The relationship between value co-creation and customer perceived value

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Abstract

This research considered the relationship between Customer Perceived Value, ultimately a measurement of a firm's Value Proposition, and Value Co-creation, a recent development in Service Science that considers the joint creation of value between customers and firms rather than the traditional exchange value logic of marketing. The Value Proposition was broken down into elements of functional value (Price and Quality), Emotional Value and Social Value; while Value Co-creation was understood across the two dimensions of Value-in-use and Co-production.

A descriptive research design using a quantitative methodology was employed, collecting data from 297 respondents who form part of an online opt-in research panel through the use of an online survey. Perceptions of value and Value Co-creation were collected through the use of two existing measurement instruments proposed in the academic literature, asking respondents about the service interaction they can best recall with a major South Africa clothing retailer in the past three months.

Four research hypotheses were tested through the use of regression analysis, and statistically significant relationships were found between Perceived Value and Value Co-creation as well as Perceived Value and the dimensions of Co-creation, namely Value-in-use and Co-production. Moreover, Value-in-use was found to have a statistically significant greater effect on Perceived Value than Co-production. The research could not establish a differential impact of the dimensions of Co-creation on the dimensions of Perceived Value, i.e. the data did not support that Co-creation has greater impact on certain elements of the Value Proposition than others.

The fourth research hypothesis considered Value-in-use as the ultimate customer outcome rather than a predictor of Perceived Value, and the statistically significant regression model provides support that Co-production can be considered an integral part of a firm's Value Proposition, rather than an underlying construct of Value Co-creation considered separately from the Value Proposition.

The research contributes to the academic literature in validating two research instruments, establishing additional positive consequences of Value Co-creation and adding to the Service Innovation stream of the Value Co-creation literature. Its business implications suggest relooking the way Value Propositions are designed by adding conscious Value Co-creation as a dimension of the firm's Value Proposition, leading to enhancing the customer's Value-in-use which ultimately circles back to improve perceptions of the firm's Value Proposition.

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Keywords

Value co-creation; Customer perceived value; Co-production; Value-in-use; Service dominant (S-D) logic

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

_____ <u>7 November 2016</u>

Pierre Coetzee **Date**

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1. Introduction

1.1 Background to the research

The concept of value creation originated in the 1980s and remains a much discussed topic in academic literature to this day (Martelo Landroguez, Barroso Castro, & Cepeda-Carrión, 2013). However, despite its apparent importance, the concept still lacks analytical rigour in the literature (Grönroos & Voima, 2013). Kotler & Keller (2012 p. 32) define value as "the sum of the tangible and intangible benefits and costs to customers", with value creation then being the process of a firm creating offerings that offer this kind of value. For example; in the purchase of a piece of clothing from a clothing retailer, the customer not only exchanges money for goods (Value-in-exchange), but value is created through the customer's self-perception of owning a desirable piece of clothing, as well as others' perception of them when they wear this item (Value-in-use).

This idea of contrasting value creation between Value-in-exchange and Value-in-use gained traction after the publication of the influential paper by Vargo & Lusch (2004), who compared what they termed the goods-dominant logic (G-D logic) of marketing to the service-dominant logic (S-D logic) of marketing. In G-D logic, the firm's function is seen as delivering value to the customer through its value-adding processes, and the customer exchanges money in return for value-added goods (or services); from there the term Value-in-exchange. The S-D logic considers knowledge and skills as the primary units of exchange, and the firm uses its unique knowledge, skills and resources to create Value Propositions, but can never deliver value (Vargo & Lusch, 2008). Value can only ever be created in the customer's use of a good or service, with the firm facilitating value creation through its Value Proposition. In so doing, the firm can co-create value with its customers in a joint value creation sphere (Grönroos & Voima, 2013).

Recently, value creation has evolved and much has been written about the concept of Value Co-creation, particularly after the influential papers of Vargo & Lusch (2004) and Prahalad & Ramaswamy (2004). The essence of this concept states that value is not created by the firm, but by the customer in their use of products or services (Grönroos & Voima, 2013). Firms are able to co-create value with customers through interaction (Grönroos & Voima, 2013), either through Co-production, Value-in-use or a combination of both (Ranjan & Read, 2016). Value Co-creation is therefore the act of creating value, as defined above, through interaction between customers and firms; it is the "joint, collaborative, concurrent, peer-like process of producing new value, both

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materially and symbolically" (Galvagno & Dalli, 2014 p. 644). Continuing the example of clothing retail, Value Co-creation can take place in Co-production if the retailer allows customers to produce their own clothing designs, submit these to the retailer and then purchase these designs in completed form from the retailer (Nike is a good example of this concept of Co-production). This value creation process is a special case of Co-creation termed Co-production, and can create value for the customer from a functional point of view (getting access to exactly the type and style of product they want), as well as from a social and even emotional point of view. More broadly speaking, if the retailer creates an enjoyable shopping experience, e.g. through a personalised service interaction or enjoyable shopping environment, the retailer and its customer co-create value by increasing the customer's enjoyment of the shopping process. In the second example, the value created would be different for different customers and their individual needs: price conscious customers would experience value being created if the retailer presented them with a unique discount on their purchase creating functional value. Social value could be created if the retailer provided an experience that spoke to a customer's need to be socially accepted, e.g. by portraying an aspirational image.

Value Co-creation has dual roots: Prahalad & Ramaswamy (2004) argue that it is a natural evolution of value creation as more choice becomes available to customers, and firms must adopt this approach to value creation in order to remain relevant. Vargo & Lusch (2004) view it as an underlying principle of what they term a service-dominant logic of marketing, which views the marketing function as being concerned with providing service rather than exchanging goods. Whichever view is taken, the concept has grown in popularity with Ranjan & Read (2016) identifying 101 studies in the academic literature since 2000 referencing the topic.

