

Improving Customer Behavioral Intentions by Closing the Loop

Gunter Biesemans

851015965

Faculty: Management Science

Marketing and Supply Chain Management

First supervisor: MSc. Quan Zhu

Second supervisor: Prof. Dr. Ir. Harold Krikke

Abstract

The environmental aspect has become a very important topic for supply chain managers nowadays. Not because it's a trendy topic, but because of its advantages for the company and because of the governmental environmental regulations (Murray, 2000; Beamon, 1999). Green, Zelbst, Meacham & Bhadauria (2012) showed us that green supply chain management can lead to improved economic performance. A specific example of green supply chain management is a closed loop supply chain (CLSC) product. CLSC includes several aspects such as product design and product recovery, where recovery can be defined as repair, refurbishing, remanufacturing, cannibalization and recycling. A literature gap concerning the relationship CLSC characteristics and customer behavioral intentions (CBI) has been found. Will there be any effect on CBI if a company would create CLSC products? Will customers keep on buying products if the product was a CLSC product? Previous research from Hazen, Cegielski & Hanna (2011) has already investigated if a green product has a positive influence on competitive advantage. In this research, product quality will be joined by low price and product availability (three CLSC characteristics), which could influence CBI. In this relationship, one aspect has been added, customer perception about environmental responsibility, since this could influence the outcome. The purpose was to investigate if people that have a good perception about environmental responsibility of the focal company, would have better behavioral intentions than people that have a bad perception about environmental responsibility of the focal company. After the results, the conclusion could be made that CLSC characteristics (which consists of product quality) have a positive influence on CBI, with customer perception about environmental responsibility as moderator.

Table of contents

- 1. Introduction..... 5
- 2. Literature review 7
 - 2.1 GSCM 7
 - 2.2 Closed loop supply chain (CLSC) 8
 - 2.3 CLSC characteristics 9
 - 2.4 Customer behavioral intentions (CBI) 12
 - 2.5 Customer perception about environmental responsibility 13
 - 2.6 Moderator 14
- 3. Research design and methodology 16
 - 3.1 Data collection 16
 - 3.2 Questionnaire design..... 17
 - 3.2.1 CLSC product characteristics..... 17
 - 3.2.2 Customer behavioral intentions (CBI)..... 19
 - 3.2.3 Customer perception about environmental responsibility 19
 - 3.2.4 Conceptual model..... 19
 - 3.2.5 Overview items questionnaire 21
- 4. Results 23
 - 4.1 Analyzing data..... 23
 - 4.2 Measurement model 24
 - 4.2.1 Factor analysis 24

4.2.2 Convergent validity	25
4.3 Structural model	26
5. Discussion, theoretical and practical implications	28
5.1 Discussion and theoretical implications	28
5.2 Practical implications	31
5.3 Limitations and implications for future research	33
6. Conclusion	35
References	36

1. Introduction

Green supply chain management (GSCM) has become a very trendy topic these days. Supply chain managers tend more to consider environmental aspects in their decision making process. Not only because of the awareness that people should actually do something for the environment, but also because of the governmental environmental regulations (Murray, 2000; Beamon, 1999) and the fact that the adoption of GSCM practices leads to improved economic performance (Green et al., 2012). IBM for example introduced its green supply chain a few years ago, asking his suppliers to act in a green way. IBM was convinced that the green path is a profitable one (Winston, 2010).

Since the adoption of GSCM practices could lead to improved economic performance, GSCM can be used as a competitive advantage against competitors. The logic is that customers would choose a company which adopts GSCM, and hence, the focal company would have a competitive advantage. In fact, it could also influence the customer behavioral intentions (CBI). The construct of behavioral intention derives from the theory of reasoned action (TRA) literature (Fishbein & Ajzen, 1975). Zeithaml, Berry & Parasuraman (1996) discussed that the positive behavioral intentions are related to loyalty, word-of-mouth and paying premium price. Thus, positive CBI should lead to repurchases of the product.

Hazen et al. (2011) did research about the perceived quality (differentiation) of green reverse logistics. Their findings suggest that the adoption of GSCM practices may not necessarily lead to competitive advantage due to perceived quality issues, although literature supports the proposition that GSCM leads to competitive advantage (Markley & Davis, 2007). That's why firms who adopt GSCM need to compete on other dimensions than quality to influence CBI. Hazen et al. (2011) suggested for example low price as another dimension. We suggest that operational excellence is a solution to influence CBI. It is one of the three value disciplines that companies with great leadership positions in their industries have used (Treacy & Wiersema, 1992). The other two value disciplines are customer intimacy and product leadership. Operational excellence means providing customers with reliable products at competitive prices and delivered with minimal difficulty

or inconvenience. In this definition, we can find three items: product quality (reliable products), low price (competitive prices) and product availability (delivery with minimum inconvenience). These will be the three CLSC product characteristics.

There is still one remark to make about the relationship between CLSC product characteristics and CBI: customer perception about the environmental image of the focal company can both have a positive or negative influence on behavioral intentions. For example: if the customer perceives a bad image about the environmental responsibility of the focal company, the customer will have no intention to repurchase, even though the product quality of the CLSC product is better than a non CLSC product, even though the price of the CLSC product is lower than a non CLSC product and even though the CLSC product is more available than a non CLSC product. Zeithaml & Bitner (1996) identify image as the ability to influence customer perceptions of the services offered by an organization. In this research, the customers' perception of the image of the focal company will be narrowed to the environmental image of the focal company. The focal company can be seen as a brand owner in this research.

The relationship between CLSC product characteristics (low price, product availability and product quality) and CBI will be investigated, with customer perception about environmental responsibility as potential moderator, since there is a gap in this research field. To do so, the structure of this research will be as follows. First, I will review extant CLSC literature to define the concept of CLSC. Then, I will review literature regarding the CLSC characteristics, where I will explain why they could influence CBI. CBI will also be reviewed. This will be followed by literature review on the customer perception about environmental responsibility, which will serve as potential moderator. After the literature review, the hypotheses will be formed followed by the chosen research methodology. The results of this research will then be discussed and the hypotheses will be tested. At the end, conclusions will be made with theoretical implications, limitations of this research, practical implications and recommendations for future research.

2. Literature review

This research tries to clarify several aspect around green supply chain management. First of all, we need to know what green supply chain management entails, as well as closed loop supply chains and their characteristics. Firms will try to adopt GSCM and so they need to know how they can use the characteristics from a CLSC product as an advantage with regards to their competitors. This can be possible by influencing CBI positively. And so we need to check if CLSC characteristics are positively related to CBI.

2.1 GSCM

GSCM can be considered as a relatively advanced management practice for manufacturers to improve their environmental performance (Narasimhan & Carter, 1998). Regarding the implementation of GSCM practices, there are some possibilities. One of them is reverse logistics, which can be defined as the process of planning, implementing and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or for proper disposal (Rogers & Lembke, 1999). A second possibility, which enlarges the concept of the previous possibility, could be to create a CLSC. This concept tries to combine traditional forward supply chain activities and reverse supply chain activities into one single system (Krikke, Blanc & van de Velde, 2004). The purpose is to create new profit opportunities and competitive advantages for supply chain participants (Ferrer & Whybark, 2003) and to raise the environmental performance of industrial operations (Pappis, Daniel & Tsoufias, 2004). Green supply chain management just tries to organize the supply chain in a 'green way' with green incentives concerning the environment (less pollution, less consuming, reuse of materials, ...). If we see the supply chain as a process, we can just link each step to the next step in the chain, or we can link them and then close the loop. This is the so called closed loop supply chain (CLSC).

