policies with theoretical support from prospect theory and framing effects. The data collection associated with the two experiments was conducted in a combination of both online and offline methods. Two experimental studies validated the positive effects of information disclosure. The results of Experiment 1 show that consumers' willingness to return goods decreases as the level of environmental disclosure becomes more pronounced. The results of Experiment 2 show that inventory reward policies reduce consumers' willingness to return goods and that consumers are more likely to prefer small probability reward events. In conclusion, both studies support the use of information disclosure as a marketing strategy for retailers to reduce consumer return behaviour. This is particularly true for environmental information and reward disclosure. Finally, the theoretical implications and recommendations on how retailers can effectively use environmental and reward information as their marketing strategy to reduce return rates are discussed.

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Chapter 1 Introduction

1.1 Background

Product returns have gradually become an area of concern in recent years. Especially under the influence of the covid-19, many retailers have transformed marketing models from offline to online and product returns seem to be more convenient for customers. The return policies in e-commerce are more liberal and lenient, and it is these policies that reduce the perceived risk of consumers shopping online (Hjort et al., 2013). While this has helped retailers increase sales, the rise in return rates is undoubtedly a major flaw. An increase in the rate of returns can result in greater economic losses for retailers. For UK retailers, product returns cost them around £20 billion (Ram, 2016). Recent reports show that return rates have increased by 20% due to consumer opportunism (The Retail Equation, 2014). According to statistics, Zalando, a Germany-based online retailer, has a return rate of up to 50% on fashion goods (Thomasson, 2014). In the United States, product returns cost retailers up to $100 billion a year (Petersen & Kumar, 2009). Retailers in the electronics industry alone spent $17 billion to fill product gaps caused by returns (Bower & Maxham, 2012). The return rate of total orders in the entire e-commerce industry is as high as 30% (Pei & Paswan, 2018). While these figures are troubling, there are currently relatively limited ways to effectively use information disclosure to reduce consumer return rates. This indicates that the after-sales service-related survey rate for similar product returns is low (Lastovicka & Fernandez, 2005). And few studies have focused on the impact of disclosures on consumers' purchases on their willingness to return (Petersen & Kumar, 2009).

However, whether different ways of delivering information can be used to help retailers reduce the risk of consumer returns has become the focus of this study. A growing body of research suggests that the way graphics combine contextual information is effective in understanding the risk of transmission and helps information recipients make better decisions. Academics have previously done research in medicine on how people use a combination of text and graphics to understand whether a new drug reduces the risk of a heart attack. This way of information dissemination can effectively describe the relationship between the part and the whole (Garcia, 2013). In this information age, consumers are often exposed to a variety of information throughout the shopping process. Including return policies, item shipping, and advertising information. Therefore, retailers have a crucial role in any decision made by the retailer to accurately output effective information

for different customers. And some risk information can be communicated to customers through easy-to-understand graphical presentations (Garcia, 2013), which sometimes helps the recipients of the information to change their attitudes under pressure from the mind. This makes it a more effective tool for promoting risk-averse behaviour (Garcia, 2013). Therefore, the way of displaying information graphically is increasingly regarded as a "best practice" for conveying some risk information, such as environmental hazards (Taylor, 2015), and health risks (Lipkus, 2007). This dissertation mainly studies two information factors, the first is environmental damage, and the second is reward policies for keeping products.

1.2 Environmental Impacts on Customer Return Behaviour

With the popularization of the idea of green development, people are paying more and more attention to the adverse effects of transportation and packaging on the environment during the transportation of goods. From retailers to customers, there are concerns about environmental pollution caused by like transportation, and secondary packaging (Lai, 2011). Therefore, it is necessary to explore whether there is a relationship between the environmental pollution information involved in the return process and the consumer's return behaviour. Additionally, whether the communication of environmental information can change consumers' decision to return is one of the focuses of this dissertation. The carbon dioxide and fuel consumption generated during transport contribute to serious environmental burdens such as global warming (Condurat et al., 2017). With the development of the economy and the continuous expansion of the retail industry, this situation is bound to worsen. The improvement of consumers' living standards will also shorten the product life cycle and increase the consumption of resources (Sarkar, 2017). Therefore, it is a good idea to study consumer behaviour and use their concerns about environmental issues to reduce shipping return rates. This is not only conducive to the sustainable development of enterprises, but also to reducing losses. Experiment 1 in this study examines how consumers react to environmental information displayed in different ways to determine whether it affects consumers' decision to return. Through the analysis of the experimental results, the study obtains the most effective way of displaying environmental information and then puts forward marketing suggestions for retailers.

1.3 Reward the Customer Who Keeps the Product

Improved return management and effective promotions by retailers can promote repeat purchases (Lai et al., 2011). Consumers are more sensitive to the cost of product transportation, so an endless stream of "free shipping" marketing strategies has appeared in the market (Shehu et al., 2020). However, the relaxed return policy also can create a high return risk for retailers, and the loss is potentially huge. Therefore, how to guide customers to reduce their desire to return under the lenient return policy is an urgent problem to be solved. Moreover, retailers need some positive marketing strategies to encourage customers to keep their products. Gelbrich et al., (2017) have studied a promotion strategy that creates an incentive for customers to keep the product. Whenever a customer chooses to keep the product that they purchased, they are rewarded by the retailer platform (such as free shipping on their next purchase). This study will design an experiment on the strategy of rewarding customer retention products in experiment 2 and explore whether this reward is effective by observing the responses of the participants in the questionnaire (shown in appendix C). However, different from the existing policy, this new marketing strategy will introduce the concept of different probabilities of obtaining vouchers, to take advantage of consumers' psychology of "preferring low-probability events" to reduce their desire to return.

1.4 Experimental Overview and Research Question

The main goal of this study is to explore whether the dissemination of environmental risk factors or reward information through information during the return process can change consumers' return behaviour. Therefore, in Experiment 1 I provided participants with three different forms of environmental damage risk factor information (in the form of pictures and text) (shown in appendix A). I assessed their willingness to return after seeing risk information and attitudes towards the information provided. In Experiment 2, I provided participants with reward information about the reward they may obtain if they keep the product in four different descriptive forms. Regarding the design of reward information, this experiment refers to the framing effect and prospect theory. Among them, the design inspiration given by the framing effect is that certain benefits are more attractive to people than alternatives of equal risk (Gosling and Moutier, 2019). Prospect theory also provides another way of designing, that is, people prefer low-probability events over high-probability events, that is which means “risk seeker” (Kaustia, 2010). The experiment then assessed participants' willingness to return after seeing the reward information and their preferences and perceptions of different reward measures.

The questions to be researched in this study are as follows:

a. Do different presentations of the same environmental information affect consumers' return decisions? I guess that as the degree of visibility of environmental information display increases, people's willingness to return will decrease. And it is believed that the result of statistical analysis of the data is "the obvious degree of information display is significant".

b. Do different reward policies about product keeping affect consumers' return decisions? Based on the framing effect, I would expect that incentives that show consumers a "gain" would be more attractive to consumers than policies that show consumers a "no gain." According to the prospect theory, "people prefer low probability events", I guess for customers, the lower the probability of getting rewards, the more popular the policy is.

1.5 Dissertation Structure

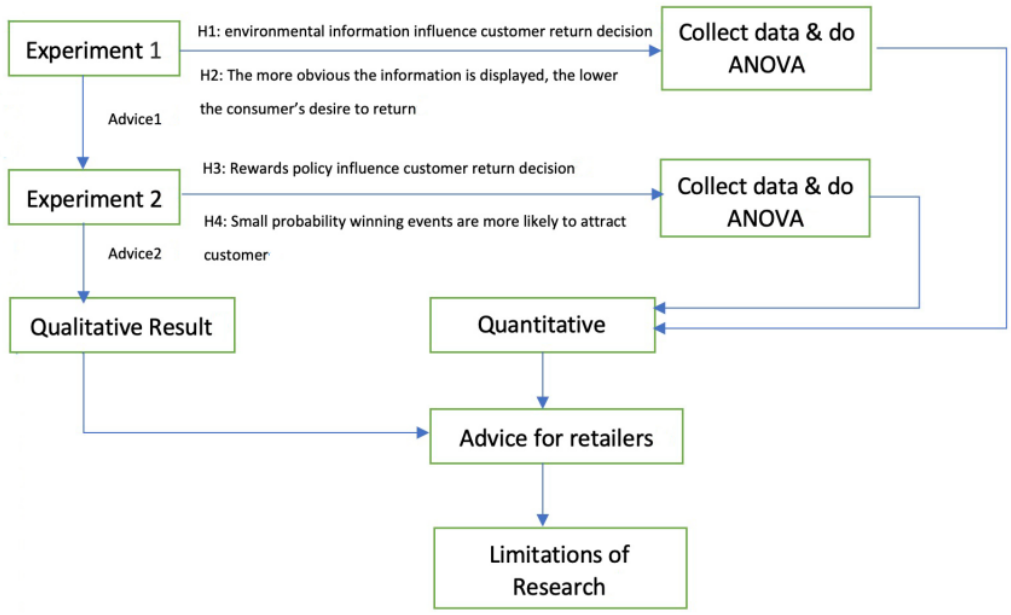

Figure 1 Dissertation structure

Chapter 2 Literature Review

The purpose of this study is to explore the extent to which the dissemination of valid information can change consumers' return decisions. Two information factors are involved – environment and

rewards. More specific research interests include consumer behaviour, how the way information is communicated affects people's decisions, retailers' return policies, marketing strategies to alleviate the return crisis, and experimental design methods. The literature review brings together many academic research viewpoints relevant to this dissertation, which are analyzed and discussed in this chapter of this study.

2.1 Online Shopping Return Environment and Current Situation

The cost to retailers of online shopping returns is enormous. A study found that consumer returns cost U.S. retailers about $100 billion a year. Furthermore, the return situation of online shopping is much more serious than offline shopping. Pei and Paswan (2018) said that the return rate of e-commerce orders is as high as 30%, while the return rate of physical stores is only 8.89%, which is less than 1/3 of that of e-commerce. The main loss factors for retailers include replenishment of inventory, transportation costs and repackaging (Petersen & Kumar, 2012). Although these troubling data mentioned above are always related to the net profit margin of the retail industry, few researchers have studied the impact of consumer behaviour on product returns (Petersen & Kumar, 2009). However, this dissertation argues that consumer behaviour is worth studying. Bechwati and Siegal (2005) believe that the information consumers can access before purchasing will directly affect the return behaviour after purchasing the product. This shows that the content of product information displayed by merchants to consumers is very important. The study on the above relationship can be further transformed into the research on marketing strategies by studying the psychological factors of consumers, to achieve the purpose of reducing the product return rate.

2.2 Return Policy and Consumer Behaviour Experiments

Retailers' return policies for consumers are an interesting subject. Shehu et al., (2020) did a study on the relationship between free shipping and product returns. They believe that the retail free shipping policy reduces the risk of shopping for consumers, thereby increasing the return rate. Although this strategy increased sales to a certain extent, higher product return rates and delivery fees made this marketing strategy unprofitable. Therefore, the consumer's return decision is particularly important to the retailer. Furthermore, the customer's return experience should also be taken seriously (Moore et al., 2020). Moore et al. (2020) believe that if a customer experiences a negative return during the return process, it is likely to influence their future purchasing decisions at this retailer. Regarding how to influence a customer's return decision, some retailers have

proposed a "reward customer for keeping the item" policy (Gelbrich et al., 2017). They compared this new policy to the traditional lax return policy, proving that the new policy is effective. Experiments by Gelbrich et al., (2017) have confirmed that this policy can have a positive impact on reducing the return rate. Some researchers have found that higher-priced items have higher returns by looking at the factors that affect return rates. However, at the same time, the higher price also increased the retention rate of the product (Samorani et al., 2019), and an online store's customer favorable rating also influence other customers' return decisions (Lohse.T et al., 2020). It is also a study of consumer behaviour, Pei and Paswan (2018) said that legitimate return behaviour will increase consumers' willingness to buy products again. On the contrary, it will reduce consumers' willingness to repurchase. To sum up, consumer behaviour will have a certain degree of influence on the return rate of products.