In their analysis of the literature on Value Co-creation, Ranjan & Read (2016) found that 79% of the existing literature focusses only on one element of Value Co-creation, i.e. either Co-production or Value-in-use. Furthermore, only 2.7% covered all six of the sub-dimensions of Value Co-creation, creating the need for more research that examines the full impact of Value Co-creation. They hypothesise that the lack of a rigorous definition of Value Co-creation in past literature has led to inconsistent results on the topic.

Two distinct thoughts seem to have emerged on Value Co-creation: an employee or firm centric one (Vega-Vazquez, Ángeles Revilla-Camacho, & J. Cossío-Silva, 2013; Yi & Gong, 2013; Fellesson & Salomonson, 2016) and a customer centric one (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004; Vargo & Lusch, 2008; Grönroos & Voima,

2013; Ranjan & Read, 2016). The firm centric view considers customer duties or responsibilities in order for value to be co-created, while the customer centric view, which is more in line with the original concept of Vargo & Lusch (2004), considers how firms can interact with its customers in more meaningful ways in order to co-create value. The firm centric view of Value Co-creation seems to contradict the reason for the development of this school of thought: if the customer is the creator of value and the firm can only facilitate this process, being prescriptive in how the customer should be interacting with the firm is counterintuitive. This research will therefore take the customer centric view of Co-creation: Co-creation occurs at point of interaction between customers and the firm, with customers generally responsible for value creation through their use of products and services.

Related to the concept of value creation is Customer Perceived Value, a customer centric view of value creation (Martelo Landroguez et al., 2013). Customer Perceived Value aims to measure the customer's impression of the amount of value that was created in the consumption of products or services, and is seen as an important measure of a firm's performance (Leroi-Werelds, Streukens, Brady, & Swinnen, 2014). It is generally seen as a trade-off between benefits obtained from the product or service and the sacrifices made to obtain the product or services, with sacrifices including but not limited to the monetary cost incurred by the customer (Martelo Landroguez et al., 2013).

The two concepts of Value Co-creation and Customer Perceived Value are obviously related, but are conceptually different. Value Co-creation refers to the process of value creation by a customer in the interaction with a firm, where the firm facilitates the creation through its Value Proposition (Grönroos & Voima, 2013). Perceived Value firstly refers to the customer's perception of the value created, as without that perception existing, no value is actually being created (Martelo Landroguez et al., 2013). In this research, the distinction between Value Co-creation and Customer Perceived Value will be created in treating Value Co-creation as the firm's process of attempting to create joint value with its customers, while Customer Perceived Value is the outcome of this process, measured by the customer's perception of the value that has been created.

1.2 Need for the research

1.2.1 Academic need

Galvagno & Dalli (2014) found that the existing research on Value Co-creation consists of two research streams: the theory of Co-creation, and collaborative innovation in new

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product development. Existing research on Value Co-creation therefore puts a great focus on its theoretical foundations, but not much empirical research exists on its consequences, especially from a customer point of view. Furthermore, the majority of existing research has taken the perspective of the service provider, not the customer (Fliess, Dyck, & Schmelter, 2014). This research will aim to establish the relationship between Value Co-creation and Customer Perceived Value in order to establish the business relevance of Value Co-creation, as well as its effect on customer perceptions.

The academic need for this research is threefold: firstly, the research will validate two measurement instruments that have been proposed in the literature, but have not been validated apart from their own authors' initial work – one proposed by Ranjan & Read (2016) that measures Value Co-creation as a third order construct made up of two dimensions and six sub-dimensions, and one proposed by Walsh, Shiu, & Hassan (2014) that measures Customer Perceived Value through the use of the shortened PERVAL scale, originally introduced by Sweeney & Soutar (2001). Additionally, these instruments will be validated in a different economic context, as Ranjan & Read (2016) originally performed their research with American and Indian respondents, while Walsh et al. (2014) used respondents from the UK and USA. The industry considered in this research will also differ from that which the previous authors researched, and finally this research will analyse a real-world context by researching actual customer experiences with clothing retailers, whereas Ranjan & Read (2016) utilised scenarios and vignettes for their research. .

The second academic need addressed by this research stems from Ranjan & Read's (2016) observation that of the 149 studies considered in their extensive literature review, only 2.7% considered Value Co-creation in its entire form, i.e. across all its dimensions and sub-dimensions. This research will add to the existing Value Co-creation research by using the definition of Value Co-creation provided by these authors.

Thirdly, the relationship between Value Co-creation and Customer Satisfaction has been analysed in a number of studies recently (e.g. Heidenreich, Wittkowski, Handrich, & Falk, 2015; Ranjan & Read, 2016; Vega-Vazquez et al., 2013; Yi & Gong, 2013) but there is no evidence in the current academic literature of analysing the relationship between Value Co-creation and Customer Perceived Value. With Perceived Value receiving significant academic and practical attention (Martelo Landroguez et al., 2013), there is academic justification for understanding the potential relationship between the two constructs.

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1.2.2   Business need

With Customer Perceived Value having been shown to have a great impact on businesses and their competitive advantage (Martelo Landroguez et al., 2013; Leroi-Werelds et al., 2014), the primary business need for this research is to establish what the business advantage, measured as Customer Perceived Value, is in adopting Value Co-creation processes. With Value Co-creation requiring a realignment of the firm's resources and its processes, it is important to understand what the potential business impact would be in adopting this school of thought.

The second business need for the research is to shed light on how a business needs to align and allocate its resources across the dimensions of Value Co-creation. With the two underlying dimensions of Value-in-use and Co-production requiring different business resources and implementations, an understanding of their differential impact can clarify how business should allocate its scarce resources to maximise its impact.