2.2 Closed loop supply chain (CLSC)

In the last few years, literature on CLSC has been growing. CLSC includes several aspects such as product design and product recovery. Thierry, Salomon, van Nuene & van Wassenhove (1995) define recovery options as repair, refurbishing, remanufacturing, cannibalization and recycling (Figure 1). From that point of view, the product that returns, will come back in the supply chain at different stages and closes the supply chain. Inderfurth & Teunter (2003) characterize CLSC by the recovery of returned products. Most of the time, the returned products will come back from the customer. But the returned products can also come back from production facilities within the supply chain or within the company.

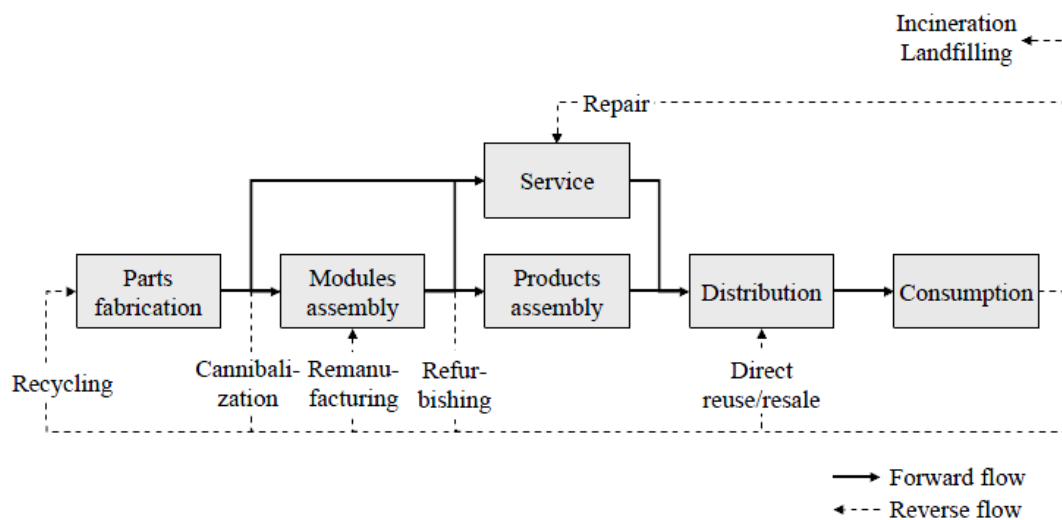


Figure 1

CLSC tries to link the forward and reverse supply chain activities. This link causes difficulties for the control of manufacturing (Guide, 2000), inventory management (Van der Laan, Salomon, Dekker & Van Wassenhove, 1999) and the design of the recovery network (Krikke, 2001). Since there are more materials at the disposal of the companies, companies need to plan in a good way the manufacturing process/inventory/design of the recovery network. Fleischmann, Beullens, Bloemhof-Ruwaard & Van Wassenhove (2001) discussed the fact that forward and reverse supply chains may share transportation equipment and warehouses, which allows cost reductions.

Companies can derive benefits from CLSC activities. These activities have the potential to improve the environmental performance of industrial operations and increase the competitiveness of the company and product differentiation (Guide & Van Wassenhove, 2003; Blumberg, 2004). Reused materials can lower the cost of production and can differentiate products.

2.3 CLSC characteristics

As mentioned before, operational excellence is a solution to influence CBI. Treacy & Wiersema (1992) suggest that companies should not only excel in one strategy (e.g. only perceived product quality) but also in other dimensions. These dimensions will be narrowed to CLSC product characteristics. The logic behind this is that CLSC product characteristics could influence CBI positively or negatively. Hazen et al. (2011) already discussed one CLSC product characteristic (perceived product quality). Their findings suggest that more CLSC product characteristics are relevant and suggest that product quality of the green product didn't seem to create a competitive advantage. Three CLSC product characteristics will be discussed.

The first CLSC product characteristic that could influence CBI is the real low price of the CLSC product as a result of the CLSC. This low price is not the price perception but the low price that is concluded from an objective report (the real price). Heese, Cattani, Ferrer, Gilland & Roth (2005) suggest that the take-back of products has an existing advantage in terms of lower production cost or higher market share. In that way, this could influence CBI (increase in sales because of low-price). To recover products on the market, product return programs were initialized. The focus of product return programs has traditionally been on cost minimization. In many industries, learning to manage the reverse flow is of prime importance, because the large volume of product returned represents a significant cost. In addition to the cost of producing and transporting the product, the firm may face significant costs in disposing of the product (Rogers & Tibben-Lembke, 2001). Product return programs need to be organized in a very good way so that low cost of the product can be achieved.

Actually, repair, refurbishment, remanufacturing and remarketing, cannibalization and recycling of raw materials are all examples of recovery options that can represent an attractive business opportunity, sustainable development, and a way of achieving competitive advantage (De Koster, De Brito, & Van de Vendel, 2002; Jack, Powers & Skinner, 2010). For all the above mentioned literature, we state the following hypothesis:

H1: Customers will say that a CLSC product is lower in price than new products

Since products are being recycled in the CLSC, new raw materials aren't always necessary any more or less necessary in the production of the product. Thanks to the CLSC, the materials are always available in the market, which makes them more available for reproduction and more available for customers at the end of the cycle. Therefore product recovery programs need to be initialized. The objective of product recovery programs is to recover as much as possible of the economic (and ecological) value, thereby reducing the ultimate quantities of waste (Thierry et al., 1995). La Londe & Zinszer (1976) identified that product availability is the major component of customer service. The more a product is available, the more the customer will be satisfied. Kyj (1987) showed that customer service can be used a competitive weapon, influencing CBI. The logic is that the more a product is available to recover, the more materials are available to produce the product, and the more the product will be available on the market. Based upon these findings, product availability (based upon an objective report) was chosen as the second CLSC characteristic. The hypothesis is:

H2: Customers will say that a CLSC product has a higher availability than new products

The last CLSC product characteristic is product quality. Lemmink & Kasper (1994) defined product quality as the augmented product that not only includes the physical product, but also packaging, guarantee, brand name, characteristics, image and other subjective judgments consumers make about these items. In previous research, the link between

product quality and consumer behavioral intentions was already made. Jacobson & Aaker (1987) found that product quality is positively associated with higher market share and the ability to charge a higher price. From that point of view, the conclusion can be made that if the product quality is good, the consumer will continue to buy this product or even to buy this product more in the future. On the contrary, Jang & Namkung (2009) came to another conclusion. They tried to prove the hypothesis that customers' perceptions of product quality have a positive effect on behavioral intentions. Nevertheless, the hypothesis was not supported. Hazen et al (2011) came more or less to the same conclusion in the area of green products: customers perceive products made via some GRL practices to be inferior to brand-new products in terms of quality. Hence, it looks like product quality of green products don't seem to have a competitive advantage. However, in their research, participants indicated no perceived quality difference between products made with recycled materials and brand-new products. It seems that their outcome had a double result. This research could give more background to the relationship in this research. The way that they have measured the perceived quality, is by testing three hypotheses (Participants will perceive that a reused product is lower in quality than a new product; Participants will perceive that a remanufactured product is lower in quality than a new product; Participants will perceive that a product made with recycled materials is lower in quality than a new product). Only the first and the second one were accepted. The third was not accepted (Participants will perceive that a product made with recycled materials is lower in quality than a new product). So maybe there's an improved product quality of the recycled product? This needs to be based upon an objective report and not upon perception. Braungart, McDonough & Bollinger (2007) described the so called 'cradle-to-cradle' design, which provides a practical design framework for creating products and industrial systems in a positive relationship with ecological health and abundance, and long-term economic growth. The central idea is that all used materials after their life in one product, will be useful in another product (recycling). Products will be created in that way so that products will improve in quality. For product quality, the following hypothesis will be stated:

H3: Customers will say that a recycling based CLSC product has improved in quality

2.4 Customer behavioral intentions (CBI)

CBI is the second variable in the link that will be investigated. The construct of behavioral intention already exists a long time. It is derived from the theory of reasoned action (TRA) literature (Fishbein & Ajzen, 1975), which suggests external variables such as personal values or beliefs about the broader work environment should directly affect beliefs that lead to specific intentions. Positive behavioral intentions are reflected in the service providers' ability to keep its customers to remain loyal, pay price premium, and spread positive word of mouth (Zeithaml et al., 1996). CBI involves recommending the company to others, providing positive word of mouth, a willingness to behave as a partner with the organization, and remaining loyal to the company (Brown, Barry, Dacin & Gunst, 2005; Bowen & Shoemaker, 1998; Reichheld & Sasser, 1990). If a customer remains loyal to the company, the customer will repurchase in the future.