Therefore, it is necessary to design the experiments of this study around consumer behaviour. Wichman (2017) experimented to study the relationship between information provision and consumer behaviour. In the experiment, he changed the frequency of paying water bills from once every two months to once a month. It found that consumers would increase their spending by 3.5%-5% per month. This suggests that multiple informational factors influence changes in consumer behaviour and any degree of willingness of consumers is also a factor in their behaviour. Mtimet and Albisu (2006) conducted a behaviour experiment with Spanish wine consumers on their willingness to pay. Experiments show that consumers' willingness to pay changes as the product price changes. This idea can be applied to the experimental design of this research. Because this experiment focuses on exploring how information disclosure affects consumers' willingness to return. In 2018, the United States enacted a law (US DHHS, 2018) requiring all restaurants to list the calories of all dishes for consumers' reference. This further shows that the government wants to rely on the disclosure of health information to guide consumers in restaurants to consume rationally. Some researchers use the menu without calorie labelling as the control group and the labelled menu as the experimental group to design the experiment. They found that menus with calorie labels ordered 3% fewer orders than those without labels (Cawley J et al., 2020), which shows that information disclosure has a certain impact on consumer behaviour. But the existing studies have some limitations in the setting of the experimental group. For example, Cawley's literature only changes a single labelling factor to determine that calories can influence consumers' ordering decisions. In Wichman's experiment, only the frequency of paying the water fee was changed. However, in this study, the research method has been improved. In Experiment 1, besides the

control group without information, three other environmental information groups with different combinations were added to study the behavioural preferences of consumers. More experimental groups will make the degree of consumer behaviour change more apparent.

2.3 Environmental Pollution by Product Return

The problem of environmental pollution caused by returned goods is also a research direction of this study. Returned products can be recycled and reused to minimize waste (French, 2008) in the processing of reusable products. This seems to give retailers a whole new way of thinking about environmental protection. Retailers can try to change consumer behaviour by disclosing to consumers the environmental information involved in the shopping process. Therefore, it is possible to incorporate the disclosure of environmental information into existing marketing strategies. French (2008) uses a case study of successful recycling to demonstrate that it is possible to reuse a product after being repackaged. Increasing consumer awareness of sustainability is important (Lysenko-Ryba & Zimon., 2021). Because it can make consumers aware of the environmental pollution caused by returns, thereby reducing returns. Although some retailers have taken some environmentally friendly measures in delivery, they have found that the high volume of orders and return rates still have a large negative impact on the environment (Velazquez & Chankov., 2019). Velazquez and Chankov (2019) obtained the environmental impact of e-commerce LM in delivery and return through the analysis of 6 retailers and obtained some suggestions for improving environmental pollution. In the relevant questionnaire designed in Experiment 1 (shown in Appendix A), in addition to the question of willingness to return, which is required for the main study, we also collected participants' views on environmental information disclosure. Including asking them which type of environmental pollution information they are more interested in and more willing to see such information appear in the shopping process, which can help retailers make more accurate marketing strategy advice.

Sustainability has become a development goal for many retail companies. Nevertheless, the environmental problem brought by the return process is a big trouble that needs to be solved urgently. According to reference, US consumers alone scrap 400 million electronic products per year. Although some large corporations have made important contributions to green development, the increasing return rate is having a serious impact on the environment (Velazquez & Chankov., 2019). With the rapid development of major retail industries, the public is also increasingly concerned about the environmental pollution and energy consumption caused by express transportation

activities (Lai et al., 2011). Therefore, it is an effective method for retailers to take advantage of consumers' concerns about environmental pollution to reduce their desire to return. The background of Experiment 1 of this dissertation is based on the environmental pollution caused by returns, and it is necessary to explore whether the display of this information will affect the consumer's return decision. The purpose is to illustrate that as the degree of visibility of information about environmental damage provided by retailers on product packaging increases, consumers' desire to return products decreases and to conclude with sound marketing recommendations. Although the existing literature has conducted extensive research on both environmental pollution and consumer behaviour, much less is known about whether environmental pollution caused by returns will affect consumer behaviour. Therefore, this research is necessary for both academic fields and retailers.

2.3.1 Different Types of Environmental Pollution

2.3.1.1 The Environmental Impact of The Transport Industry

The primary and fundamental activity in logistics is transportation, and the fuel consumption and fuel pollution of transportation vehicles are the primary factors contributing to the environmental pollution brought on by logistics operations. As carbon emissions gradually increase, Banister et al., (2011) predict that the transportation industry will account for more than 50% of carbon emissions by 2050. Transport and the environment have also been impacted by modifications to logistics management practises such as consolidated inventory and just-in-time delivery (Banister et al., 2011). The unreasonable layout of freight outlets and distribution centres leads to roundabout transportation of goods, increases vehicle fuel consumption, and aggravates exhaust gas pollution and noise pollution. Rondinelli and Berry (2000) experimentally studied a new mode of transport in the logistics industry: Multimodal transportation. Multimodal transportation speeds up the transfer and delivery of goods between different modes of transport, but the excessive number of vehicles in transit increases the demand for urban road areas and exacerbates the congestion of urban traffic. Although this method can effectively reduce the logistics costs of enterprises, it has increased fuel consumption and the demand for road areas (Rondinelli & Berry, 2000) due to the generation of more single transportation. Instant Delivery (JIT) emphasizes inventory-free operations, and from an environmental point of view, JIT distribution is suitable for transportation between close businesses. If the distance between suppliers and producers is long, implementing JIT requires extensive use of the road network, which transfers freight from rail to road, which in turn increases

fuel consumption, brings air pollution, noise, etc., and thus destroys the environment (Fullerton & McWatters, 2001). The previous literature on pollution in shipping provides ideas for the information preferences of consumers in the questionnaires of experiment 1. While providing advice to retailers at the end of the article, refer to the inclusion of various environmental pollution factors in information disclosure. Thereby expanding the harm and seriousness of the environmental pollution caused by the return.

2.3.1.2 Environmental Impact of Secondary Packaging

Maintaining product quality, enhancing product aesthetics, and raising product value are all functions of packaging. The majority of today's products are packaged using materials and techniques that adversely harm the environment in addition to wasting a great deal of resources (Williams & Wikström, 2011). Especially in production and secondary packaging (Almeida et al., 2021). At present, plastic bags, glass bottles, cans and other packaging varieties on the market will leave long-term pollutants in nature after use. A considerable number of industrial products, especially consumer goods packaging, are single-use and increasingly complex. These packaging materials not only consume limited natural resources, but also waste packaging materials are an important part of municipal waste, and it takes a lot of manpower and financial resources to deal with these wastes (Abejón et al., 2020). Many packaging materials are non-degradable, and they remain in nature for a long time, which will have a serious impact on the natural environment (Pauer et al., 2019). In the last two questions in the Experiment I questionnaire, we set personal preferences about whether consumers are willing to accept environmental information. This research will combine the results obtained from the statistical analysis of the experimental data and consumers' preference for environmental information to arrive at the final marketing recommendations. The design ideas of pictures related to environmental pollution in Experiment I of this study consider some of the above viewpoints. And used as a reference for environmental transport options in the design of qualitative questions in the questionnaire.

2.4 Product Return Policy

Comparing and studying different return policies will help retailers better develop relevant marketing strategies. Studies have shown that more than 70% of consumers carefully read their store's return policy before making a purchase (Mukhopadhyay & Setaputra, 2007). This suggests that a large part of the factors influencing consumers' order decisions come from return policies. As

a result, this has become one of the main factors in competition among retailers. Some companies are also known for their well-established return policies. Examples include Hyundai's Buyer Protection Program (Ingrassia, 2009) and Zappos's (2012) 365-day unconditional return policy. However, companies must consider that a more relaxed return policy will increase the probability of consumers returning goods (Davis et al., 1998). Gelbrich et al., (2017) proposed a product retention incentive policy as a new promotional strategy to improve the traditional return policy. They used experiments to highlight the importance of incentive policies for customers to keep products. According to the data, Zalando, a large fashion e-commerce Internet company in Europe, has a return rate of nearly 50% (Thomasson, 2014). Therefore, in a business environment with a very high return rate, the use of reward policies as a return marketing method is a method to be verified.

The free shipping promotion policy has become one of the marketing activities of most retailers, to take advantage of consumers' money-saving psychology to increase sales. Because consumers are highly sensitive to shipping costs (Smith, 2001). The retailer's return policy is also relatively lenient because the free and lenient return policy increases consumers' purchasing opportunities. The e-commerce giant Amazon allows customers to return goods without reason within 7 days (Ingrassia, 2009), while the return application due to quality reasons can be delayed to within 30 days. However, product returns have direct and indirect costs for retailers. According to U.S. retail industry data, in 2013, one-third of consumers chose to return a product after receiving it (Banjo, 2013). Shehu et al., (2020) argue that free shipping marketing indirectly encourages customers to buy items without thinking which leads to an increase in the return rate. Merchants are responsible for the cost of product depreciation, repackaging, refurbishment, and waste disposal if not free shipping returns. If the return is free, the merchant will also need to bear the postage and packaging costs. Returns due to poor customer experience can affect a retailer's reputation and lead to lower customer loyalty. These pieces of literatures on promotion policies provide some inspiration for the design ideas of Experiment 2. The purpose of Experiment 2 is to evaluate consumers' responses to the new incentive policy information and whether it would influence consumers' decisions to return products.

Based on the above policy ideas, this dissertation introduces a new rewarding policy, namely, keep product rewarding. It works when consumers are willing to return and offer rewards when they choose to keep the product (such as reward vouchers for the next purchase). Here I can consider some specific rewarding methods: like vouchers or cash discounts at the time of purchase (Park et

al., 2013). And the rewards are effective for consumers. The literature suggests that if consumers receive a voucher, it increases the likelihood that they will recommend it to their friends (Ryu & Feick, 2007). If they receive a cash discount, the more likely they are to continue purchasing on this E-commerce platform next time (Teng, 2019). In the design of experiment 2, I draw on some existing marketing policy formulation schemes. For example, if the customer chooses to keep the product (not return it), he can get a voucher or a reward for free shipping on the next purchase. And the factor of probability is introduced to make it clearer about consumers' preference for incentive policies.