Finally, the research will aim to show how Value Co-creation can be used to drive and develop a business's value proposition. Considering the underlying dimensions of Perceived Value as the building blocks of a Value Proposition, the research will aim to understand how Value Co-creation and its dimensions influence each of these, thereby showing how the concept can be used to shape a Value Proposition.

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2. Literature review

2.1 Value Co-creation

2.1.1 Introduction

The influential papers by Vargo and Lusch (2004) and Prahalad and Ramaswamy (2004) generated much academic interest into the concept of business co-creating value with its customers, with the topic to this date still receiving academic attention (Galvagno & Dalli, 2014; Fellesson & Salomonson, 2016; Ranjan & Read, 2016). The idea of business needing to create customer value began to take hold in the 1990s, after much attention was given to quality management in the two decades before (Sánchez-Fernández & Iniesta-Bonillo, 2007; Woodruff, 1997). It is however clear in the main bodies of literature from this period that value creation was seen as something that business does for its customers, i.e. value creation is a one way process where the firm adds value to its products or services and the customer receives and perceives this value (Ulaga & Chacour, 2001; Vargo & Lusch, 2004; Woodruff, 1997).

The idea of value being co-created with customers rather than a firm delivering value to its customers forms part of the ten foundational premises of what has come to be known as the service-dominated (S-D) logic of marketing (Vargo & Lusch, 2008), initially introduced in 2004 by Vargo & Lusch. S-D logic views the marketing function as concerned with providing service rather than exchanging goods; the latter view having its origins in economics which can be traced back to the work of Adam Smith (Vargo & Lusch, 2004). By its definition, S-D logic focusses on the needs of the customer and how the firm can provide services to suit these needs. Logically following from this is the idea of co-creating value, building relationships and interaction between firms and customers.

Whereas Vargo & Lusch (2004; 2008) view Value Co-creation as a consequence of S-D logic, Prahalad and Ramaswamy (2004) view it as a consequence of societal change: the authors argue that customers are more informed, connected and active due to greater access to information, globalisation, networking, greater experimentation and activism. The result is that companies need to focus on the quality of their Co-creation experiences, not just the quality of their products and processes. The authors put forward that the building blocks of Co-creation are dialogue, access to data, risk assessment and transparency. Dialogue is defined as interaction and engagement from both companies and customers; access to data refers to giving customers insight into the company's business to allow them to participate in value creation; risk

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assessment is giving customers a full understanding of their exposure and transparency refers to the progressive disappearance of the traditional imbalance of information between companies and customers.

Whether Value Co-creation is seen as a consequence of evolving business thinking (Vargo & Lusch, 2004) or the result of societal change (Prahalad & Ramaswamy, 2004), it is clear that the concept has remained academically relevant, and will have implications for how business will conduct itself in the future. The concept requires a change in business focus: from product and service delivery to customer collaboration. This in turn has significant implications on how a firm optimises the use of its resources.

The remainder of this section of the literature review will discuss some of the key concepts in the Value Co-creation debate, consider the underlying dimensions of Value Co-creation, consider the business implications of the concept and look at some of the criticism the concept has received in the literature.

2.1.2 Co-creation vs. Co-production

As more research has been published on the concept of Co-creation (e.g. Fellesson & Salomonson, 2016; Fliess et al., 2014; Heidenreich et al., 2015; Ranjan & Read, 2016; Vega-Vazquez et al., 2013; Yi & Gong, 2013), many definitions of the concept have emerged, not necessarily consistent with one another. One of the major points of difference in defining the concept lies in the difference between *Co-creation* and *Co-production* (Galvagno & Dalli, 2014). Many papers use the term Co-creation when they are in fact considering Co-production (Galvagno & Dalli, 2014); Vargo & Lusch (2008 pp. 7-8) themselves update the sixth foundational principle of S-D logic to read "The customer is always a *co-creator* of value [emphasis added]" rather than "a *co-producer* of value [emphasis added]." They argue that Co-production is a subset of Co-creation, referring to a special case of Co-creation where customers are involved in product design. Co-creation as the broader concept is any occurrence where customers and firms generate value through interaction and Co-production. As a practical example, in a clothing retail setting Co-production would occur if a retailer collected information from its customers on their preferences before launching a new fashion line. It could go as far as allowing customers to submit fashion designs which are incorporated in the launch of the new line. Similarly in the services sector, Heidenreich et al. (2015) simulated Co-production in their research by creating an online flight booking platform, where customers could design their entire travel experience from departure and arrival times through to value-added services like their preferred on-flight meals and reading.

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It should be noted that Heidenreich et al. (2015) itself is an example of the two concepts being confused, with the authors referring to their research as testing the potential risks of Co-creation, when in fact their interventions to create high levels of Co-creation were all examples of Co-production.

In identifying themes in the existing research on Co-creation, Galvagno & Dalli (2014) find that there are two main streams: the theory of Co-creation and Collaborative Innovation, mirroring the Co-creation vs. Co-production debate; i.e. they term Co-production as Collaborative Innovation. They found that the theory of Co-creation could be subdivided into four themes, however three of these four essentially come from the service science perspective: S-D logic, service innovation and the development of service science. The fourth sub-theme refers to Value Co-creation through customer experience and competence. They also find three main theoretical perspectives which have dominated the research on Co-creation: the Service Science perspective is the dominant one (understandably as the concept originated in this field), followed by the Innovation and Technology management perspective; and then the marketing and consumer research perspective. The Service Science perspective views Value Co-creation as an integral part of service, i.e. service does not exist without Value Co-creation. This is in-line with the S-D logic approach. The Innovation and Technology perspective views technological advancements as a mediator in service interactions, and posits that technology plays a role in customers becoming part of the innovation process, thereby co-creating value (and often co-producing). The marketing and consumer research perspective considers Value Co-creation from the consumer behaviour point of view, and considers whether customers' expectations are met through engagement, empowerment and involvement, including to what extent customers want to be engaged and involved. Figure 1 below summarises the existing literature on Co-creation as per Galvagno & Dalli (2014) according to main research stream and themes.