This study tries to approach CLSC from a customer perspective. But what drives customers when making buying decisions and what creates their behavioral intentions? Foxall (2007) names an important theory which is relevant for understanding the consumers' buying decision: radical behaviorism. The theory of radical behaviorism, consists of two aspects which can influence the consumer behavior: behavior setting (all the physical, social and temporal elements that signal the likely consequence of behaving in a particular way) and learning history (past experiences). In this theory, there are also three possible consequences: utilitarian reinforcement (the satisfaction consumers perceive when buying, owning and consuming economic goods), informational reinforcement (the feedback on the purchase which connects the consumers' choice to the social status that comes with it) and aversive consequences (the cost of consuming: waiting in line, not able to buy alternative products, ...).

Positive CBI can actually be seen as a competitive advantage for the focal company. In that way, this can be interesting with regards to the research from Hazen et al. (2011). After the studied literature from CLSC characteristics and CBI, following hypotheses will be stated:

- H4: Low cost by CLSC will influence customer behavioral intentions positively
- H5: Product availability will influence customer behavioral intentions positively
- H6: Product quality from the green product will influence customer behavioral intentions positively

2.5 Customer perception about environmental responsibility

Corporate social responsibility (CSR) and corporate environmental responsibility (CER) are two items that are gaining attention. CSR is a balanced approach for organizations to address economic, social and environmental issues in a way that aims to benefit people, communities and society (McAdam & Leonard, 2003). It includes consideration of issues like: human rights, workplace and employee issues, unfair business practices, organizational governance, consumer issues, community involvement, social development and environmental aspects. Environmental responsibility is an aspect of CSR and can be seen as the ecological dimension of CSR (de Bakker & Nijhof, 2002). Murphy, Poist & Braunschweig (1995) state that environmental responsibility can be defined as “the practice of responding to environmental issues in a socially responsible manner”. Longenecker, Moore & Petty (1997) argue that it is “the effort to protect and preserve the environment”.

As mentioned before, Zeithaml & Bitner (1996) identify image as the ability to influence customer perceptions of the services offered by an organization. Since this research is about the relationship between CLSC product characteristics and CBI, the customer perception about the image of the focal company will be narrowed to the customer perception about the environmental image of the focal company.

The customer perception about the environmental image of the focal company is closely related to CLSC product characteristic as well as CBI. If we take a look at the link between environmental image of the focal company and CBI, we would think that environmental image influences CBI positively. This way of thinking is supported by research of Lee, Hsu & Kim (2010). On the other hand, the link between CLSC product characteristics and the

environmental image of the focal company seems logical. Several researchers argue that investments related to environmental regulation and social responsibility are more generally associated with low performance (Walley & Whitehead 1994; Ullmann 1985; Cordeiro & Sarkis 1997). Another view is that, as organizations shift their attention to enhancing environmental performance, they are drawing management effort away from other core areas of the business and makes it difficult to attain other competitive improvements (Walley & Whitehead 1994; Klassen & Whybark 1999). But other researchers argue that superior environmental performance could create broader improvements in organizational outcomes (Gupta 1995; Sarkis & Rasheed, 1995). A specific example of organizational outcome could be product quality, low cost and product availability. Pil & Rothenberg (2003) for example came to the conclusion that attaining superior environmental performance can be a significant driver of superior quality. After all the above, it looks surprisingly that there is a literature gap around customer perception about environmental responsibility as possible moderator. It looks very logical that this could be a moderator. This can also be seen as an enlargement of the research from Hazen et al. (2011).

2.6 Moderator

When we speak about moderation, the relationship between two variables depends on a third variable, which is the moderator. The effect of a moderating variable is characterized statistically as an interaction (Cohen, Cohen, Leona & West, 2003). It's a qualitative or quantitative variable that affects the direction or strength of the relation between dependent and independent variables. In this research, customer perception about environmental responsibility could strengthen the relationship between CLSC characteristics and CBI.

The relationship between the above mentioned variables in chapter 2.3 and 2.4 (CLSC characteristics and CBI) and the possible moderator in 2.5 (customer perception about environmental responsibility), will be tested with the following hypothesis:

H7: Customer perception about environmental responsibility moderates the positive relationship between CLSC characteristics and CBI.

3. Research design and methodology

The purpose of the design of a research methodology is to support the purpose and the research questions of a study (Yin, 1994). As already mentioned before, the purpose of this study is to investigate the relationship between CLSC product characteristics (low cost by CLSC, product availability and product quality) and CBI. This research will also investigate how the customer perception about environmental responsibility has an effect on this relationship. Actually, this research enlarges the scope of the research from Hazen et al. (2011). Where they did research about perceived product quality in GSCM, this research will try to investigate the relationship between CLSC characteristics (low price, product availability and product quality) and CBI as competitive advantage with customer perception about environmental responsibility as possible moderator.

3.1 Data collection

To test the hypotheses, this research requires a quantitative approach. The best and most appropriate way to test the hypotheses, was sending out a questionnaire, which was sent out in September - October 2012. Data were gathered through an online survey, using the website 'www.enquetemaken.be'. An empirical survey-based research was adopted, comprising 35 items. All these items were tested on a 7 point likert scale, where 1 states fully agree and 7 states fully disagree.

This survey was sent out by e-mail to customers, who were asked to forward the invitation to as many people as possible. Also, the invitation for filling in the survey was published on social media websites such as Facebook and LinkedIn, and on the student forum of the Open University.

Customers have been chosen as respondents and not companies. This choice was made in advance. Customers were also easier to contact than professional buyers. Respondents were asked to choose a CLSC product on which they would fill in the questionnaire. This made it easier for respondents to answer the questions. 74 responses were received. Of these, 50

questionnaires were fully completed. Respondents were resided in Belgium (49) and The Netherlands (1). 26% of the respondents were female and 74% were male.

3.2 Questionnaire design

The questionnaire consisted of items that were adapted from previous studies. Three categories of statements were used to assess the hypotheses: CLSC product characteristics, CBI and customer perception about environmental responsibility.

3.2.1 CLSC product characteristics

For the aspect 'CLSC product characteristics', three subcomponents were chosen of which CLSC product characteristics consists: low-cost by CLSC, product availability and product quality. The respondent was asked to answer with facts and not with their perception, since this part needs to investigate the facts about CLSC product characteristics.

Heese et al. (2005) described that a manufacturer that takes back and resells refurbished products, creates an additional source of income. Partially passing these benefits on to the customer by means of price discounts that exceed the revenue customers would gain from selling the used product on the secondary market, a refurbishing manufacturer not only increases its unit margin, but also its market share, to the detriment of a non-interfering competitor. If benefits would be passed on to the customer by means of price discounts, the conclusion can be made that the price of the CLSC product has been reduced since it is being made of reused components.