2.5 The Impact of Information Disclosure on Human Behaviour

Some references have shown the changes in human behaviour brought about by information disclosure. Over the past 20 years, most research on how disclosure affects human behaviour has emphasized the use of experimental design approaches. Cawley et al., (2020) conducted experimental research on consumer disclosure policies issued by the United States. They found that while disclosing calorie information to consumers on restaurant menus resulted in a reduction in orders of about 3%, it increased consumer support for the policy by 9.6%. The disclosure of information will change consumer behaviour to a certain extent. Bollinger et al., (2011) did similar experiments but changed the restaurant type to Starbucks. The results showed that Starbucks' orders decreased by 5.8%, and the disclosure effect was greater than that of fast-food restaurants. This shows that consumers in different industries have different attitudes towards ingesting risk information. However, Okan et al., (2018) believe that information disclosure is not limited to text and should include different forms of information. They represented risk factors in different combinations of charts and labels and tested participants' willingness to take heart disease medications in the face of different disclosures. It was found that the information output with labels made the participants more willing to take the drug. It is further demonstrated that the risk factors exhibited by the information are useful for changing human behaviour. In addition to this, reference has shown that disclosing patient health outcomes between hospitals and doctors would solve the problem of information asymmetry in the medical field. However, the disclosure of such information can also cause hospitals to refuse treatment of critically ill patients, thereby reducing social welfare (Dranove et.al., 2003). Therefore, the results and effects of disclosure of information may be beneficial or detrimental, but this requires further research.

2.6 Theory of Experimental Design

2.6.1 Framing Effect

The hypotheses and marketing recommendations of this study are based on framing effect and prospect theory. The existing literature on framing effect and prospect theory is extensive and focuses particularly on researchers' discussions of human decision-making behaviour. Stranu (2021) conducted a study to analyze the influence of framing effect and emotion on the decision-making process. She argues that a person may make a different decision when they read two sentences with the same meaning but written from two separate perspectives. That is, the framing effect refers to the phenomenon that different ways of presenting information in a statement influence people to make different decisions (Lai, 2022). Further experimental results show that the framing theory has a greater positive effect on investors' investment decisions (Cahyanti et.al., 2021). Investor decision-making can thus be used as an analogy to consumer decision-making. Kahneman and Tversky (2013) conducted an interesting experiment on the framing effect in 1981, and the result was obtained: Humans tend to take risks when they gain gains and avoid risks when they suffer losses. This is also one of the main contents of the framing effect.

2.6.2 Prospective Theory

Although both are studies of human behaviour based on psychological experiments, prospect theory and framing effects are completely different. The former is widely regarded as the best way to assess risk in experiments (Barberis, 2013). Because prospect theorists have identified some of the biases in human decision-making in previous research, which can be directly exploited to address specific fitness problems (McDermott et al., 2008). Prospect theory suggests that people are more fascinated by low-probability events than high-probability events (Holmes et al., 2011). A study by Abdellaoui et al., (2013) investigated whether professional finance professionals acted on prospect theory. Research has shown that financial professionals act according to prospect theory and violate expected utility maximization at work. The assumptions in the experiments in this research are based on the two theories mentioned above. In Experiment 2, we assume that the same winning probability is presented in different information display schemes on the premise of no return, which has a greater impact on consumers' willingness to return. And compared with high probability events, small probability winning events can attract consumers and reduce their willingness to return.

2.7 Conclusion

The content of previous literature research established some theoretical background for this dissertation. For example, the content mentioned in this chapter is the current situation of online shopping returns, consumers' decision-making behaviour, environmental pollution caused by returns, the promulgation of return policies (reward policies for keeping products), and the relevant theories of experimental design (Kreuzmair et al., 2016). Although the relevant theoretical background and experimental methods have been discussed and utilized many times in the past 20 years, there has been very little discussion about the question of "how to use the information to change return behaviour", which is the goal of this research. Therefore, this is a new and interesting topic that deserves to be explored in depth. This study focuses on carrying out experiments based on the two specific directions of "environmental pollution" and "reward policy" brought about by returns and studies the changes in consumer return behaviour under different marketing strategies by analyzing the relevant data collected in the questionnaire. Therefore, I try to help retailers to get better marketing advice on returns at the conclusion of this dissertation.

Chapter 3 Methodology

The design of experiments is a multivariate approach designed to explore differences between different species factors (Benedetti et al., 2022). It was first introduced by Ronald Fisher in 1935 and is now used in a wide range of fields. In order to enable this study to conclude how factors related to disclosure affect consumer return behaviour and thus make the best recommendations to retailers, this dissertation uses an experimental design to investigate the relationship between the independent and dependent variables. Because results are often influenced by a variety of factors, a 'control variables approach' is also introduced (Callao, 2014). As for the collection of experimental data, this study utilised a questionnaire method. Questionnaires are one of the more common methods of data collection due to their reliable and effective way of obtaining information (Taherdoost, 2016). In addition, in order to make the results of the experiment more reliable and convincing, these two experiments both use the general population sample from UK consumers. Furthermore, all of the questionnaires are published by the researcher on the online survey engine Qualtrics(https://login.qualtrics.com/login). The questionnaires were distributed randomly on campus and social media (like WeChat and Facebook). The aim is to avoid the experimental data receiving the limitations of a single information collection platform. Moreover, if people want to be

eligible to participate in this research, they must be consumers of a large e-commerce company who have experience in online shopping and returns in the UK.

The purpose of this study is to explore the extent to which effective information presentation can change consumers' decisions to return products. Moreover, the findings of this research can provide retailers with marketing suggestions on how to use the information to reduce the return rate. Therefore, I focus on how to design to display relevant information to consumers in two sets of experiments (Garcia-Retamero, 2013). This study focuses on two informative factors—environment and reward. The first experiment is a study of the role of environmental information. The environmental information is displayed through different combinations of pictures and text which is presented in four groups of questionnaires. The second experiment is the research on the information function of reward policy. In addition, based on prospect theory and framing effect, two kinds of incentive policies for customers of keeping products are designed. In the questionnaire, these two different reward policies evolved into four sentences with the same meaning but different expressions. Participants' attitudes towards returns after receiving different information were recorded, which was used to measure the effectiveness of the information. Each questionnaire will be filled by 40-50 participants, including invalid samples (such as non-response, or no experience of online shopping in the UK). After the data collection is completed, I will delete the invalid samples, but ultimately ensure that the number of valid samples for each questionnaire is around 40. Therefore, no less than 320 valid samples should be collected for both experiments.

3.1 Experimental 1 Design About Environment Factor

Different presentations of the same information may lead consumers to make different decisions. The purpose of Experiment 1 is to explore whether the environmental pollution information that appears on the product packaging or website will affect consumers' return decisions. Therefore, this study conducted the first set of experiments and divided all the volunteers who participated in the experiment into four groups. Each of the four groups of participants was presented with different forms of environmental damage information in a set known product return situation, whereas the first group was not presented with any environmentally relevant information (as a control group)

3.1.1 Participants of Experiment 1

Before participants filled out the questionnaire, they were presented with a letter of introduction about the purpose of the study. And one of the conditions for participation is that participants are

required to be at least 18 years old. Finally, 91% of students agreed to participate in the study. Those who refused to participate were for the following reasons lack of interest in this research or busy academic schedule. All participants were divided into four groups, each receiving a presentation of environmental information (Figure 8, Figure 9 and Figure 10 are shown in Appendix A).

A total of 182 questionnaires were collected in this experiment, of which the number of valid samples was 180. The total sample consisted of 76 males (42.2%), 100 females (50%), 3 third-gender people (55.6%) and one participant who did not wish to disclose gender (0.54%) The age range of the participants was mainly distributed between 20-39 (89.22%). The educational attainment of the participants was distributed among high school (1.11%, n=2), university (38.89%, n=70), PhD (58.33%, n=105) and others (1.67%, n=3). There are more people with university and PHD. Moreover, most of the participants had return experience (89.44%, n=161). All the statistics of this experiment are shown in Table 1 and the statistics of the four groups of questionnaires are shown in Table 2, Table 3, Table 4 and Table 5 respectively.

	Sample size	Sample%
Total sample	180	98.9%
Gender		
Male	76	42.22%
Female	100	55.56%%
Non-binary / third gender	3	1.67%%
Prefer not to say	1	0.56%%
Age		
20-29	89	49.44%
30-39	68	37.78%
40-49	23	12.78%
50-59	0	0%
Other	0	0%
Education level		
High school	2	1.11%

University degree	70	38.89%
PHD	105	58.33%
Other	3	1.67%
Have experiment to return		
not	2	1.11%
Probably not	6	3.33%
Might or might not	11	6.11%
Probably yes	79	43.89%
Definitely yes	82	45.56%

Table 1 Detailed statistics of all experimental participants

	Sample size	Sample%
Total sample	45	100%
Gender		
Male	20	44.44%
Female	24	53.33%
Non-binary / third gender	1	2.22%
Prefer not to say	0	0%
Age		
20-29	34	75.56%
30-39	8	17.78%
40-49	3	6.67%
50-59	0	0%
Other	0	0%
Education level		
High school	1	2.22%
University degree	28	62.22%

PHD	14	31.11%
Other	2	4.44%
Have experiment to return		
not	0	0%
Probably not	4	8.89%
Might or might not	4	8.89%
Probably yes	14	31.11%
Definitely yes	23	51.11%

Table 2 Detailed statistics of experimental participants for questionnaire 1 (no information)

	Sample size	Sample%
Total sample	45	95.74%
Gender		
Male	21	46.67%%
Female	23	51.11%
Non-binary / third gender	1	2.22%
Prefer not to say	0	0%
Age		
20-29	26	57.78%
30-39	16	35.56%
40-49	3	6.67%
50-59	0	0%
Other	0	0%
Education level		
High school	0	0%
University degree	23	51.11%
PHD	22	48.89%

Other	0	0%
Have experiment to return		
not	0	0%
Probably not	0	0%
Might or might not	0	0%
Probably yes	26	57.78%
Definitely yes	19	42.22%

Table 3 Detailed statistics of experimental participants for questionnaire 2 (high level)

	Sample size	Sample%
Total sample	45	100%
Gender		
Male	20	44.44%%
Female	24	53.33%
Non-binary / third gender	1	2.22%
Prefer not to say	0	0%
Age		
20-29	14	31.31%
30-39	23	51.11%
40-49	8	17.78%
50-59	0	0%
Other	0	0%
Education level		
High school	1	2.22%
University degree	10	22.22%
PHD	34	75.56%
Other	0	0%

Have experiment to return		
not	1	2.22%
Probably not	1	2.22%
Might or might not	5	11.11%
Probably yes	17	37.78%
Definitely yes	21	46.67%

Table 4 Detailed statistics of experimental participants for questionnaire 3 (medium level)

	Sample size	Sample%
Total sample	45	100%
Gender		
Male	15	33.33%
Female	29	64.44%
Non-binary / third gender	0	0%
Prefer not to say	1	2.22%
Age		
20-29	15	33.33%
30-39	21	46.67%
40-49	9	20%
50-59	0	0%
Other	0	0%
Education level		
High school	0	0%
University degree	9	20%
PHD	35	77.78%
Other	1	2.22%
Have experiment to return		

not	1	2.22%
Probably not	1	2.22%
Might or might not	2	4.44%
Probably yes	22	48.89%
Definitely yes	19	42.22%

Table 5 Detailed statistics of experimental participants for questionnaire 4 (low level)

3.1.2 Materials and Procedure of Experiment 1

3.1.2.1 Simulate Shopping and Return Scenarios

All participants were asked to read a shopping scenario and then were presented with a set of information on the environmental damage that would be caused by returning the goods. They were then further asked to give feedback on their willingness to return when they saw the environmental information. First, the questionnaire needs to explain to participants that the simulated shopping environment for filling out the questionnaire is: When a participant, as a consumer on a retail website, purchases a wooden table worth 15 pounds, receives it and wants to return it because it doesn't fit well or doesn't like it anymore (not because of quality), but is moderately willing to return it. Then you suddenly see the environmental damage information on the packaging of the item. The information displayed to you indicates that the return process will directly cause environmental pollution problems caused by transportation and secondary packaging of products (But the four groups of subjects were shown different patterns of information). No other factors are considered at this time. Environmental damage information is presented in one of three different formats. And Appendix A includes infographics of the three different combinations seen by the three groups of participants across all conditions.