Figure 1: Summary of existing Co-creation literature

Value Co-creation literature		

Theory of Co-creation	Collaborative innovation in new product development

Foundations of and theoretical developments in co-creation literature	Relationships with the service science theory	Online and digital customer involvement	Individual consumers and communities collaborating with companies

Co-creating value through customer experience and competence	S-D logic	Service innovation	Development of service science

2.1.3   *Value-in-exchange vs. Value-in-use*

In their original paper, Vargo & Lusch (2004) introduce the concepts of Value-in-exchange vs. Value-in-use. The difference between these two views of value creation underpins the concept of S-D logic, and ultimately Value Co-creation. Whereas Value-in-exchange refers to the traditional concept of one-sided value creation, Value-in-use gives rise to the argument of Value Co-creation. Value-in-exchange originates in the traditional goods-dominant (G-D) logic, where value is perceived to be added to goods through the firm's processes. The firm delivers value to its customers and customers receive value. In contrast, Value-in-use puts forward that value is only created in the customer's use of the product or service – value is therefore created by the customer, not the firm. There is a contradiction in this view, as in the same paper the authors state that firms can only create value propositions, not value itself, but goes on to say value is co-created between firms and customers. In their follow-up article, Vargo & Lusch (2008) clarify this by stating that the intention of the statement that firms can only create value propositions was not to imply that once a firm has created their value proposition, their role in the value creation process was finished. Rather, this was meant to imply that the firm cannot deliver value on its own, but can offer its resources in order to co-create value with its customers.

In order to illustrate the difference between Value-in-exchange and Value-in-use, consider once again the example of clothing retail. Value-in-exchange would reason that the retailer adds value by offering a convenient premise where customers can buy clothing, i.e. customers exchange money for the benefit of having a convenient destination where finished garments can be bought, instead of having to deal with a clothing manufacturer directly. Value-in-use would consider the clothing retailer's value

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proposition, e.g. offering high quality fashionable clothing at affordable prices, but value is only created in the customer's use of the clothing. The retailer and the customer co-create value in their interaction, e.g. positive service experience and appreciation of the retailer's product offering, and value continues to be created in the customer's on-going usage (wearing) of the garment they have purchased from the retailer.

In an attempt to attach more analytical rigour to the concept of Value Co-creation and to define the roles of firms and customers, Grönroos & Voima (2013) argue that value creation is neither Value-in-exchange nor Value-in-use, as both the firm and customer are involved in the process. They criticise the view of Co-creation as a large scale process and as a metaphorical view of the concept that is only useful when it is discussed in general terms. Once the discussion moves to an analytical view, the concept has to be better defined in terms of roles and where Co-creation takes place, rather than just referring to it as broadly generating mutual value for the customer and the firm. The argument is then that Co-creation of value cannot be viewed as Value-in-exchange as the actions and usage of the customer are involved. It also cannot be viewed as only Value-in-use, as by definition this involves only the customer, not the firm. They develop the view that value emerges as an accumulation of experiences, which commences with usage. The process is however not linear (i.e. from production through to exchange through to usage), but is customer driven and emerges over time and space.

There are three spheres in which value is created: the provider sphere, the customer sphere and the joint sphere (Grönroos & Voima, 2013). In the provider sphere the firm is a value facilitator and creates the potential for value, not actual value; in the customer sphere the customer independently creates value through use with the firm again acting as value facilitator through its provision of products or services; while in the joint sphere the opportunity emerges for Co-creation of value through interaction between the firm and the customer (Grönroos & Voima, 2013).

In the joint sphere, where there is direct interaction between the firm and the customer, Value Co-creation can occur. Interaction between the firm and the customer can be either direct or indirect, with indirect interactions taking place in the provider and customer spheres. A thorough understanding of how the customer creates value independently by the firm allows it to successfully co-create value in interactions. Importantly, they state that a firm's Value Co-creation efforts not only influence the customer's value creation, but also their future behaviour (Grönroos & Voima, 2013).

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In order to move from a conceptual understanding of Value Co-creation to being able to understand it in practice and ultimately be able to measure its execution, the dimensions of Value Co-creation are discussed next.

2.1.4 *Dimensions of Value Co-creation*

The earliest example of an attempt to unpack the underlying dimensions of Value Co-creation can be found in one of the first influential papers on the subject by Prahalad & Ramaswamy (2004). The authors describe what they call the building blocks of Co-creation through what they name the DART model of Value Co-creation, an acronym for Dialogue, Access, Risk assessment and Transparency. Dialogue refers to two-way interaction and engagement between a firm and its customers – importantly it not only involves firms listening to customers, but the customer becomes an equal in the interaction. Access concerns giving customers the ability to use information and tools that are available to the firm; the authors use the example of a semiconductor manufacturer providing its customers access to its processes and libraries, allowing even smaller companies access to the knowledge of a larger firm and reducing the investment required to participate in the semiconductor business. Risk assessment involves understanding the consumer risks involved, given the consumer will play a larger part in the value creation process. It considers whether consumers should take on responsibility for some of the risks if they are to co-create value, as well as the issue of informed consent and how firms communicate underlying risks to its customers. Finally, transparency deals with the traditional asymmetry in knowledge and information between firms and customers. Where historically firms benefited from customers not having the same level of information regarding costs, prices and margins, the reality now is that customers will demand transparency in this, as well as have a better understanding due to greater levels of information available to them. The successful value co-creating firm will recognise this and be proactively transparent.