Products that are being recovered on the market are actually always available to recover. Raw materials aren't always available anymore since they can be perished. But, availability of used products on the disposer market involves major unknown factors. In general, timing and quantity of used products coming free are determined by the former user rather than by the recoverer's requirements (Fleischmann et al, 2001). The statement in the questionnaire

was that CLSC products are more available than a similar original product. Very little literature is available for this matter. On the other hand, companies are investing in spare parts to close the loop of the supply chain. AJ Walter Aviation for example established a business where they squeeze value from old aircrafts (Lemer, 2011). They can make money from recovering parts. Parts of old aircrafts are worth more as parts than they are intact. The aftermarket for parts is seeing growth. Even vast databases are provided and give airlines perfect visibility into the availability of parts. Some parts will be more available than other parts at one moment, and vice versa at another moment, causing price fluctuations. At the UBM airline purchasing conference, Roland Van Dyjk, president of Fokker Services, spoke about redesigning parts and reverse engineering parts in the light of the high percentage of commercial aircrafts that are out of production (Dickstein, 2011). In that way, parts can be reused. Using these background articles, the statement about product availability can be supported: the CLSC product is more available than a similar original product.

If products are being made of recycled materials, people wouldn't think that the product quality of the CLSC product would be of the same level as the initial product, or even of a higher level. Nevertheless, Beamon (1999) thinks the following: "Thus, in some cases, the remanufactured product can exceed the original product in real quality and/or function. This is due to the fact that during the remanufacturing process, the design of the replaced parts and/or components may have been improved since the original product was manufactured". Also the hypothesis of Hazen et al. (2011) stating that participants will perceive product made with recycled materials is lower in quality than a new product, was not supported. Therefore, we can conclude that the product quality is of a higher level since the product is being made of reused components.

The statements concerning the CLSC product characteristics will be stated in a positive way with regards to the CLSC product (low price, increased product availability and increased product quality). Where Hazen et al. (2011) tested three statements concerning product quality, this research will attempt to measure product quality using one statement, stating that the product quality has improved since the product has been a CLSC product. One main

difference between the research from Hazen et al. (2011) and this research concerning product quality, is that this research uses facts as a ground for the results while Hazen et al. (2011) used the perception of the respondent.

3.2.2 Customer behavioral intentions (CBI)

The aspect 'customer behavioral intentions' is based upon previous research of Zeithaml et al. (1996). Behavioral consequences of service quality were investigated. By using the questions in this article, the advantage is that the questions have already been tested. Some questions were left out of the questionnaire, since they were double in their questionnaire. Also, one question was changed because it was reverse scored. CBI will be linked in this research to competitive advantage. If customers will keep on buying from the focal company, it will create a competitive advantage for the focal company compared to competitors.

3.2.3 Customer perception about environmental responsibility

The last aspect, customer perception about environmental responsibility, was based upon previous research of Rao & Holt (2005). Their questions consist of the customers' perception of the environmental actions that the focal company has taken. The advantage is that the questions have already been tested. Only those questions that are related to customers (and not to industry) have been chosen.

3.2.4 Conceptual model

After studying each aspect in the relationship, the conceptual model will be as follows. CLSC characteristics, that consists of three subitems (low price by CLSC, product availability and product quality), will be the independent variable in the construct. CLSC characteristics don't depend on CBI but CBI depends on CLSC characteristics. Therefore, CBI will be the dependent variable in this construct. In this relationship, customer perception about

environmental responsibility can influence the outcome of the relationship. Therefore, this research will try to investigate if customer perception about environmental responsibility will serve as a moderator.

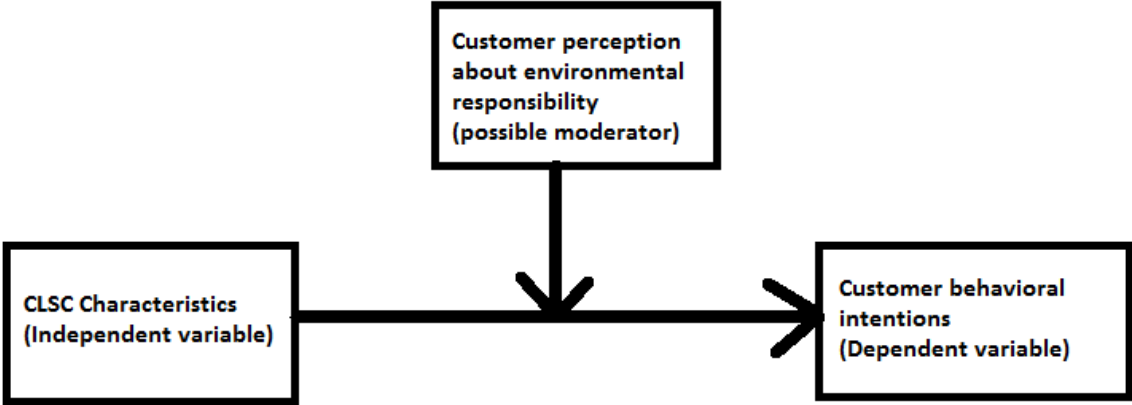


Figure 2

3.2.5 Overview items questionnaire

CLSC product characteristics	The price of the product has been reduced since the product is being made of reused components.
	The real product quality of the recycling based CLSC product is better since the product is being made of reused components (following a test, an internal report, a product quality report, ...).
	The CLSC product is more available than a similar original product.
Customer behavioral intentions	I say positive things about the focal company to other people.
	I recommend the focal company to someone who seeks CLSC products.
	I encourage friends and relatives to buy CLSC products of the focal company.
	I consider the focal company as my first choice to buy CLSC products.
	I will buy more CLSC products of the focal company in the next few years.
	I don't buy CLSC products from a competitor if it offers better prices than the focal company.
	I continue to buy CLSC products of the focal company if its prices increases somewhat.
	I pay a higher price than competitors charge for the CLSC products I currently receive from the focal company.
	I switch to a competitor if I experience a problem with the CLSC products of the focal company.
	I complain to other customers if I experience a problem with the CLSC products of the focal company.
	I complain to external agencies, if I experience a problem with the CLSC products of the focal company.
I complain to the focal company's employees if I experience a problem with the CLSC products of the focal company.	
customer perception	In the last two years, the focal company (brand owner of retail company) has taken environmental actions in the following areas:

about environmental responsibility	- Taking environmental criteria into consideration.
	- Design considerations.
	- Recovery of the company's end-of-life products.
	- Eco-labeling.
	- Environmental improvement of packaging.
	- Taking back packaging.
	- Providing consumers with information on environment.

Table 1

4. Results

First, the answers from the respondents will be analyzed, so that hypotheses 1,2 and 3 can be discussed. For the hypotheses 4, 5, 6 and 7, data will be analyzed using structured equation modeling with PLS estimations (Ringle, Wende & Will, 2005) via SmartPLS. PLS is an analysis technique that enables the simultaneous estimation of both the measurement and the structural models (Haenlein & Kaplan, 2004; Tenenhaus, Vinzi, Chatelin & Lauro, 2005), providing estimations that are robust against skewed data distributions and multicollinearity (Cassel, Hackl & Westlund, 2000). Also, PLS requires smaller sample size than LISREL (Chin & Newsted, 1999). This is very useful since only 50 valid responses were gathered in this case. The examples that customers gave the most in the questionnaire were recycled pet bottles (for example Coca Cola) and recycled paper.

4.1 Analyzing data

After a good analysis from the gathered data, there are some remarks to make. First of all, if we take a look at the results from the statement 'the price of the product has been reduced since the product is being made of reused components', conclusions cannot be made. On a scale from 1 to 7 (where 1 states fully agree and 7 states fully disagree), respondents answered with an average of 4,5. Hence, H1 cannot be supported.