3.1.2.2 Graphical Display

Graphic design is the focus of this experiment because consumers' understanding of graphics determines their perception and cognitive process of information, which affects subsequent behaviour and decision-making. Ali (2013) explained that the key stage of graph formation is its integration stage. It involves more basic features in graphics, such as colour, image size, and text position. Thus, transforming information into visual patterns. If the information can be paid enough attention by people, it will be verified in the change in their behaviours. In this experiment, three

groups of information display forms and one control group (no information display) were designed in the questionnaire. (1) Environmental pollution information in the form of pictures and text (Figure 8 is shown in Appendix A). (2) Only contains the environmental pollution information of the picture and is the same as the picture in case (1). The purpose is to control for variables so that participants are not influenced by other factors (such as picture colour and size) (Figure 9 is shown in Appendix A). (3) Environmental pollution information containing only plain text (Figure 10 is shown in Appendix A). The size, text content, and colour of each group of pictures are the same, which will prevent the participants' decision-making process from being interfered with by other factors in the pictures. The control group and these three information combinations were allocated into four questionnaires and four sets of responses were collected. Each group of participants is independent of the other.

3.1.2.3 Willingness to Return

This experiment adopts a single-factor completely randomized between-subjects experimental design. The independent variable is the obvious degree of environmental damage information provided by retailers to consumers, which is divided into high (figure and text), medium (figure), and low (text). The dependent variable is the consumer's willingness to return in three different independent variable scenarios. Four groups of participants were randomly assigned to fill out questionnaires containing four different sets of environmental information. After they read the same consumption and return scenarios, they will see different contextual information displays. They were then asked to fill in their willingness to return. Among them, the answer part of the subjects adopts the 7-point Likert scale, with 0 for indifferent, -3 for very unwilling, and 3 for very willing.

3.1.2.4 Other Measurements Related to The Questionnaire

Except for the problem of environmental information display, the other problems are the same (irrelevant variables are controlled). It also involves the personal information of the survey participants, such as gender, age, education, and whether they have experienced online shopping and returns. The reason for investigating these variables was to help capture external attribution of control variables (Bower & Maxham, 2012). And these external factors have the potential to influence consumers' return decisions (Harris, 2018). In the last two questions, participants were asked how interested they were in showing them environmental issues during their shopping process, and what type of environmental issues would like to be shown. Thus, more accurate

information display suggestions can be obtained. In addition, because research into whether environmental information affects return decisions is new, it may be influenced by consumer interest preferences. The distribution of the questionnaire was random, and each participant was independent of the other. There is no time limit for the questionnaires, but each questionnaire takes about 1 minute to read, think, and complete. In this experiment, the variables and premises controlled by the experiment will be explained in the questionnaire.

3.1.2.5 The Hypothesis of Experiment 1

People's understanding of graphics determines their different cognitive processes for extracting information. Generally, if people fail to pay sufficient attention to some information, their risk perception of the information will be reduced (Bruine et al., 2013). Therefore, the degree of visibility of information is important to the depth of people's understanding of it. From Okan et al., (2018) 's study of graphs changing human behaviour, it can be concluded that the presence of labels significantly improves participants' understanding of risk. Therefore, the two hypotheses regarding Experiment 1 are as follows.

H1: The obviousness of environmental damage information will affect consumers' decision to return goods to varying degrees.

H2: The higher the obvious degree of environmental damage information (from largest to smallest: picture+text, picture, text), the lower the consumer's willingness to return.

3.1.3 Statistics of Experimental Sample Data

This study collected all participants' willingness to return in four groups of questionnaires, a total of 180 valid sample data, as shown in Table 6 (Appendix D). And after the data of Experiment 2 is counted, the variance analysis is performed on all the statistics.

3.2 Experimental 2 Design about Reward Factor

As mentioned in Experiment 1, different presentations of the same information may have an impact on consumer behaviour. In order to confirm this and provide effective advice to retailers on return policies, this study decided to conduct a second experiment. The purpose of experiment 2 is to explore whether the four ways in which consumers are rewarded for retaining products affect consumers' return decisions. The experiment divided participants into four groups, each of which

accepted and answered information from a questionnaire. Four questionnaires showed subjects four different retention product incentive policies (or possibly different representations of the same policy) and collected data from four sample sets. In previous studies, it has been suggested that the frequency with which consumers shop also influences the relationship between reward policies and willingness to return (Hamilton et al., 2011). Because the frequency of consumption is related to repeated purchases, it is very likely to affect the willingness to return. Therefore, in the subsequent discussion of this study, the factor of customer consumption frequency will be considered.

3.2.1 Participants of Experiment 2

The statistical information of all participants in Experiment 2 is shown in Table 7. The experiment still used a sample of the general population of British consumers, because the sample data from this group met the regional requirements of the research field. In addition, it can give good advice to local retailers in the UK, and will not bring large bias. Experiment 2 collected a total of 178 questionnaires, of which the number of valid samples was 166. All samples included 63 males (37.95%), 97 females (58.43%) and 6 third-gender people (3.61%). There are more women online shopping consumers, so most of the female respondents can give more effective advice. The age range of the participants was mainly distributed between 20-49 (98.19%). The educational attainment of the participants was more distributed among university (13.25%, n=22) and doctorate (86.75%, n=144). And most of the participants had return experience (96.99%, n=161). Among them, the statistics of all participants are shown in Table 7, and the statistics of individual questionnaires are shown in Table 8, Table 9, Table 10 and Table 11.

	Sample size	Sample%
Total sample	166	86.67%
Gender		
Male	63	37.95%
Female	97	58.43%
Non-binary / third gender	6	3.61%
Prefer not to say	0	0%
Age		
20-29	37	22.29%

30-39	98	59.04%
40-49	28	16.87%
50-59	3	1.81%
Other	0	0%
Education level		
High school	1	0.6%
University degree	22	13.25%
PHD	144	86.75%
Other	0	0%
Have experiment to return		
not	0	0%
Probably not	5	3.01%
Might or might not	3	1.81%
Probably yes	82	49.4%
Definitely yes	76	45.78%

Table 6 Detailed statistics of all experimental participants

	Sample size	Sample%
Total sample	39	86.67%
Gender		
Male	14	35.9%
Female	23	58.97%
Non-binary / third gender	2	5.13%
Prefer not to say	0	0%
Age		
20-29	10	25.64%
30-39	20	51.28%

40-49	8	20.51%
50-59	1	2.56%
Other	0	0%
Education level		
High school	0	0%
University degree	4	10.26%
PHD	35	89.74%
Other	0	0%
Have experiment to return		
not	0	0%
Probably not	1	2.56%
Might or might not	1	2.56%
Probably yes	20	51.28%
Definitely yes	17	43.59%

Table 7 Detailed statistics of experimental participants for questionnaire 5

	Sample size	Sample%
Total sample	41	100%
Gender		
Male	16	39.02%
Female	24	58.54%
Non-binary / third gender	1	2.44%
Prefer not to say	0	0%
Age		
20-29	10	24.39%
30-39	25	60.98%
40-49	6	14.63%

50-59	0	0%
Other	0	0%
Education level		
High school	0	0%
University degree	6	14.63%
PHD	35	85.37%
Other	0	0%
Have experiment to return		
not	0	0%
Probably not	1	2.44%
Might or might not	1	2.44%
Probably yes	19	46.34%
Definitely yes	20	48.78%

Table 8 Detailed statistics of experimental participants for questionnaire 6

	Sample size	Sample%
Total sample	45	91.84%
Gender		
Male	19	42.22%
Female	23	51.11%
Non-binary / third gender	3	6.67%
Prefer not to say	0	0%
Age		
20-29	7	15.56%
30-39	35	77.78%
40-49	3	6.67%
50-59	0	0%

Other	0	0%
Education level		
High school	1	2.22%
University degree	5	11.11%
PHD	39	86.67%
Other	0	0%
Have experiment to return		
not	0	0%
Probably not	2	4.44%
Might or might not	1	2.22%
Probably yes	19	42.22%
Definitely yes	23	51.11%

Table 9 Detailed statistics of experimental participants for questionnaire 7

	Sample size	Sample%
Total sample	41	95.35%
Gender		
Male	14	34.15%
Female	27	65.85%
Non-binary / third gender	0	0%
Prefer not to say	0	0%
Age		
20-29	10	24.39%
30-39	18	43.9%
40-49	11	26.83%
50-59	2	4.88%
Other	0	0%

Education level		
High school	0	0%
University degree	7	17.07%
PHD	34	82.93%
Other	0	0%
Have experiment to return		
not	0	0%
Probably not	1	2.44%
Might or might not	0	0%
Probably yes	24	58.54%
Definitely yes	16	39.02%

Table 10 Detailed statistics of experimental participants for questionnaire 8

3.2.2 Materials and Procedure of Experiment 2

3.2.2.1 Simulate Shopping and Return Scenarios

The shopping scenarios read by the participants in Experiment 2 are the same as those in Experiment 1. Note that currently, the consumer defaults that the return behaviour is free. Because if the return is not free, it will affect the subjective judgment of consumers (for example, consumers will not only consider the benefits brought by the reward, but also the cost of the return. Therefore, the return that bears the freight will increase the consumer's interest in keeping the goods.). The difference is the reward information presented to the participants, which will be discussed in the next section.

3.2.2.2 Design of Reward Policy Information

Participants completed an online questionnaire for Experiment 2. The four related questionnaires were randomly assigned to all participants, and each participant could only participate in the completion of one questionnaire (avoiding mutual influence between the information). In the first questionnaire (Questionnaire 5), participants were provided with the first set of information about " Rewarding customers who keep a product". The question mentions that in the background of a known shopping environment, retailers offer consumers the following reward policy: “Consumers

who keep the product can participate in the lottery, with an 80% probability of getting a 15-pound coupon reward". In the second questionnaire (questionnaire 6), subjects were offered the following reward policy in the same shopping background as the other questionnaire: "Consumers who keep the product can participate in the lottery, and there is a 20% probability of not being rewarded by 15-pound coupon". In the first two questionnaires of this experiment, the reward policy is the same. That is, if the consumer keeps the product (and does not return it), there is an 80% chance of winning a 15-pound coupon reward, and a 20% probability of not receiving the reward. But in the two questionnaires, the policy was presented to the participants in different ways, to explore the price sensitivity of consumers when they felt that a certain behaviour brought them gains rather than losses (Cahyanti et al., 2021). In the third questionnaire (questionnaire 7), participants were presented with a third set of policies: Consumers who keep the product can participate in the lottery, with a 20% probability of getting a 15-pound coupon reward. Corresponding to the policy in the last questionnaire (Questionnaire 8) is: Consumers who keep the product can participate in the lottery, and there is an 80% probability of not being rewarded with a 15-pound coupon. In the first and third questionnaires, the probability of getting a coupon was different but the amount was the same. Based on the prospect theory, the hypothesis is that consumers are more inclined to participate in small-probability events. The simulated shopping environment in this experiment refers to Experiment 1. See Appendix C for information about the questionnaire for Experiment 2.

3.2.2.3 Willingness to Return

In Experiment 2, the dependent variable is still the consumer's willingness to return. But there are two independent variables. The first is the probability of reward, which has two levels: high and low. The second independent variable is the different presentation of the same information. In Experiment 2, the method of measuring consumers' willingness to return is the same as in Experiment 1, and also uses the 7-point Likert scoring method mentioned earlier. For details, refer to 3.1.2.3.