In their exhaustive review of the extant literature on Value Co-creation, Galvagno & Dalli (2014) found that there are two distinctly diverging views of Value Co-creation: a customer centric view and a firm centric view. One example of the firm centric view of Co-creation can be found in the research of Yi & Gong (2013). In their four-stage empirical research aimed at developing and validating a scale to measure Value Co-creation, they found the dimensions of Co-creation consist of two types of behaviour: customer participation behaviour and customer citizen behaviour. Customer participation is a necessary condition for Value Co-creation (without it Value Co-creation cannot exist), consisting of information seeking, information sharing, responsible behaviour and personal interaction. It puts the focus on customers

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behaving in a certain way in order for value to be created, for example, adhering to instructions from employees, being aware of tasks that are required in the interaction, providing the necessary information to employees and acting courteously towards employees. Customer citizenship is not a necessary condition for Co-creation, but generates additional value for the firm. It consists of feedback, advocacy, helping and tolerance. This dimension refers to external behaviour of customers like commenting on good service, providing positive word of mouth, assisting other customers and having a level of tolerance towards bad service experiences (Yi & Gong, 2013).

Fellesson & Salomonson (2016) took a similar firm centric view to Co-creation in an empirical study with 35 frontline employees in the retail sector. They examined what employees' expectations are of customers in a service encounter, and concluded that there are operative expectations and interactive expectations from employees in terms of customers. Operative expectations refer to what customers should do and include customers being responsible for maintaining an efficient in-store experience, having an awareness of the store's rules, having basic commercial knowledge and having an understanding of the general business model of the firm. Interactive expectations pertain to how customers should behave in the service interaction, including courteous behaviour, emotional stability, a willingness to listen to employees' advice and instructions and respect for employees' role, time and ability to influence higher level company policies.

Both Yi & Gong's (2013) and Fellesson & Salomonson's (2016) distinctly firm-centric view of Value Co-creation, puts a large onus on the customer to behave in a specific way to allow for Co-creation. The firm centric view however contradicts the view of Co-creation put forward by Vargo & Lusch (2004; 2008) who by all accounts seem to have pioneered the concept. The authors made the following statement regarding S-D logic, which gave rise to Value Co-creation, which fundamentally contradicts the firm centric view: "[S-D logic] positions service, the application of competences *for the benefit of the consumer* [emphasis added], as the core of the firm's mission" (Vargo & Lusch, 2004 p. 14). A firm centric approach to Co-creation furthermore seems at risk of being an example of co-opting customer competence to the extent that it could result in customer dissatisfaction (Ind & Coates, 2013).

Taking a more customer centric view, an alternative view of the dimensions of Value Co-creation is suggested by Ranjan & Read (2016). Through a comprehensive literature review of 149 papers, the authors identified the two dimensions of Value Co-creation as Value-in-use and Co-production. Value-in-use is consistent with the

definition put forward by Vargo & Lusch (2004) in that it refers to customers' use and experience of products or services, while Co-production ranges from generating customer insights through market research to active participation in product development and content creation. Value-in-use consists of experience, personalisation and relationship, while Co-production consists of knowledge sharing, equity and interaction. It should be noted that the authors' definition of Co-production is not consistent with the definition put forward earlier in this literature review. When referring to Co-production in the context of Ranjan & Read's (2016) research in this paper, their definition is implied and not that of Vargo & Lusch's (2008) updated definition. Ranjan & Read (2016) found that in existing research analysed by them, researchers generally only dealt with one of the two abovementioned dimensions of Co-creation, resulting in the authors questioning whether contradicting results in the current literature might partially stem from researchers not consistently analysing the concept across both its dimensions.

As the sub-dimensions are pivotal to the understanding of customer centric Co-creation, they are elaborated on below according to Ranjan & Read (2016).

1. *Experience (Value-in-use)*: The experience sub-dimension of Co-creation refers to emotional value and memorability of the interaction between a customer and a firm. Experience is intrinsically linked to the products or services a firm supplies, and is created through customers' interaction with the firm and its outputs.

2. *Personalisation (Value-in-use):* This refers to the degree of uniqueness firms provide in their products and services at the individual customer level. In other words, to what extent does a firm personalise its offerings to individual customers and does it adapt its processes in an interaction to suit the needs of the customer it is serving.

3. *Relationship (Value-in-use):* The extent to which there is engagement with and attachment to the firm involved in the service interaction constitutes the relationship Value-in-use sub-dimension. High relationship value is created when there is extended facilitation required from the firm in the service interaction, in other words the interaction transcends the simple buyer/seller relationship.

4. *Knowledge sharing (Co-production):* The extent to which a firm provides the opportunity for customers to share their ideas and suggestions, often based on past experience, in order to improve their offerings creates future value for customers by enhancing the firm's offering.

5. *Equity (Co-production)*: Equity involves a willingness from the firm to share control of its processes, as well as a willingness from the customer to be involved in the

process. It is dependent on the customer being transparent with their needs, while the firm needs to respond to these needs and consider the customer to be an equal partner in the interaction.

6. *Interaction (Co-production):* Whereas the knowledge and equity dimensions can take place outside of the service interaction, creating value through interaction is dependent on active participation of both the firm and the customer in the service interaction as well as a dialogue between the two parties. It requires the opportunity for a customer to express their needs while the service interaction is taking place and playing a proactive role in the process.