Second, the statement of product availability scores an average of 4,4 on the same scale. This result is not persuasive to accept hypothesis 2.

And third, the statement of product quality scores an average of 4,5 on the same scale. The result is not persuasive enough to accept hypothesis 3.

4.2 Measurement model

To ensure the appropriateness of the measurement model, Hulland (1999) was followed. Reliability and validity is assessed in two steps by analyzing item reliability and convergent validity. Before conducting these analyses, a factor analysis for all reflective constructs was performed.

4.2.1 Factor analysis

In table 2, except for CLSCC1, CLSCC3, CBI9, CBI10, CBI11, CBI12 and CPER6, all the factor loading exceed the treshold value of 0.50 proposed by Dunn, Seaker & Waller (1994), supporting the unidimensionality of the scales.

	CLSC characteristics (CLSCC)	Customer behavioral intentions (CBI)	Customer perception about environmental responsibility (CPER)
CLSCC1	0,043		
CLSCC2	0,943		
CLSCC3	-0,030		
CBI1		0,745	
CBI2		0,769	
CBI3		0,783	
CBI4		0,820	
CBI5		0,608	
CBI6		0,677	
CBI7		0,742	
CBI8		0,652	
CBI9		-0,470	
CBI10		-0,166	
CBI11		0,129	
CBI12		0,238	
CPER1			0,440
CPER2			0,800
CPER3			0,514
CPER4			0,646
CPER5			0,667
CPER6			0,098
CPER7			0,419

Table 2

CLSCC1, CLSCC3, CBI9, CBI10, CBI11, CBI12, CPER1, CPER6 and CPER7 will be removed from the construct because of its low factor loading (far below 0.5). Since CLSCC1 and CLSCC3 have too low factor loadings, H4 and H5 cannot be accepted.

4.2.2 Convergent validity

To analyze convergent validity, Cronbach's alpha, composite reliability, average variance extracted, and the significance of item loadings were analyzed (table 3).

For Cronbach's alpha, typically a threshold of 0.6–0.7 is required (Nunnally, 1978; Peterson, 1994). This is met by all factor (with the exception of customer perception on environmental responsibility with a Cronbach's Alpha of 0,5968).

Composite reliability assesses the inter-item consistency. A minimum value of 0.7 is required (Hulland, 1999), which is reached by all factors.

Average variance extracted (AVE) provides information about the proportion of variance of the indicators that is explained by the construct. As a rule of thumb, 50% of the variance should be attributed to the factor (Bagozzi & Youjae, 1988), which is exceeded by all factors (except for customer perception on environmental responsibility with an AVE of 0,4425).

Significance is verified by re-sampling techniques (Bagozzi, Youjae & Phillips, 1991). We employ bootstrapping obtaining parameter estimates by generating subsamples with replacement from the original data. The results show that all loadings are significant.

	AVE	Composite reliability	Cronbach's Alpha
CLSCC	1,000	1,000	1,000
CBI	0,5353	0,9013	0,8747
CPER	0,4425	0,7560	0,5968

Table 3

4.3 Structural model

Figure 3 shows the result of the PLS analysis following the conceptual model. If a moderator hypothesis needs to be proved, the interaction term needs to be analyzed, which is customer perception on environmental responsibility. A hypothesis with a moderator is only supported if the path coefficient from the interaction term to the dependent variable has the assumed direction (positive or negative sign) and is significant irrespective of other effects (Baron & Kenny, 1986). Here in this research model, the path coefficient is positive which means that a positive customer perception on environmental responsibility will lead to a positive impact of the interaction term on CBI. This is the same for CLSC characteristics (product quality): good product quality will lead to a positive impact of the interaction term on CBI. Hence, H6 can be accepted.

R^2 is in this model overall 0,281, which shows cohesion. This model explains 28,1% of the variance of CBI. Chin, Marcolin & Newsted (2003) state that the calculation of effect size provides an estimation of the degree a moderator contributes to model explanation. We calculated the effect size using Cohen's f^2 (Cohen, 1988) measuring the change in R^2 including and omitting the interaction term. Effect size turned out to 0,218, when omitting the interaction term, to 0,281 when including it. Chin et al. (2003) denote moderator effects of this size as large. H7 can thus be accepted.

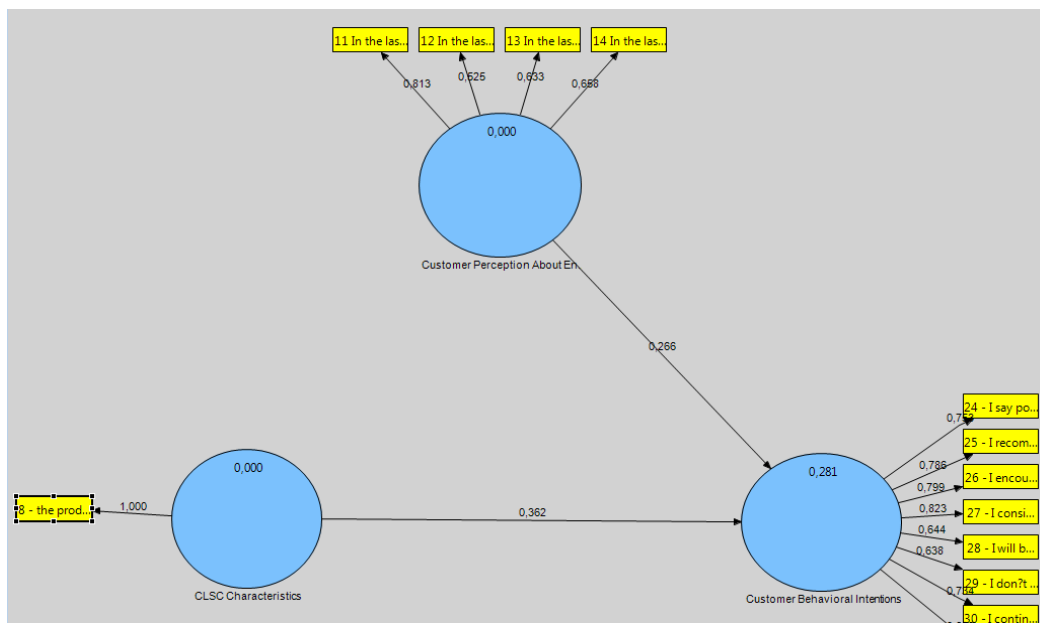


Figure 3

	Hypothesis	Result
H1	Customers will say that a CLSC product is lower in price than new products	Reject
H2	Customers will say that a CLSC product has a higher availability than new products.	Reject
H3	Customers will say that a recycling based CLSC product has improved in quality.	Reject
H4	Low cost by CLSC will influence customer behavioral intentions positively.	Reject
H5	Product availability will influence customer behavioral intentions positively.	Reject
H6	Product quality from the green product will influence customer behavioral intentions positively.	Accept
H7	Customer perception about environmental responsibility moderates the positive relationship between CLSC characteristics and CBI.	Accept

Table 4

5. Discussion, theoretical and practical implications

In this section, the results of this research and the model (which consists of discussion and theoretical implications) will first be discussed. This will be followed by practical implications, limitations of this research and implications for future research.

5.1 Discussion and theoretical implications

The first three hypotheses concerned facts of CLSC characteristics. Customers don't think that CLSC products have a lower price than a brand-new product, they don't think that CLSC products are more available than brand-new products and they don't think that product quality of CLSC products has improved since the product is a CLSC product.

Even though supportive literature has been found for low price because of CLSC via Heese et al. (2005), who suggest that the take-back of products has an existing advantage in terms of lower production cost or higher market share, results don't support nor declines this hypothesis. Following the facts from the respondents, the price did not go down since the product is being made of recycled material. This can be explained by the fact that if you want the product recovery program to succeed, a good recovery network needs to be designed. Total recovery costs depend on transportation and therefore, a good logistics network structure is important. If the recovery network is not designed in a good way, this could be too expensive for the focal company, with no economic advantages for the focal company (Fleischmann et al., 2001). The examples that the respondents used, could possibly have a bad designed product recovery network.