3.2.2.4 Other Measurements Related to The Questionnaire

In the design of the last two questions, we asked participants about their interest in the reward policy and invited participants to choose their reward preferences. Gelbrich et al., (2017) have studied incentive policies for retaining products. Their experiment concluded that retention policies worked among consumers who made purchases frequently. Because consumers can be rewarded through high-frequency shopping behaviour. In their questionnaire interviews, the next free

shipping order is a more effective incentive policy. Of course, this is aimed at high-frequency consumers. Therefore, the questionnaire of this experiment added a policy of reward vouchers or cash voucher rewards for participants to choose from.

3.2.2.5 The Hypothesis of Experiment 2

In the design of experiment 2, this study introduces the idea of prospect theory and the framing effect. According to the reinforcement principle, the promulgation of rewarding policies for keeping products further reinforces the desired behaviour of consumers (Parrish, 2010), as they are used for goals that are interpreted as consumers tend to approach. Previous research has shown that people's willingness to work increases with distance from a target. It also means that the more effort a person puts into their goals, the more motivated they will be (Dréze & Nunes, 2011). Therefore, the results of the following field experiments in restaurants proved this point of view. Kivetz et al., (2006) conducted a coffee reward experiment in a restaurant. When it is stipulated that the purchase of more than 10 cups of coffee, the 11th cup is free, and customers will frequently buy coffee. Because they want to try to get closer to the reward. As far as the reward policy involved in this experiment is concerned, customers should show a higher willingness to keep the product so that they can get closer to the goal of getting a reward that they can use on their next purchase.

Prospect theory mentions that people's psychology of "preferring low probability events" can help increase the attractiveness of insurance and gambling (Kahneman & Tversky, 2013). Through this principle, the specific content of the reward policy in this experiment increases the factor of "obtaining the probability of reward", with the expectation that consumers will be attracted to small probability events. The use of the framing effect is reflected in the use of different sentences to describe policies with the same result. This study conjecture that this affects changes in consumer decision-making (Miu et al., 2011). In particular, the representation of rewards versus "get" (determined benefit) and "don't get" (unknown risk) influences consumers' return decisions. Therefore, in experiment 2, the following assumptions are obtained:

H3: Compared with the same reward policy, small probability events will have a greater impact on consumers' decision-making (the smaller the probability of being rewarded, the smaller the consumer's willingness to return).

H4: For two reward policies with the same results, consumers' description of "get rewarded" is less willing to return than the description of "not rewarded". And the rewards policy will reduce consumers' willingness to return to a certain extent.

3.2.3 Statistics of Experimental Sample Data

I collected the willingness to return of all participants in experiment 2 under the four reward policies, a total of 177 valid sample data. As shown in Table 12 (Appendix D). The sample size of each set of data is different because some invalid samples (such as no online shopping experience, and low return frequency) are deleted. The sample sizes of the four groups of data are 39, 41, 45, and 41.

Chapter 4 Result Analysis

4.1 Data Analysis Overview

To further explore the impact of environmental risk and reward information on consumer return behaviour, I employed the analysis approach called analysis of variance (ANOVA) to obtain more quantitative results. Both experiments in this study focused on examining the relationship between multiple groups. Whereas ANOVA is suitable for examining whether there are statistical differences between groups. Therefore, the ANOVA method, which applies to multiple comparisons, was chosen for the analysis of the data in this paper (Connelly, 2021). Moreover, the results of the two experiments are obtained by analyzing the variance of the return willingness data collected in the questionnaire through the statistical software SPSS. Among them, the first experiment is to test the interactive influence of four groups of environmental display information and analyze the effectiveness of different information combination marketing. In Experiment 2, multiple tests were performed between the return responses of the subjects under four different reward policies. If the significance between each group under multiple comparisons is less than 0.05, it means that there is a significant difference between them, and the information group has an impact on the return decision (Okan et al., 2018).

4.2 Quantitative Results of Experiment 1 (Environmental information)

I used SPSS to analyze the variance of the data collected in Experiment 1 to further explore the impact of environmental information on consumers' willingness to return. First, I number different groups of information for easy analysis. The control group, namely the group without environmental information display, is numbered 1. The information group with the obvious degree of information display (figure + text) is numbered 2, and the information group with the obvious degree of "medium" (figure) number is numbered 3. The information group (text) number of the obvious

degree of "low" is 4. I analyzed the return intentions of the participants collected in the questionnaires corresponding to the four information groups and obtained the following results.

The results were descriptively statistically analyzed on four sets of data and Table 13 was obtained. The average return willingness of people in the control group is the highest, at 1.36. This shows that when there is no environmental information interfering with consumers' choices, people are most reluctant to change their decisions in the existing return scenarios. In the environmental information group of the combination of pictures and text, the average return willingness of consumers reached the lowest level, which was -1.56 (converges to -3 rather than 3). Initial speculation is that a high degree of environmental information has changed consumers' thinking about returns. But descriptive statistics can only roughly guess the results, and I need to have a more precise statistical analysis of this.

Descriptives

willingness to return

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
1	45	1.36	1.626	.242	.87	1.84	-3	3
2	45	-1.56	1.575	.235	-2.03	-1.08	-3	2
3	45	-.33	1.000	.149	-.63	-.03	-2	3
4	45	-.13	1.014	.151	-.44	.17	-2	3
Total	180	-.17	1.683	.125	-.41	.08	-3	3

Table 11 Descriptive statistics of four-level environmental information

It can be seen from the one-way variance table that the significance between groups is 0.001<0.05 (Table 14), which means that there are significant differences between at least two groups among these four information groups. That is, different information combination categories have an impact on consumers' return decisions. However, how it affects consumers' willingness to return, or what the difference is, the current results cannot be judged, so it is necessary to continue to analyze the output results of the system.

ANOVA

willingness to return

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	192.378	3	64.126	35.872	<.001

Within Groups	314.622	176	1.788
Total	507.000	179	

Table 12 ANOVA of Experiment 1

Since the results of the multiple analysis include the results of variance homogeneity and variance heterogeneity, I need to first look at the test results of variance homogeneity. As shown in Table 15, the results of the variance uniformity are significant, rejecting the null hypothesis, that is, the data of the return intention does not obey the assumption of the uniformity of the variance. Therefore, the Least Significant Difference (LSD) method cannot be used. The method chosen not to assume equal variance should be chosen, and the method chosen for this experiment is Tamhane's T2.

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
willingness to return	Based on Mean	4.844	3	176	.003
	Based on Median	1.775	3	176	.154
	Based on Median and with adjusted df	1.775	3	151.765	.154
	Based on trimmed mean	3.701	3	176	.013

Table 13 Tests of Homogeneity of Variances in Experiment 1

In the after-the-fact multiple comparison results, I need to look at Tamhane's T2 test results with heterogeneous variances. As shown in Figure 16, there are significant differences between information groups 1, 2, and 3 (0.001<0.05), but there is no significant difference between groups 3 and 4 (0.924>0.05).

Multiple Comparisons

Dependent Variable: willingness to return

	(I) information type	(J) information type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Tamhane	1	2	2.911*	.337	<.001	2.00	3.82
		3	1.689*	.285	<.001	.92	2.46
		4	1.489*	.286	<.001	.72	2.26
	2	1	-2.911*	.337	<.001	-3.82	-2.00
		3	-1.222*	.278	<.001	-1.97	-.47

	4	-1.422*	.279	<.001	-2.18	-.67
3	1	-1.689*	.285	<.001	-2.46	-.92
	2	1.222*	.278	<.001	.47	1.97
	4	-.200	.212	.924	-.77	.37
4	1	-1.489*	.286	<.001	-2.26	-.72
	2	1.422*	.279	<.001	.67	2.18
	3	.200	.212	.924	-.37	.77

*. The mean difference is significant at the 0.05 level.

Table 14 Multiple Comparisons between different independent variables in Experiment 1

From the mean plot (figure 2), I can also clearly see that the output of information has an impact on consumers' return decisions. Furthermore, with the increase in the obvious degree of information display, the consumer's willingness to return is lower, that is, a negative correlation relationship is presented.

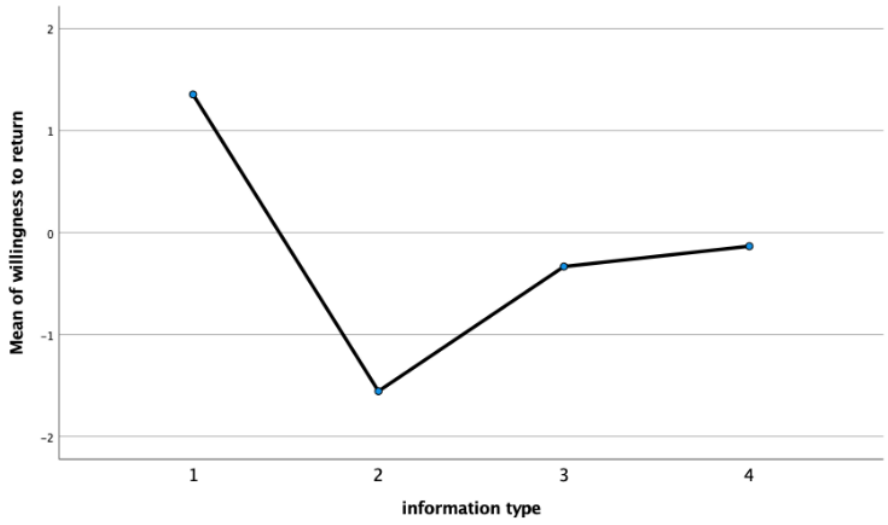

Figure 2 Mean of willingness to return (Experiment 1)

4.3 Quantitative Results of Experiment 2 (Rewards information)

According to the descriptive statistical analysis (Table 17), the degree of willingness of the participants to return the goods in the four cases was -1.64 (n=39, SD=1.135), -0.73 (n=41, SD=0.672), -1.6 (n=45, SD=1.176) and 1.93 (n=41, SD=1.93). Consumers are less willing to return under the first

and third incentive information policies. The first reward information has the lowest willingness to return, indicating that this policy has the greatest impact on consumers' return decisions. This is followed by Policy 3, Policy 2, and Policy 4. According to the test results (Table 18) of ANOVA, the significance value between groups is less than 0.01, so it must be less than 0.05. However, which groups of willingness differences arise requires further analysis of the results of multiple comparisons after the fact.

Descriptives

willingness to return

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min	Max
					Lower Bound	Upper Bound		
1	39	-1.64	1.135	.182	-2.01	-1.27	-3	3
2	41	-.73	.672	.105	-.94	-.52	-2	1
3	45	-1.60	1.176	.175	-1.95	-1.25	-3	3
4	41	1.93	.648	.101	1.72	2.13	-1	3
Total	166	-.52	1.729	.134	-.79	-.26	-3	3

Table 15 Descriptive statistics of four different reward policies

ANOVA

willingness to return

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	348.800	3	116.267	130.254	<.001
Within Groups	144.604	162	.893		
Total	493.404	165			

Table 16 ANOVA of Experiment 2

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
willingness to return	Based on Mean	5.609	3	162	.001
	Based on Median	3.216	3	162	.024
	Based on Median and with adjusted df	3.216	3	133.278	.025
	Based on trimmed mean	4.990	3	162	.002

Table 17 Tests of Homogeneity of Variances in Experiment 2

From the variance homogeneity test table (Table 19), it can be seen that the data of experiment 2 still does not obey the assumption of the degree of variance homogeneity of the degree of consumer willingness to return, so the multiple tests need to ignore the results of LSD and take the results of Tamhane's T2 for analysis. The results are shown in Table 20. There is a significant difference in the mean data of return willingness between group 1 and group 2, group 2 and group 3, group 3 and group 4 (the significance value is less than 0.05). However, there was no significant difference between Groups 1 and 3 (Table 20).