In an investigation of customers' perceptions of their contribution to service provision, Fliess et al. (2014) found that customer contribution consists of three dimensions: physical, mental and emotional. The physical dimension refers to all the actions a customer has to take in the service interaction, and can be as simple as having to wait for the interaction to finish, e.g. waiting for fuel to be put into their car, or having to physically move things, e.g. taking luggage to their hotel room. It consists of three categories: sensory, communication and motion (having to move oneself, other objects and being present). The mental dimension consists of the four categories information handling, e.g. recalling and collecting new information; process handling, e.g. planning for the interaction or anticipating and coping with unexpected events; evaluation and decision making. Finally, the emotional dimension refers to the customer's state of mind, and can vary according to valence (positive to negative) and intensity. It is influenced by the customer's mood before they enter the service interaction.

Referring to Grönroos & Voima's (2013) three spheres of value creation, the three dimensions found by Fliess et al. (2014) can be easily mapped on to these spheres. The physical dimension takes place purely in the joint sphere as it refers to the customer's presence in the interaction and their physical actions. The mental dimension refers to the customer's cognitive participation in the process: some of this occurs in the customer sphere to make the process for themselves, e.g. process handling, while information handling, evaluation and decision making occur in the joint sphere where value can be co-created. The emotional dimension mostly occurs in the customer sphere, but can be influenced in the joint sphere. The authors found that the customer's physical or mental contribution to the service process evoked certain customer emotions, i.e. the emotional dimension was influenced by the physical and mental dimensions. Interestingly, customers viewed their activities in the customer sphere as contributing to the service encounter.

In summary,

Table 1 provides an overview of the various dimensions of Value Co-creation found in the literature.

Table 1: Dimensions of Value Co-creation

Philosophical view	Academic source	Dimensions	Sub-dimensions
Firm-centric	Yi & Gong (2013)	Customer participation behaviour	Information seeking
			Information sharing
			Responsible behaviour
			Personal interaction
		Customer citizenship behaviour	Feedback
			Advocacy
			Helping
			Tolerance
	Felleson & Salomonson (2016)	Operative expectations	Responsibility
			Awareness
			Commercial knowledge
			Business model understanding
		Interactive expectations	Courteousness
			Emotional stability
			Willingness to listen
			Respect
Customer centric	Ranjan & Read (2016)	Value-in-use	Experience
			Personalisation
			Relationship
		Co-production	Knowledge sharing
			Equity
			Interaction
	Fliess et al. (2014)	Physical	Sensory perception
			Communication
			Motion
		Mental	Information handling
			Process handling
			Evaluation
			Decision making
		Emotional	In-process emotional state
			Pre-encounter mood and emotions
Mixed	Prahalad & Ramaswamy (2004)	Dialogue	
		Access	
		Risk assessment	
		Transparency	

2.1.5 Business implications

Not much empirical research on the concept of Value Co-creation is available, hence the implications for business is not quite clear yet. Vega-Vazquez et al. (2013) use the measurement scale put forward by Yi & Gong (2013) to determine the relationship

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between Value Co-creation and customer satisfaction, where customer satisfaction is defined as the extent to which an interaction between a customer and a firm met the customer's expectations. They conclude that there is a positive relationship between the two concepts; the research is however limited to the personal care industry which requires high customer involvement, and the research methodology does not establish causality. In an attempt to validate their measurement scale, Ranjan & Read (2016) also examined the relationship between Value Co-creation and satisfaction. They also conclude a statistically significant positive relationship.

Ind & Coates (2013) derive more qualitative benefits of Co-creation. They describe four opportunities that allow for the democratisation of Co-creation rather than a managerial view and one where the customer is co-opted into creating value: participatory design, the Co-creation of meaning (as opposed to an organisational definition of intent), utilising the open source movement and collaborative innovation. They argue that viewing Co-creation in this light can generate customer insights as a return through on-going interaction.

2.1.6   Criticism

Criticism of Value Co-creation stems from three main themes. Firstly, the concept has been criticised for being too theoretical and general, not allowing for analytical rigour and managerial implications (Grönroos & Voima, 2013). The authors attempt to overcome this by defining the roles of customers and firms in the process, as has been described earlier. A second criticism is that the concept can be viewed as simply exploiting customers by co-opting their competence, and if customers become aware of this it can create negative perceptions (Ind & Coates, 2013).

Thirdly, more of a caveat than a criticism, Heidenreich et al. (2015) found that Co-creation creates more customer satisfaction when the service interaction is successful, but also generates more dissatisfaction when the interaction fails. This is because the customer experiences increased levels of negative disconfirmation when they perceive high levels of Co-creation but the outcome of the service interaction fails. They furthermore found that for failed service interactions that were high on Co-creation, service recovery efforts that are also high on Co-creation generate better customer satisfaction. This is due to customers perceiving an element of guilt when the service interaction fails; involving them in the service recovery alleviates the cognitive dissonance. Conversely, in interactions that are low on Co-creation, a service recovery that is also low on Co-creation yields better customer satisfaction levels than one that

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is high on Co-creation. They concluded therefore that the level of Co-creation should be consistent across all interactions with the customer.

In a similar vein, Fliess et al. (2014) note that negative results could emanate from customer contribution to the service interaction if customers are not provided with the required knowledge to integrate into the service process. They further note that this could result in a drop in efficiency as well as quality of the service, which could lead to negative psychological connotations for the customer. Finally, they quote instances where customer contribution led to increased stress levels for employees.

2.1.7   Conclusion

Value Co-creation has received much attention in academic research since initially introduced by Vargo & Lusch (2004) and Prahalad & Ramaswamy (2004). Different interpretations have led to differing points of view, notably a firm centric and a customer centric view. The customer centric view seems more in line with the original concept, and this research will take this point of view. In particular, this research will utilise a measurement instrument proposed by Ranjan & Read (2016) as its independent variable. A Google Scholar search of articles citing this research reveals that apart from the authors' own work, no other empirical validation of their measurement instrument has been done.