Concerning product availability of CLSC products, AJ Walter Aviation established a business where they squeeze value from old aircrafts (Lemer, 2011). They can make money from recovering parts. Parts of old aircrafts are worth more as parts than when the parts are intact. This makes them more available on the market, which could create no loss in sales, and which influences the customer to buy the product. Unfortunately, this case

cannot be confirmed nor can it really be declined by the facts from the respondents. Also for this item, a good product recovery network is indispensable (Fleischmann et al., 2001). If this network is designed in a bad way, product recovery can be difficult, which makes the CLSC product not more available than a brand-new product.

And for product quality as the last CLSC product characteristic, the hypothesis cannot be confirmed nor can it be declined. This lays in line with the results from Hazen et al. (2011). In their research, there was no perceived quality difference between products made with recycled materials and brand-new products. But we need to keep In mind that there is a main difference between the research from Hazen et al. (2011) and this research: this research used facts as a ground for the result of product quality while Hazen et al. (2011) used the perception from the customer. Test or reports pointed out that product quality didn't improve since the product became a CLSC product. A possible explanation for this is that the cradle-to-cradle design (Braungart et al., 2007) has not been designed in a good way so that product quality hasn't improved.

Hypotheses 4 and 5 (low cost and product availability in relation to CBI) were not accepted. Factor loadings were too low to prove an existing relation between these characteristics and CBI. Possible cause of this could be that the customers used examples where price difference and difference in product availability aren't present because of a bad designed product recovery network. Customers think in that way that if the CLSC product was of lower price and was more available, this will not really affect CBI. Product quality seems to be the most important CLSC characteristic for customers (H6). Even though product quality has not been improved since the product is a CLSC product (H3), this will affect CBI positively if product quality of the CLSC product would be good. Beamon (1999) states that the real product quality of the CLSC product could improve compared to the situation before when the product didn't consist of recycled material. This statement cannot be confirmed in this model following the responses on the question of product quality (H3). What we can confirm is that the product quality of the CLSC product influences CBI positively (H6). The interpretation is that the customers used examples that don't have a better product quality.

If they would use examples that have a better product quality, this will influence their CBI. This is not what Hazen et al. (2011) found in their research. They concluded that the adoption of GSCM practices may not necessarily lead to competitive advantage in terms of perceived quality. The difference between their research and this research is that they used perceived quality and in this research, we used real product quality following an objective report.

The main purpose of this research was to explore the relation between CLSC characteristics, CBI and customer perception about environmental responsibility. The results show support for the stated hypothesis. This model explains 28,1% of the variance of CBI. In hypothesis 7, the statement was that customer perception about environmental responsibility moderates the relationship between CLSC characteristics and CBI. We can conclude from the results that customer perception about environmental responsibility moderates this relationship. Support for customer perception about environmental responsibility, as moderator in the relationship between CLSC characteristics and CBI, can be found in research from Zeithaml & Bitner (1996). They identify image as the ability to influence customer perceptions of the services offered by an organization. Customer perception about environmental aspects makes part of the image of a company.

Since product quality of the green product explains 28,1% of the variance of CBI in this model, we could wonder how the other 71,9 could be explained. There are several items that could explain the other 71,9%.

Cronin, Brady & Hult (2000) came to the conclusion that service quality influences behavioral intentions directly. Service has become an important item for customers. Delivery within 24 hours, guarantee of 4 years and problem shooting are just a few examples of services that companies can give. These services can persuade customers to rebuy products from the focal company in the future.

Keh & Xie (2009) discussed another item which influences customer behavioral intentions: corporate reputation. Their findings suggest that corporate reputation influences customer behavioral intentions positively. Customers are willing to buy more in the future from companies with a good corporate reputation, and they don't want to buy more in the future from companies with a bad corporate reputation. Corporate reputation can be characterized as a global impression reflecting the perception of a collective stakeholder group (customers, employees and investors).

Low price because of a CLSC has been investigated in this research, but the factor loading was too low. But what we didn't investigated was the perception of the price: is it competitive with regards to the competitors? Is the price fair? Varki & Colgate (2001) concluded from their research that price perceptions significantly affect customer retention and suggest that managers may benefit from actively managing consumers' price perceptions.

5.2 Practical implications

The findings from this study offer useful insights for managers and can be used to make operational changes. Since low price and product availability had factor loadings that were too low, we could state that customers buying recycling based CLSC products, think that product quality will influence their behavioral intentions more than low price and product availability. The practical implication is that companies producing recycling based CLSC products, should focus on product quality more than on low price and product availability. Advantages can be found in the product quality of the green product. The price may be a little bit higher and the CLSC product doesn't need to be available at any time. Product quality of the CLSC product needs to become a fact for the customer. Therefore, the focal company can hire professionals who can judge the product quality of the product. Product quality can consist of several aspects. Lemmink & Kasper (1994) defined product quality as the augmented product that not only includes the physical product, but also packaging, guarantee, brand name, characteristics, image and other subjective judgments consumers

make about these items. Garvin (1987) developed eight dimensions of product quality: performance, reliability, serviceability, conformance, durability, features, aesthetics and perceived quality. When focusing on product quality, companies need to keep these aspects in mind.

As recycled pet bottles and recycled paper were the examples that were used the most by the respondents, practical implications for these product groups could be made. Customers don't see a price difference of the product, they don't see that the product is more available and they don't see that the product is from better quality than before. In this model, product quality influences CBI positively, which indicates the companies that are active in these product groups, need to focus on product quality.

As customer perception about environmental responsibility moderates the relationship, we can conclude that the environmental responsibility is an important item for managers. The questions that were used came from previous research of Rao & Holt (2005) comprising design considerations, eco labeling, environmental improvement of packaging, recovery of end-of-life product, taking environmental criteria into consideration, taking back packaging and providing consumers with information on environment. Companies need to focus on these items to strengthen the relationship between product quality and CBI. But there are some things to keep on mind. Companies can be very environmental responsible but they can forget to communicate this to the customer. On the other side, companies that have very little attention to the environment and communicate very often that they are very environmental responsible, can also take advantage of their image. For example, Coca Cola may put some green logo on their bottles so that the customer perceives they're environmental responsible, even though they may not be environmental responsible. Communication is of the essence to influence the perception of the consumer. Perception is an active process of becoming aware and understanding ones environment that is unique to the individual and is strongly influenced by communication (McGaan, 2012). Marsh (1994) described two aspects for communication: telecom and media. There's a rapid growth of communications power with fibre optic networks and digital mobile communication as

major examples. Also the media industry is a platform which is important for communication with the growth of number of tv channels.

5.3 Limitations and implications for future research

This research has some limitations. First of all, the purpose was to comprise three items in one variable, that is to say CLSC characteristics. But since factor loadings of two items were really low, they needed to be deleted. Only one item remains: product quality of the recycling based CLSC product. This was tested by the statement “the real product quality of the recycling based CLSC product is better since the product is being made of reused components”. Future research should try to test if low price and product availability really isn’t important as product quality for customers. In addition, more CLSC characteristics can be added, such as technology difference between a CLSC product and a brand-new product. These characteristics can also be searched in other value disciplines like customer intimacy and product leadership (Treacy & Wiersema, 1992).

Second, almost every result that came in, was from a Belgian respondent. Geographically, the results in this research were limited to one country/region. Future research should try to enlarge the geographical area (different countries in one research and also one country per research) to gain validity. Every country has its own culture and values. In some countries, CLSC characteristics may have an effect on CBI, in other countries maybe not.