Multiple Comparisons

Dependent Variable: willingness to return

	(I) reward policy type	(J) reward policy type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound
Tamhane	1	2	-.909*	.210	<.001	-1.48
		3	-.041	.252	1.000	-.72
		4	-3.568*	.208	.000	-4.13
	2	1	.909*	.210	<.001	.34
		3	.868*	.204	<.001	.32
		4	-2.659*	.146	.000	-3.05
	3	1	.041	.252	1.000	-.64
		2	-.868*	.204	<.001	-1.42
		4	-3.527*	.202	.000	-4.07
	4	1	3.568*	.208	.000	3.00
		2	2.659*	.146	.000	2.27
		3	3.527*	.202	.000	2.98

Table 18 Multiple Comparisons between different independent variables in Experiment 2

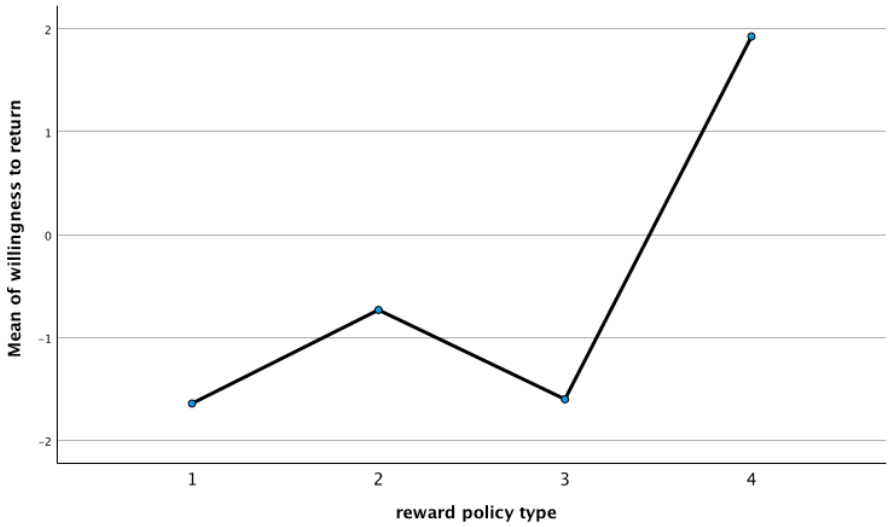

Figure 3 Mean of willingness to return (Experiment 2)

Chapter 5 Discussion and Advice

Retailers are quite concerned about the rapid spike in return rates in recent years. In response, this study needs to help retailers explore marketing policies related to disclosure to attract consumers to reduce their willingness to return and determine whether they can play a key role in practice. In order to assess whether the disclosure of information in the two aspects of "environmental damage" and "reward policy for keeping product" has the effect of reducing the return rate in the real return scenario, I designed two sets of randomized controlled experiments.

5.1 Analysis and Discussion of Quantitative Results

This study aims to investigate information marketing methods that can reduce consumer return rates based on information presentation methods. It is one of the goals of this study to find out specific information display methods in terms of environment and reward.

5.1.1 Analysis of The Quantitative Results of Experiment 1

The model results of Experiment 1 show that based on the 95% confidence interval, the three forms of figure + text, only figure and only text will affect the consumer's return decision to a certain extent. However, there is no significant difference between the latter two forms of information presentation. Furthermore, the form of information disclosure of figure + text has the greatest

impact on consumers' willingness to return goods. Hence, the findings of experience 1 are consistent with the previous study by Stone (2017) that the display form of environmental risk factors in figure + text will have a greater impact on human behaviour. However, this research also provides new evidence that consumers' willingness to return increases as the degree of information visibility decreases. In the relevant context of this essay, that is, the display form of pictures + text has the most effective impact on changing consumers' return behaviour. The second is the information displayed only in pictures, and finally the information in plain text. Combined with previous research, text-only risk information can only inform people about risk knowledge in the field but does not change their substantive inner thoughts (Shah, 1999).

It should be emphasized that the samples used in this study were all highly and well educated, which could have implications for the generalizability of the experiment result. Because people with a good educational background know more about the subject of "environmental pollution on human beings", they are more receptive to the information. However, there are also very few cases, that is, if the information combined with different pictures and texts leads to greater behavioural changes in highly educated people, then I found in the experimental that “98.33% of people holding positive attitudes and willing to understand environmental information” (shown in figure 4) results may exaggerate the situation in the general population. On the other hand, a well-educated sample may already be well informed about the environmental damage of the product return process, so retailers may have less new information for them on the packaging to fundamentally influence their return decisions.

5.1.2 Analysis of The Quantitative Results of Experiment 2

In the research work of Experiment 2, in order to reduce the return rate in the retail industry by reducing the willingness of consumers to return, this study introduces reward policies as a new marketing strategy. If the consumer chooses to keep the purchased product, there is a certain probability of being rewarded by retailers. This rewarding behaviour incentivizes consumers to reduce product returns. I learned from online interviews with consumers before the experiment that they were more receptive to the "reward policy". Most people are willing and interested in seeing such activity during the shopping process (75.9%, n=126) (shown in figure 6). Therefore, the original intention of the incentive policy based on this study is feasible. And it can also be regarded as an incentive for repurchasing by consumers.

As a core contribution to the research of Experiment 2, I find that the probability of reward and the way of information presented in marketing activities both affect consumers' decision to return products. This is a completely new study, and no researcher has done it before. Hence, I get a whole new conclusion. The results of the study show for the first time that people's fascination with low-probability events can be considered to incorporate probability factors into the formulation of reward marketing strategies. This is also in line with the assumptions in prospect theory. When presented with the same reward information, consumers were more likely to see a “reward” message rather than a “no reward”. This can also be considered by retailers as a marketing tool to incorporate into the formulation of policy strategies.

From the results of the data analysis in Chapter 4, it is clear that consumers’ willingness to return products under the first and third incentive policies is lower, followed by the second policy. Moreover, the return willingness is highest under the fourth policy. For the reward scenario and the punishment scenario (the behaviour of not getting a voucher reward is regarded as a punishment), the final return result of the subjects is affected by the return habits on weekdays, resulting in uncertainty. The subjects made different choices when faced with the same probability of "reward" and "no reward". Faced with the reward, the subjects felt pleasant and willing to change their original decision to return the product. In the face of loss, the subjects felt oppressive, so they were afraid that they would not be able to get the reward, which made their decision to return. Therefore, the first hypothesis in experiment 2 is established, that is, policy 1 (M=-1.64) is better than policy 2 (M=-0.73), and policy 3(M=-1.6) is better than policy 4 (M=1.93). This is also in line with the definition expressed in the framing effect that "people tend to obtain certain benefits but unconsciously choose to avoid risks".

In addition, from the point of view of the probability of obtaining rewards, policy 3 is better than policy 1. This also verifies the authenticity of the second hypothesis in Experiment 2, that is, people tend to be attracted by small probability events most of the time (Policy 1 and Policy 3 both indicate to consumers that they have a chance to get an equal amount of reward, but the probability of Policy 3 is less than that of policy 1). However, this may contain complex individual psychological factors. For example, consumers who have no habit of returning goods in real life will be firmer in their choice to keep the goods when they see the reward information for keeping the goods. And some consumers who originally wanted to return may choose to return but find that this reward program is beneficial to them, thus changing their idea of returning. Those consumers who originally had a strong willingness to return, or had a very high frequency of returns, may think that they will

be rewarded with a high probability, and thus tend to reduce their willingness to return. Therefore, the consumer's decision to return is influenced by how the reward probability is presented. When only a few people can get the reward, consumers are more inclined to reduce their willingness to return compared to the high-probability scheme.

It should also be noted that the educational level of the samples in Experiment 2 was generally higher than that in Experiment 1 (the proportion of PhD was 86.75%>58.33%) (shown in Table 7). Often, in reality, the higher the education level, the greater the risk appetite. And men tend to be more risk-averse than women (as evidenced by the fact that there are far more men than women in the investment industry) (Woods et al., 2020). Therefore, I speculate that one of the reasons for the experimental result that "consumers are easily attracted to events with small probability" is also related to the higher education level of the sample. Although the higher number of female participants in this experiment slightly neutralized some of the effects of higher education. Because the sample acquisition is random, I need to increase the sample size in future studies to reduce the influence of education level and gender on the test results.

5.2 Qualitative Analysis of Experiment 1

In the analysis and integration of the answers to the qualitative questions in Experiment 1, I found that most of the participants chose "Yes" and "Maybe" (98.33%, n=177) among consumers' attitudes toward whether they were willing to accept environmental information. Moreover, only very few participants chose "No" (1.67%, n=3). These findings indicate that most consumers have an attitude of not rejecting the behaviour of retailers to disclose environmental information during their shopping. And under the premise of not rejecting, most people with positive attitudes (66.1%, n=117). For retailers, this is a positive conclusion, because it can be proved that most consumers are not exclusive and willing to "disclosure of environmental information", I can also make marketing suggestions to retailers on environmental information disclosure. Moreover, making the marketing suggestion have a good effect within a predictable range. It is not because the consumer's rejection of information acceptance makes the proposed suggestions fail to have a key effect. (Shown in Figure 4)

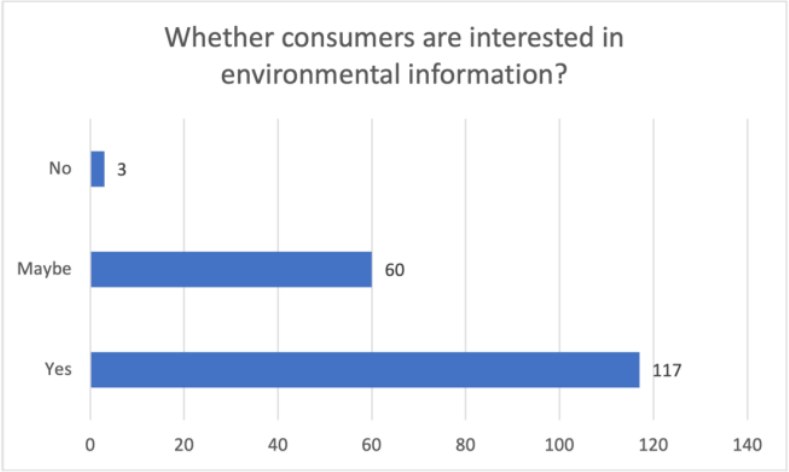

Figure 4 Consumers' interest in environmental information

The content preferences for environmental damage information were also asked about the results in the questionnaire because most participants did not reject the disclosure of environmental information. Surprisingly, consumers' preference for environmental information is almost the same in terms of "secondary packaging" and "transportation" (n=111:110). See Figure 5. Furthermore, some participants are interested in both types of information at the same time. Therefore, to satisfy the interests and preferences of all consumers, it is recommended to involve two aspects of environmental damage information in the information disclosure process. In addition to some known environmental information provided to participants, for example, the information disclosure content of "transportation" will involve greenhouse gases such as carbon dioxide, and the information disclosure content of "secondary packaging" will involve extensive forest damage. Participants who selected the "Other" option also made some suggestions for environmental disclosures. Some participants mentioned the accumulation and storage of returned items. They believed that the accumulated secondary products to be sold would occupy environmental space to a certain extent, so they were more worried about resource allocation. Other participants mentioned that secondary packaging will affect the habitat of wild animals. In addition, I hope to see some pictures of environmental pollution during the shopping process, to understand the different types of environmental pollution caused by the return behaviour.