It becomes clear from the literature that the concept of a firm's value proposition is central in understanding Value Co-creation. Bringing together the concept of Value Co-creation and Value Propositions, Roser, DeFillippi, & Samson (2013) importantly state that any Co-creation approach should be aligned to enhancing a firm's business model. Stated differently, Co-creation becomes part of a business's Value Proposition, and should enhance the Value Proposition in order for the customer to generate additional Value-in-use. Furthermore, they find that intrinsic motivation, such as social value, generally plays a greater role in engaging customers than extrinsic motivation, such as financial incentives. The value of Co-creation, according to this study, therefore lies in generating customer involvement that is meaningful and creates a sense of purpose, more so than the customer being better off financially. With this in mind, Value Propositions and how they emerge are discussed in more detail next.

2.2 Value Propositions

According to S-D logic, the only way firms can create value is through their Value Propositions: the customer uses the firm's Value Proposition in order to create value in usage of products and services (Grönroos & Voima, 2013; Vargo & Lusch, 2008).

Extant literature however only vaguely defines what a Value Proposition is, with Kotler & Keller (2012 p. 32) simply stating it is "a set of benefits that satisfy [customer] needs."

In an effort to clarify, Skålén, Gummerus, von Koskull, & Magnusson (2015) conducted an empirical study aimed at understanding the anatomy of Value Propositions, and found that the fundamental difference between S-D logic and G-D logic in their treatment of Value Propositions is S-D logic's consideration of Co-creation and integration of resources. Using S-D logic, a firm's Value Proposition is intrinsically linked with the concept of value creation and Co-creation often plays an integral role.

Studying the value creation processes of eight firms, the authors found that Value Propositions consist of ten practices, which can be grouped into three aggregates. The ten practices integrate the firm's resources in order to create a Value Proposition, and when a stable relationship exists between the ten practices, a Value Proposition will emerge that maximises the customer's value creation.

Table 2: The ten practices of a Value Proposition

Adapted from "Exploring value propositions and service innovation: a service-dominant logic study" by P. Skålén, J. Gummerus, C. von Koskull & P. R. Magnusson, 2015. *Journal of the Academy of Marketing Science, 43*(2), pp. 145-148.

Aggregate	Practice	Definition
Provision practices	Operating practices	Aimed at supporting the core customer value creation as stated in the value proposition
	Problem-finding practices	Identifies (a) problems with customer value creation and (b) customer needs for new forms of creating value.
	Problem-solving practices	Solves customer problems.
Representational practices	Naming and labelling practices	Describes the activities of the value proposition and their fulfilment.
	Modelling practices	Creates the structure of the value proposition.
	Interaction practices	Enables the communication of value propositions to customers or the Co-creation of value propositions with customers.
Management and organisational practices	Organising practices	Organises the work of providing and representing value propositions.
	Staffing and team building practices	Used to hire staff and build teams that can provide and communicate service.
	Networking practices	How firms involve members of their network to create, deliver or negotiate value propositions.
	Knowledge sharing practices	Practices used to share

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Aggregate	Practice	Definition
		knowledge and skills in order to realise the value proposition.

According to S-D logic, the only way a firm can create value with its customers is through its Value Proposition (Vargo & Lusch, 2004; Vargo & Lusch, 2008); this research provided clarity on how a firm creates a value proposition. Furthermore, the researchers found that the two core aggregates, provision and representation, are concerned with the realisation of value, while management practices provide support for the core practices.

Considering the definitions of the six practices that fall under the core aggregates together with the examples provided in the research, it becomes clear that there is opportunity for Value Co-creation within each of these. For example, problem-finding and problem-solving can be conducted in collaboration with customers, creating value for customers through interaction; while interaction practices by definition involve dialogue between the firm and its customers, creating further opportunity for Value Co-creation.

In another effort to understand how a Value Proposition emerges in an S-D logic framework, Ng, Parry, Smith, Maull, & Briscoe (2012) performed a very specific case study using data obtained from Rolls Royce. They developed eleven value creating activities (VCAs) that make up the firm's Value Proposition, and performed a conjoint analysis on data obtained from Rolls Royce's customers to understand the importance of each VCA in the firm's Value Proposition. One of the most important findings from this research was that the role the firm plays in the value creation process becomes its Value Proposition, while the customer's contribution becomes their Value-in-use. Understanding the process from a Value-in-use point of view allowed the authors to understand how the firm's Value Proposition can be changed or enhanced to become more effective and efficient. They also conclude that there is a distinct trade-off between effectiveness (attractiveness of the proposition to the customer) and efficiency (cost to the firm).

Understanding how a Value Proposition emerges, the question arises how a firm measures the success of its Value Proposition. The concept of Customer Perceived Value is discussed next.

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2.3 Customer Perceived Value

2.3.1 Introduction

Kotler and Keller (2012 p. 80) define Customer Perceived Value as "the difference between the prospective customer's evaluation of all the benefits and all the costs of an offering and the perceived alternatives." The concept started to receive both academic and business attention in the 1990s, and remains something that is considered fundamental to a business's success (Martelo Landroguez et al., 2013).

Interestingly, Martelo Landroguez et al. (2013) indicate that despite its perceived importance in business, Customer Perceived Value has enjoyed far less attention in conceptual understanding than other variables such as price, quality and satisfaction. While it is generally understood as a trade-off between quality and price, many scholars indicate it is much more complex and consists of multiple dimensions. Other complexities of Customer Perceived Value indicated by the authors include that different customers can have different perceptions of value in the same product or service due to customer heterogeneity, the trade-offs that are considered by the customer include but are not limited to the price of the product or service and the effect of relative value perception based on competitors in the same industry.