Concerning the questionnaire, we asked the people to give facts for the statements about CLSC characteristics and not their perception. This is really difficult to control. Perhaps the people could have given their perception and not the facts. For future research, it could be useful to link quantitative research to qualitative research. If we would add qualitative research such as an interview linked to the survey where they should really give facts, we would be sure that they’re giving facts. Another way is to put a question in the survey on which facts they have based their answers.

And at last, there were not many examples given to the respondent. It was difficult for the respondent to 'invent' other examples. Many other examples need to be searched. Future research should narrow its research field to a specific product. The reason for this is that one CLSC product may have an influence on CBI, and another CLSC product may have not. In this research, people were free to choose an example on which they would base their answers. In that way, this research contains different products in one research. In the introduction of the questionnaire, a couple of examples were given. People found it difficult to find new examples, so they used most of the time the given examples.

6. Conclusion

When reading the available literature in the area of CLSC products, a gap was found concerning the relationship between CLSC characteristics and CBI with customer perception about environmental responsibility as potential moderator. The main contribution of this research is that it found significant evidence of the relation between CLSC characteristics (real product quality) and customer behavioral intentions, though previous research from Hazen et al. (2011) stated that perceived quality of green products may not have a competitive advantage. It also found that customer perception about environmental responsibility moderates this relationship. When customers have a bad perception about the focal company concerning environmental responsibility, the link between CLSC characteristics and CBI is weaker than when the customers have a good perception about the focal company concerning environmental responsibility.

Our results have important implications for management. Good green supply chain management is worthwhile for companies. First of all, improved product quality of CLSC products affects CBI positively. Jacobson & Aaker (1987) found that product quality is positively associated with higher market share and the ability to charge a higher price. If companies can improve product quality of CLSC products, advantages lay behind the corner. If companies organize green initiatives to obtain a CLSC product, customers will perceive a good environmental responsibility of the focal company, which makes green initiatives worthwhile if communication to the customer is organized well.

Starting up green initiatives, or even working on the green aspect, seems to pay off for companies. In that way, green supply chain management may not be seen as a negative and useless aspect. Closing the loop of the supply chain can create advantages in terms of positive CBI.

References

- Bagozzi, R. P. & Youjae, Y. (1988). *On the evaluation of structural equation models*. Journal of the Academy of Marketing Science, 16 (1), pp 74-94.
- Bagozzi, R.P., Youjae, Y. & Phillips, L.W. (1991). *Assessing construct validity in organizational research*. Administrative Science Quarterly, 36 (3), pp 421–458.
- Baron, R.M. & Kenny, D.A. (1986). *The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations*. Journal of Personality and Social Psychology, 51 (6), pp 1173–1182.
- Beamon, B.M. (1999). *Designing the green supply chain*. Logistics Information Management, 12 (4), pp 332 –342.
- Blumberg, D.F. (2004). *Reverse Logistics and Closed Loop Supply Chain Processes*. CRC Press, Boca Raton.
- Bowen, J.T. & Shoemaker, S. (1998). *Loyalty: A strategic commitment*. Cornell Hotel and Restaurant Administration Quarterly, 39 (1), pp 12-25.
- Braungart, M., McDonough, W. & Bollinger, A. (2007). *Cradle-to-cradle design: Creating healthy emissions – A strategy for eco-effective product and system design*. Journal of Cleaner Production, 15 (13-14), pp 1337-1348.
- Brown, T.J., Barry, T.E., Dacin, P.A. & Gunst, R.F. (2005). *Spreading the word: Investigating antecedents of consumers' positive word-of-mouth intentions and behaviors in a retailing context*. Journal of the Academy of Marketing Science, 33 (2), pp 123-38.
- Cassel, M. C., Hackl, P., & Westlund, A. H. (2000). *On measurement of intangible assets: A study of robustness of partial least squares*. Total Quality Management, 11, pp 897-907.
- Chin, W. W., & Newsted, P. R. (1999). *Structural equation modeling analysis with small samples using partial least squares*. Hoyle, R. H. (Ed.), Strategic for Small Sample Research. Sage, Thousands Oaks, pp 307-341.
- Chin, W.W., Marcolin, B.L. & Newsted, P.R. (2003). *A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study*. Information Systems Research, 14 (2), pp 189–217.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Erlbaum, Hillsdale.

Cohen, J., Cohen, P., Leona, A. & West, S. (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. Hillsdale NJ: Erlbaum.

Cronin, J., Brady, M. & Hult, T. (2000). *Assessing the effects of quality, value and customer satisfaction on consumer behavioral intentions in service environments*. *Journal of Retailing*, 76 (2), pp 193-218.

De Bakker, F. & Nijhof, A. (2002). *Responsive chain management: A capability assessment framework*. *Business Strategy and the Environment*, 11 (1), pp 63-75.

De Koster, R., De Brito, M.P. & Van de Vendel, M. (2002). *Return handling: An exploratory study with nine retailer warehouses*. *International Journal of Retail & Distribution Management*, 30 (8), pp 407-21.

Dickstein (2011). *Airline purchasing conference investigates support for out of production aircraft*. Consulted on the 24th of October 2012, <http://pmaparts.wordpress.com/2011/05/04/airline-purchasing-conference-investigates-support-for-out-of-production-aircraft/>.

Dunn, S. C., Seaker, R. F., & Waller, M. A. (1994). *Latent variables in business logistics research: Scale development and validation*. *Journal of Business Logistics*, 15, pp 145-172.

Ferrer, G. & Whybark, D.C. (2003). *The economics of remanufacturing*. In Guide, V.D.R. Jr and Van Wassenhove, L.N. (Eds), *Business Aspects of Closed-Loop Supply Chains: Exploring the Issues*, Carnegie Mellon University Press, Pittsburgh, PA, pp 317-53.

Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Addison-Wesley, Reading, MA.

Fleischmann, M., Beullens, P., Bloemhof-Ruwaard, J. & Van Wassenhove, L.N. (2001). *The impact of product recovery on logistics network design*. *Production and Operations Management*, 10 (2), pp 156-73.

Foxall, G. R. (2007). *Explaining consumer choice: Coming to terms with intentionality*. *Behavioural Processes*, 75 (2), pp 129-145.

Garvin, D. (1987). *Competing on the Eight Dimensions of Quality*. *Harvard Business Review*, November – December, pp 101-109.

Green, K., Zelbst, P., Meacham, J. & Bhadauria, V. (2012). *Green supply chain management practices: Impact on performance*. *Supply Chain Management: An International Journal*, 17 (3), pp 290 – 305.