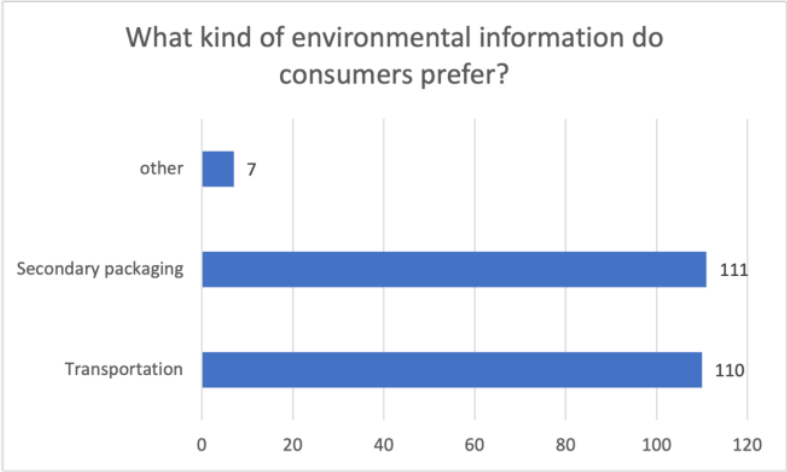

Figure 5 Content of environmental information of interest to consumers

To sum up, retailers' idea of using environmental information disclosure to customers for reducing the return rate can be gradually realized from the following aspects. They can add signs with environmental damage information on product packaging, on the surface of packaging boxes, or on shopping pages that consumers can see in their shopping process. The combination of graphics and text to display information is the best way. What needs to be shown to consumers is that this environmental information is caused by their return behaviour. And place this emphasis in text form around the relevant image. Since most consumers are willing to accept the disclosure of environmental information and come up with some relevant advice, the specific content of the information can be planned according to these specific suggestions. For example, consumers are interested in the environmental pollution caused by secondary packaging and transportation. Retailers can then break down these two types of pollution into more specific factors. For example, secondary packaging will cause extensive forest erosion and make wild animals lose their habitat. The gas pollution caused by transportation will directly affect the living environment of human beings. Disclosing these specific and different types of environmental damage factors with pictures in the consumer's shopping process will greatly reduce the consumer's desire to return. Therefore, the return rate is reduced to a certain extent.

5.3 Qualitative Analysis of Experiment 2

Compared with the results of Experiment 1, in terms of consumers' interest in information disclosure, more people are willing to accept reward information (75.9%, n=126). However, only a small number of consumers hold an attitude of indifference and unwillingness (24.1%, n=40).

Moreover, unlike the result of Experiment 1, consumers no longer hold relatively similar attitudes towards different reward information preferences. More consumers prefer cash or voucher rewards (58.15%, n=107) over free shipping (41.85%, n=77). The reason for this may be that consumers do not shop frequently, and they are not sure when to shop neat time. So, the reward of free shipping is an uncertain behaviour for them. Cash and voucher rewards can encourage them to shop, so they are a more reasonable strategy for consumers and retailers. Finally, none of the participants selected the "Other" option, and more suggestions were made. It may be because the reward policy types in online shopping are relatively limited, thus limiting the imagination of the participants (Figure 6 and Figure 7).

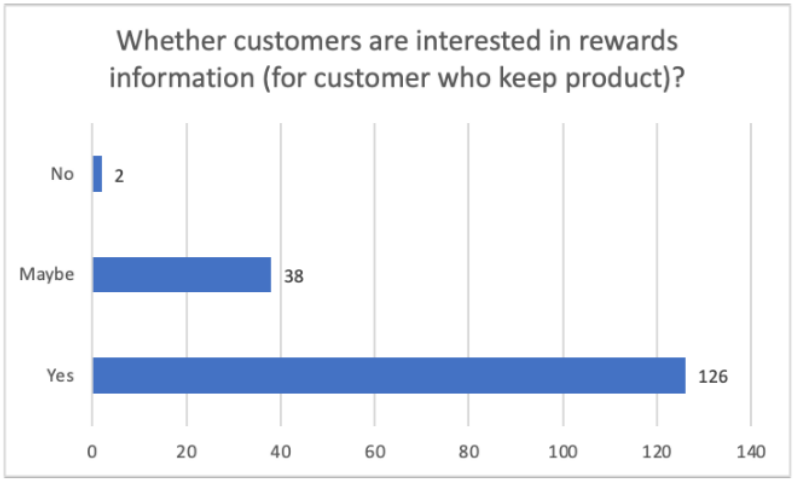

Figure 6 Consumers' interest in rewards information

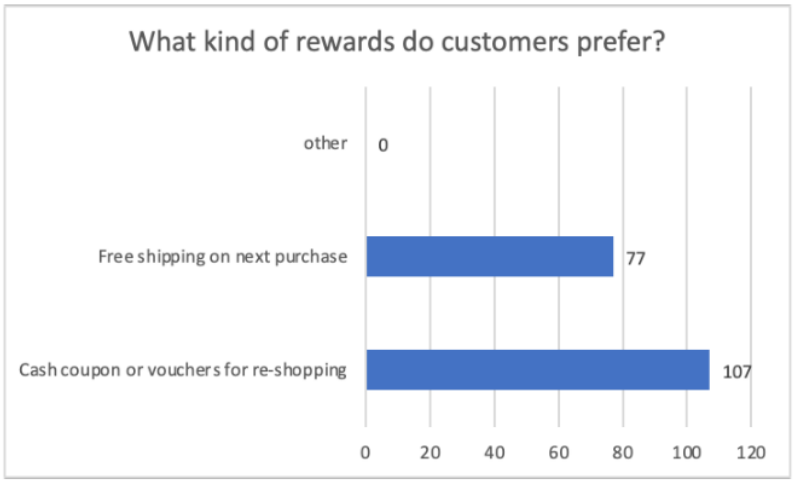

Figure 7 Content of rewards information of interest to consumers

Combined with the results of quantitative analysis, in order to meet the psychological expectations of more consumers, retailers need to add vouchers to the formulation of rewarding policies. Then the strategy can refer to the incentive policy design in Experiment 2. At the same time, the probability factor is introduced, catering to the psychology of consumers who prefer small probability events and disclosing some low probability winning events. Furthermore, under the premise of guaranteeing revenue, retailers can use "voucher" rewards as one of the main strategies to attract customers to keep products. Based on previous scholars' research on rewards for customers who keep product strategies, high purchase willingness and low rates of return can be achieved simultaneously (Gelbrich et al., 2017). Hence, retailers' concerns that the new policy will reduce consumers' willingness to purchase are unnecessary. However, referring to previous research, rewarding policies are effective for consumers who shop online more often because they are more inclined to repurchase and benefit from rewarding policies. Therefore, combined with the conclusions of Experiment 2, retailers can use consumer interest in "vouchers" to develop rewarding strategies and designate the main target users as "high-frequency consumer groups". In addition, it is worth noting that the reward policy should be fully publicly disclosed to consumers on the retailers' website, rather than specifically for customers who are willing to return. This is because if such exclusivity exists, it can lead to consumer dissatisfaction (Dimoka, 2010). But there is another possibility that rewarding policies may reduce the desire to purchase the product by consumers who do not shop often. Because when they receive a product which they don't like at all, they wonder if the shopping platform forces them to keep the product (DeCarlo, 2015), thus creating a tendency to resist (Kivetz, 2005).

5.4 Suggestions on Disclosure of Environmental Pollution Information

In the above discussion, I have obtained that the use of "environmental pollution" related information can stimulate consumers to reduce their willingness to return. Furthermore, it is found that the information displayed combined with pictures and texts will be more positively evaluated by consumers. This shows that this combination of picture and text design can not only help consumers better understand the risk of environmental damage, but also help improve the user's experience in the shopping process. As for the inspiration for the disclosure of specific environmental information, retailers can design from two aspects of secondary packaging and transportation. First of all, images are an effective information factor that can visually and visibly measure the magnitude of the risk. The design of a 'logo' can therefore start with a relevant image.

For example, 8.3 million tonnes of plastic enter the oceans each year in the form of packaging, causing significant marine pollution (Ryberg et al. 2018). The style of these images could be considered for inclusion in the design of the disclosure. This is consistent with contextual salience (Stone et al. 2003). At the same time, the design of the picture can add the elements of "earth" and "plastic packaging" to strengthen consumers' concerns about environmental damages. The environmental pollution involved in shipping is also multi-faceted. Therefore, many points can be added to the logo design. For example, with the increase in carbon emissions, the trend of global warming is becoming more severe. There are many factors that cause carbon emissions, such as the transportation industry and factory emissions. The design in Experiment 1, for example, shows environmental pollution using cartoon drawings. It also combines several elements such as the earth and environmental pollution (see Appendix A).

Consumers usually meet information only after browsing the web page and after receiving the package (Russell, 2014), so the location of information design is also very important. However, the design of multiple layers of packaging is diverse (Denham et al., 2015). The first layer of product packaging is called primary packaging, which refers to the packaging that is in direct contact with the product. Such as cans and bread bags. Secondary packaging refers to the repackaging of multiple primary packaging, such as cartons. Moreover, tertiary packaging usually does not reach consumers directly because they are designed for in transit. Thus, in order to reach consumers directly, retailers should choose to disclose environmental information on the surfaces of primary and secondary packaging that consumers have the most contact with. In addition, so many more complex packaging forms have many potential environmental impacts (Flanigan et al., 2013). The more immediate environmental damage is the reproduction of metals, plastics, paper, and recycling processes (Lindh et al., 2016). Therefore, retailers can display the above environmental pollution facts to consumers in primary or secondary packaging with short text and pictures.

5.5 Suggestions on Disclosure of Rewards for Keeping Product Information

This study mentioned above that rewarding policies is useful for reducing returns. Therefore, retailers need to develop different marketing strategies for different industries. For industries with high product return rates, such as online retailers in the fashion area such as accessories and clothing, promotion of keeping product incentives is recommended. At this time, retailers who formulate a reward strategy can ideally achieve a higher willingness of consumers to keep products, thereby driving their tendency to shop online frequently. The result of such marketing is not only an

increase in turnover but importantly, a reduction in the rate of product returns, thereby reducing the retailer's return processing costs. In short, the rewards policy will bring about an increase in profit margins. However, when using the strategy, retailers must realize that the most important decision of the consumer is to keep the product rather than return it. So, they should focus on how to attract customers to keep the goods. For example, the incentive policies mentioned in this dissertation can be used by retailers as a major promotional tool. Correct use of website information dissemination, because it plays an important role in customer perception of information and loyalty to the website (Collier & Bienstock, 2006).

Next, retailers should focus on offering keeping product incentives to low- and mid-priced product users. First, the monetary value of the incentive policy should be significant compared to the product price (Yin & Dubinsky, 2004). For example, on a dress worth 20 pounds, consumers can save 10 pounds on their next purchase with a cash coupon earned through rewards. This policy will be very attractive to consumers to make a second purchase. But if it's an expensive luxury item like a 100-pound dress, the retailer needs to offer a reward of even greater value. This reward is inefficient (Gelbrich et al., 2017). Second, consumers are more receptive to low-to-mid-priced products if they don't like them 100%. And if they expect to benefit from the behaviour of retaining the product, they are more willing to co-create to adapt to demand (Xia & Suri, 2014).