- Guide, V.D.R. Jr (2000). *Production planning & control for remanufacturing: Industry practice and research needs*. Journal of Operations Management, 18 (4), pp 467-83.
- Guide, V.D.R. Jr & Van Wassenhove, L.N. (2003). *Business Aspects of Closed-Loop Supply Chains: Exploring the Issues*. Carnegie Mellon University Press, Pittsburgh, PA.
- Gupta, M. C. (1995). *Environmental management and its impact on the operations function*. International Journal of Operations and Production Management, 15 (8), pp 34–51.
- Haenlein, M., & Kaplan, A. M. (2004). *A beginner's guide to partial least squares analysis*. Understanding Statistics, 4 (3), pp 283-297.
- Hazen, B., Cegielski, C. & Hanna, J. (2011). *Diffusion of green supply chain management: Examining perceived quality of green reverse logistics*. The International Journal of Logistics Management, 22 (3), pp 373 –389.
- Heese, H., Cattani, K., Ferrer, G., Gilland, W. & Roth, A. (2005). *Competitive advantage through the take-back of used products*. European Journal of Operational Research, 164 (1), pp 143-157.
- Hulland, J. (1999). *Use of partial least squares (PLS) in strategic management research: A review of four recent studies*. Strategic Management Journal, 20 (2), pp 195–204.
- Inderfurth, K & Teunter, R. H. (2003). *Production planning and control of closed-loop supply chains*. In: *Business Aspects of Closed-Loop Supply Chains*. Carnegie Mellon University Press, Pennsylvania, pp 149-174.
- Jack, E.P., Powers, T.L. & Skinner, L. (2010). *Reverse logistics capabilities: Antecedents and cost savings*. International Journal of Physical Distribution & Logistics Management, 40 (3), pp 228-46.
- Jacobson, R. & Aaker, D. (1987). *The strategic role of product quality*. Journal of Marketing, 51, pp 31-44.
- Jang, S., & Namkung, Y. (2009). *Perceived quality, emotions, and behavioral intentions: Application of an extended Mehrabian–Russell model to restaurants*. Journal of Business Research, 62, pp 451-460.
- Keh, H. & Xie, Y. (2009). *Corporate reputation and customer behavioral intentions: The roles of trust, identification and commitment*. Industrial Marketing Management, pp 732-742.
- Klassen, R. D. & Whybark, D.C. (1999). *The impact of environmental technologies on manufacturing performance*. Academy of Management Journal, 42 (6), pp 599–615.

- Krikke, H. (2001). *Recovery strategies and reverse logistics network design*. In: Sarkis, J. (Ed.), *Greener Manufacturing and Operations: From Design to Delivery and Back*, Greenleaf Publishing, Sheffield, pp 256-71.
- Krikke, H.R., Blanc, I., & van de Velde, S. (2004). *Product modularity and the design of closed-loop supply chains*. *California Management Review*, 46 (2), pp 23-39.
- LaLonde, B. J., & Zinszer, P. H. (1976). *Customer Service: Meaning and Measurement*. National Council of Logistics Management.
- Lee, J., Hsu, L-T, Han, H. & Kim, Y. (2010). *Understanding how consumers view green hotels: How a hotel's green image can influence behavioral intentions*. *Journal of Sustainable Tourism*, 18 (7), pp 901-914.
- Lemer (2011). *Spare parts: Where old aircraft go for a course in recycling*. Consulted on the 23th of October 2012, <http://www.ft.com/intl/cms/s/0/8ae401da-988f-11e0-94d7-00144feab49a.html#axzz29a178Lwv>.
- Lemmink, J. & Kasper, H. (1994), *Competitive reactions to product quality improvements in Industrial markets*. *European Journal of Marketing* 28 (12), pp 50 - 68.
- Longenecker, J. G., Moore, C. W. & Petty, J. W. (1997). *Small Business Management: An Entrepreneurial Emphasis*. Cincinnati: South-Western College Publishing.
- Marsh, S. (1994). *Competitive communication strategies*. *Logistics Information Management* 7 (2), pp 25 – 31.
- Murray, G. (2000). *Effects of a green purchasing strategy: The case of Belfast City Council*. *Supply Chain Management: An International Journal* 5 (1), pp 37-44.
- Markley, M.J. & Davis, L. (2007). *Exploring future competitive advantage through sustainable supply chains*. *International Journal of Physical Distribution & Logistics Management*, 39, pp. 763-774.
- McAdam, R. & Leonard, D. (2003). *Corporate social responsibility in a total quality management context: Opportunities for sustainable growth*. *Corporate Governance*, 3 (4), pp 36-45.
- McGaan, L. (2012). *Communication and perception*. Consulted on the 20th of November 2012, <http://department.monm.edu/cata/mcgaan/classes/cata101/Perception-101.htm>.
- MJ Kyj (1987). *Customer service as a competitive tool*. *Industrial Marketing Management*, 16, pp 225–230.

- Murphy, P. R., Poist, R. F. & Braunschweig, C. D. (1995). *Role and relevance of logistics to corporate environmentalism: An empirical assessment*. In: International Journal of Physical Distribution and Logistics Management, 25 (2), pp 5–19.
- Narasimhan, R. & Carter, J.R. (1998). *Environmental supply chain management*. Center for Advanced Purchasing Studies, Tempe, AZ.
- Nunnally, J.C. (1978). *Psychometric Theory*. McGraw-Hill, New York.
- Pappis, C.P., Daniel, S.E. & Tsoufias, G.T. (2004). *LCA as a tool for the evaluation of end-of-life options of spent products*. In: Dekker, R., Fleischmann, M., Inderfurth, K. & Van Wassenhove, L.N. (Eds), *Reverse logistics: Quantitative models for closed-loop supply chains*, Springer-Verlag, Heidelberg, pp 333-56.
- Peterson, R.A. (1994). *A meta-analysis of Cronbach's coefficient alpha*. Journal of Consumer Research, 21 (2), pp 381–391.
- Pil, F.K. & Rothenberg, S. (2003). *Environmental performance as a driver of superior quality*. Production and Operations Management, 12 (3), pp 404-415.
- Rao, P. & Holt, D. (2005). *Do green supply chains lead to competitiveness and economic performance?* International Journal of Operations & Production Management, 25 (9), pp 898 – 916.
- Reichheld, F. & Sasser, W.E. Jr (1990). *Zero defections: Quality comes to service*. Harvard Business Review, 68 (5), pp 105-11.
- Ringle, C. M., Wende, S., & Will, S. (2005). *Smart PLS 2.0 (M3) Beta*. Retrieved from Hamburg: <http://www.smartpls.de>.
- Rogers, D. & Tibben-Lembke, R. (2001). *An examination of reverse logistics practices*. Journal of Business Logistics, 22 (2), pp 129-148.
- Rogers, D. & Tibben-Lembke, R. (1999). *Going Backwards: Reverse Logistics Trends and Practices*. RLEC Press, Pittsburgh, PA.
- Sarkis, J. & Rasheed, A. (1995). *Greening the manufacturing function*. Business Horizons, 38 (5), pp 17–27.
- Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). *PLS path modeling*. Computational Statistics & Data Analysis, 48, pp 159-205.
- Thierry, M., Salomon, M., van Nuene, J. & van Wassenhove, L. (1995). *Strategic issues in product recovery management*. California Management Review, 37 (2), pp 114-35.

Treacy, M. & Wiersema, F. (1992). *Customer intimacy and other value disciplines*. Harvard Business Review, pp 84-93.

Ullmann, A. A. (1985). *Data in search of a theory: A critical examination of the relationships among social performance, social disclosure and economic performance of U. S. firms*. Academy of Management Review, 10 (3), pp 540–557.

Van der Laan, E., Salomon, M., Dekker, R. & Van Wassenhove, L. (1999). *Inventory control in hybrid systems with remanufacturing*. Management Science, 45 (5), pp 733-747.

Varki, S. & Colgate, M. (2001). *The role of price perceptions in an integrated model of behavioral intentions*. Journal of service research, 3 (3), pp 232-240.

Walley, N. & Whitehead, B. (1994). *It's not easy being green*. Harvard Business Review, 72 (3), pp 46-52.

Winston, A. (2010). *IBM's green supply chain*. Consulted on the 26th of November 2012, <http://blogs.hbr.org/winston/2010/07/ibms-green-supply-chain.html>.

Yin, R.K. (1994). *Case Study Research Design and Methods*. Second ed., Applied Social Research Methods Series, 5, SAGE Publications, Thousand Oaks.

Zeithaml, V.A., & Bitner, M.J., (1996). *Services Marketing*. New York, NY: McGraw Hill.

Zeithaml, V.A., Berry, L.L. & Parasuraman, A. (1996). *The behavioral consequences of service quality*. Journal of Marketing, 60, pp 31-46.