Chapter 6 Conclusion

6.1 Limitations and Prospects for the Future Research

This study has some limitations that provide clear and effective ideas for improvement for future research. First, I am not sure if the online shopping process will amplify or narrow down the cost of returns and the information anxiety that environmental pollution brings to consumers. For example, the era of transparent information and convenient Internet will prompt e-commerce companies to send consumers negative information (in the form of email or TEXT messages) related to returns, including cost or environment. So, I can not be sure whether this "interaction" will indirectly or directly affect consumers' return decisions in small links. (Moore et al., 2020) With the comprehensive development of the retail industry, both online and offline return processes should be systematically studied, because the two methods have a big difference - online returns bypass the process of interacting with employees, while offline returns involve a lot of negotiations between consumers and staffs (Pei & Paswan, 2018). Finally, future research should explore

whether differences in online and offline return processes can indirectly influence consumers' return decisions. Specifically, it remains to be verified whether the specific online and offline return process involves other relevant influencing factors. In the future, I can study this aspect in more depth so that I can more clearly understand the consumer's return intention and help retailers avoid consumer return behaviour or reduce the return rate of products. This is undoubtedly a good outlook for both businesses and environmental protection.

Second, the setting of the shopping scenario involved in the experimental design is also limited. In a simulated shopping scenario set in the study, consumers purchased items for 15 pounds. In fact, in the real shopping scene, the factor that affects the final decision of consumers to return the goods may also be the price of the goods that they bought (Gelbrich et al., 2017). Therefore, it can be reasonably guessed that if consumers are dissatisfied with the product, the price of the product is proportional to the consumer's willingness to return. That is, the more expensive the item customers are willing to return, the less likely they are to consider other factors. However, this is just a more reasonable guess, and if it wants to be proved, I need to do more in-depth research in the future. This study only focuses on whether the provision of different information will change the decision of consumers to return goods, and the price factor is not the focus. Therefore, the assumption about the price is in line with the meaning of the question. As for the setting of the reward coupon price in the "reward policy" marketing strategy of Experiment 2, this research sets it as the same as the product pricing setting. The purpose is to avoid the interference information brought by the price difference from affecting consumers' judgment. If the resulting marketing recommendations are used by retailers in practice, a more accurate pricing system is required to complete the pricing of coupons.

Third, in the process of sample collection, there are certain limitations in the number of samples. From the results, it can see that the data mean the difference between Policy 1, Policy 2 and Policy 3 in Experiment 2 is small. Although the results are in line with the experimental hypothesis, the average number of samples after excluding invalid samples is less than 45. Therefore, in subsequent studies, the sample size needs to be increased in the experiment to obtain more convincing results. However, too much sample size is also not conducive to better results in the experiment, because more abnormal factors will be introduced. As a result, the number of invalid samples that need to be eliminated will be more.

This dissertation provides several important directions for future research. There should also be an investigation into whether different kinds of disclosures influence consumers' return decisions. For

example, the cost involved in the return process for consumers, or the impact of return on the national economy. Disclosure research in a variety of fields will underpin the robustness of these findings. Another need mentioned is that follow-up research should explore how to make the information on the packaging easier to understand. Other such studies will further help us understand the impact of disclosures on consumer decision-making.

6.2 Conclusion and Practical Implications

The findings of this dissertation suggest that both environmental pollution and retention of reward information alter consumers' return decisions. As environmental information becomes more visible, consumers' willingness to return products decreases. The policy of being rewarded for keeping the product also reduces consumers' willingness to return to some extent. Despite the use of three different levels of environmental information, all experimental groups showed that consumers' willingness to return products became less positive due to the influence of environmental information. In addition, because of consumers' “small probability event preference”, a small probability voucher acquisition policy was preferred. In conclusion, it is possible for retailers to use information disclosure to mitigate the severity of return problems, as consumers are more sensitive to the risk factor of information intake. Therefore, it would be effective to design marketing strategies to reduce consumer return rates in terms of both environmental pollution and rewarding policy for keeping the product.

Appendix A Three Different Levels of Environmental Information

Figure 8 high level (figure+text)

Figure 9 medium level (figure)

Figure 10 low level (text)

Appendix B Questionnaires for Experiment 1

Questionnaires for Experiment 1 showed as follow. Only question 7 is different in the four questionnaires and the others are the same.

1. What is your gender?

a. Male

b. Female

c. Non-binary / third gender

c. prefer not to say

2. What is your age?

a. 20-29

b. 30-39

c. 40-49

d. 50-59

e. Other

3. your education level?

a. high school

b. university degree

c. PHD

d. Other

4. Have you ever purchased items on a UK retail shopping site (e.g. Amazon, eBay, etc.)?

a. Definitely not

b. Probably not

c. Might or might not

d. Probably yes

e. Definitely yes

5. Have you ever made a product return?

a. Definitely not

b. Probably not

c. Might or might not

d. Probably yes

e. Definitely yes

6. How often do you return your products?

a. Always

b. Most of the time

c. About half the time

d. Sometimes

e. Never

7 (Questionnaire 1). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

What is your willingness to return at this time? (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return product)

a. -3
b. -2
c. -1
d. 0
e. 1
f. 2
g. 3

7 (Questionnaire 2). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the information on the packaging of the product that the return will cause environmental pollution (the relevant identification information is as follows). What is your willingness to return at this time? (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return).

a. -3
b. -2
c. -1
d. 0
e. 1
f. 2
g. 3

7 (Questionnaire 3). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the information on the packaging of the product that the return will cause environmental pollution (the relevant identification information is as follows). What is your willingness to return at this time? (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return).

a. -3
b. -2
c. -1
d. 0
e. 1
f. 2
g. 3

7 (Questionnaire 4). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the information on the packaging of the product that the return will cause environmental pollution (the relevant identification information is as follows). What is your willingness to return at this time? (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return) .

a. -3
b. -2
c. -1
d. 0
e. 1
f. 2
g. 3

8. Do you want retailers to show consumers the environment issues involved in the returning process to help you understand the environmental hazards brought by this process?

a. Yes

b. Maybe

c. No

9. What kind of environmental information do you consider getting from the retailers during the shopping process?

a. Transportation (greenhouse gases such as carbon dioxide, etc.)

b. Secondary packaging (will cause extensive forest damage, etc.)

c. Other

Appendix C Questionnaires for Experiment 2

Questionnaires for Experiment 2 showed as follow. Only question 7 is different in the four questionnaires and the others are the same.

1. What is your gender?

a. Male

b. Female

c. Non-binary / third gender

c. prefer not to say

2. What is your age?

a. 20-29

b. 30-39

c. 40-49

d. 50-59

e. Other

3. your education level?

a. high school

b. university degree

c. PHD

d. Other

4. Have you ever purchased items on a UK retail shopping site (e.g. Amazon, eBay, etc.)?

a. Definitely not

b. Probably not

c. Might or might not

d. Probably yes

e. Definitely yes

5. Have you ever made a product return?

a. Definitely not

b. Probably not

c. Might or might not

d. Probably yes

e. Definitely yes

6. How often do you return your products?

a. Always

b. Most of the time

c. About half the time

d. Sometimes

e. Never

7 (Questionnaire 1). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the following information on the product packaging or shopping page about rewarding customers who keep the product: **Consumers who keep the product (no return) can participate in the lottery, and there is a 80% probability of getting a 10-pound voucher reward.** At this moment, your willingness to return is (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return):

a. -3

b. -2

c. -1

d. 0

e. 1

f. 2

g. 3

7 (Questionnaire 2). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the following information on the product packaging or shopping page about rewarding customers who keep the product: **Consumers who keep the product (no return) can participate in the lottery, and there is a 20% probability of not getting a 10-pound voucher reward.** At this moment, your willingness to return is (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return):

a. -3

b. -2

c. -1

d. 0

e. 1

f. 2

g. 3

7 (Questionnaire 3). Read the shopping scenario below, then answer the question.

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the following information on the product packaging or shopping page about rewarding customers who keep the product: **Consumers who keep the product (no return) can participate in the lottery, and there is a 20% probability of getting a 10-pound voucher reward.** At this moment, your willingness to return is (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return):

a. -3

b. -2

c. -1

d. 0

e. 1

f. 2

g. 3

7 (Questionnaire 4). Read the shopping scenario below, then answer the question.

Appendix C

When you are a shopper on a retail site, bought a 15 pounds wooden table last week. You find it doesn't fit or you don't like it when you received (not due to quality issues). At this moment, you have the idea of returning.

When under the conditions of return of the premise background, you suddenly see the following information on the product packaging or shopping page about rewarding customers who keep the product: **Consumers who keep the product (no return) can participate in the lottery, and there is a 80% probability of not getting a 10-pound voucher reward.** At this moment, your willingness to return is (The order from -3 to 3 is from particularly weak willingness to return to particularly strong willingness to return):

a. -3

b. -2

c. -1

d. 0

e. 1

f. 2

g. 3

Appendix D Return Willingness Form

No environment information	High level (figure +text)	Medium level (figure)	low level (text)
3	-2	-1	-1
2	-3	0	0
2	1	-1	0
2	-2	1	0
1	2	0	0
1	1	-1	-1
2	-2	0	0
1	2	0	-1
2	0	0	2
-2	-3	0	0
3	2	-1	-1
1	2	1	0
0	2	0	-1
2	-2	-1	0
3	-1	-1	-1
1	-2	0	0
2	-3	1	0
0	-3	-1	0
2	-2	1	0
1	-2	-1	0
-2	-1	-1	-1
2	-2	0	2
3	-2	-1	2

2	-2	0	3
0	-2	-1	2
2	-3	-1	1
3	-2	-1	0
0	-3	-1	0
2	-2	-1	-1
2	-2	-1	0
-3	-3	-1	-1
3	-3	-1	-1
2	-3	0	-2
2	-3	-1	-1
-3	-2	-1	-1
3	-2	-1	0
2	-2	3	-1
-1	-1	2	0
3	-2	-1	-1
-1	-2	0	0
1	-2	-1	0
1	-3	-1	0
3	-2	0	-1
3	-2	2	0
3	-3	-2	-1

Table 19 Questionnaire data statistics (consumers' willingness to return under the control group and the display of three environmental information)

Reward Policy 1	Reward Policy 2	Reward Policy 3	Reward Policy 4

1	-1	-3	2
-3	-1	-2	2
-1	-1	-2	2
-2	0	-1	2
-2	-1	-1	2
-2	-1	-1	2
-2	-1	-2	3
-2	0	-3	2
-1	-2	-1	2
-3	0	-1	2
-2	-1	-1	2
-1	-1	-1	2
3	-1	-2	1
-2	-2	-2	2
-3	-1	-1	2
0	0	-1	2
-2	-2	-2	2
-1	-1	1	2
-2	1	-3	2
-2	-1	-2	2
-3	-1	-2	3
-1	0	-3	2
-1	-1	-2	2
-2	1	-2	2
-2	-1	-1	-1
-3	-1	-1	2

-2	-1	3	1
-1	0	-2	2
-2	-1	-3	2
-2	-1	-2	2
-1	-1	-2	2
-1	-1	-2	2
-2	0	-2	3
-2	0	1	1
-1	-1	0	2
-2	-1	-2	3
-2	0	-3	1
-3	-1	-2	2
-2	0	-1	2
	-1	-3	2
	-1	-2	2
		-2	
		-3	
		-2	
		-1	

Table 20 Willing data statistics of experimental 2

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