2.3.2 Dimensions and measurement of Customer Perceived Value

In a review of the extant literature on Customer Perceived Value, Sánchez-Fernández & Iniesta-Bonillo (2007) found that the value perception literature consists of two broad schools of thought: value as a uni-dimensional construct and as a multi-dimensional construct. The uni-dimensional school of thought posits that perceived value can be measured by a single or set of self-reported items. Perceived value could be the result of a set of multiple antecedents, but value is still a singular concept. It takes mostly a utilitarian point of view of perceived value: it is simply a trade-off of costs and benefits, resulting in an overall utility of the product or service; similar to the definition provided in the introduction. Quality, price and reputation are antecedents of value – the construct is reflective, rather than formative. This is the more common point of view in the literature, and is the most commonly accepted definition.

Perceived value possesses many other qualities however, such as it being defined by the customer (not the firm); it is personal and unique to every customer; it is circumstantial, time dependent and location dependent; it is based on an interaction taking place and it is experiential, i.e. the value lies in consumption, not purchasing; linking with the Value-in-use concept discussed earlier (Leroi-Werelds et al., 2014). With this in mind, the multi-dimensional school of thought views perceived value as

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consisting of a number of dimensions that are interrelated, in combination forming a holistic representation of value perception. Five distinct research streams exist in the multi-dimensional school of thought: the customer value hierarchy, utilitarian and hedonic value, axiology or value theory, consumption-value theory and Holbrook's typology of perceived value (Sánchez-Fernández & Iniesta-Bonillo, 2007).

a. **The customer value hierarchy**

Figure 2: Customer value hierarchy model

Adapted from "Customer value: The next source for competitive advantage" by R. Woodruff, 1997, *Journal of the Academy of Marketing Science, 25*(2), p. 142

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        ┌─────────────────────────┐
        │  Customers' goals and   │
        │        purposes         │
        └─────────────────────────┘
                    ⇕
        ┌─────────────────────────┐
        │        Desired          │
        │    consequences and     │
        │      use situations     │
        └─────────────────────────┘
                    ⇕
        ┌─────────────────────────┐
        │    Desired product      │
        │  attributes and attribute│
        │      performances       │
        └─────────────────────────┘
```
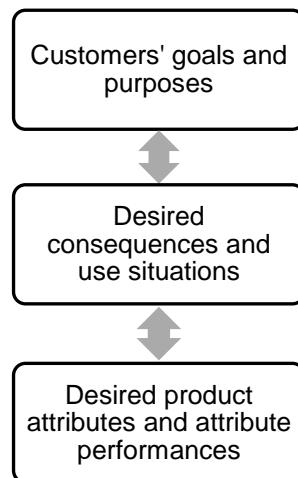
The customer value hierarchy model describes how customers determine value at three levels, with these levels influencing each other both upward and downward in the hierarchy. The three levels in the hierarchy (from bottom to top) are attributes, consequences and goals. In purchasing and usage of products, customers form preferences for specific product attributes, based on their knowledge that these attributes will help them achieve their desired consequences. In turn, customers learn to desire specific consequences that will aid in achieving their goals, the highest level in the hierarchy. Conversely, customers use their goals to determine which consequences to desire, and use desired consequences to determine the importance they attach to product attributes (Woodruff, 1997).

b. **Utilitarian and hedonic value**

Babin, Darden & Griffin (1994) state that value is comprised of both the usefulness and an appreciation of the activities comprising an event, and develops a scale that purports to measure both the utilitarian value and the hedonic value of a shopping trip. The utilitarian element largely relates to how value is defined in the uni-dimensional view, in that it attempts to estimate whether the shopping trip achieved what it was

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meant to achieve. It does not however explicitly measure the trade-off effect of value put forward by the uni-dimensional definition. Hedonic value aims to measure the enjoyment of the shopping trip, looking at the emotions and enjoyment generated by the activity.

While useful in understanding whether value is driven from a pragmatic or emotional point of view, the utilitarian/hedonic value model provides little information that can aid in business decision making, and is therefore not practical or useful in a business context.

c. Axiology or value theory

Danaher & Mattsson (1994) describe a model of value with three underlying dimensions: emotional (E), practical (P) and logical (L), with the hypothesis that $E > P > L$. E focusses on the feelings of customers, P on the physical and functional elements of the service encounter and L on the rational aspects; e.g. were things done correctly or incorrectly. They test their model in the hotel industry using the following measures of value, and testing the relationship between value and overall customer satisfaction.

Table 3: Measures in axiological value model

Dimension	Measure
Emotional	1. Nice treatment at check-in counter
	2. Cosy room
	3. Fine atmosphere in the restaurant
	4. Calm atmosphere at breakfast
Practical	1. Quick check-in
	2. Furniture and equipment are useful
	3. Good food at restaurant
	4. Abundant and easy to get food at breakfast
Logical	1. Booking was correct
	2. Room provided value for money
	3. Restaurant provided value for money
	4. Good selection of food at breakfast

The authors found partial correspondence of their hypothesised order of importance of each of the value dimensions, depending on which service interaction was being considered (the check-in counter, room, restaurant or breakfast encounter). While theoretically useful in understanding value perception, no standardised axiological model exists and therefore requires significantly more academic work in order to validate it.

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d. Consumption-value theory

Consumption-value theory states that value has five underlying dimensions: functional value, social value, emotional value, epistemic value and conditional value (Sánchez-Fernández & Iniesta-Bonillo, 2007). Sweeney & Soutar (2001) argue however that since functional value is made up of elements like price, reliability and durability, and quality and price had been shown in previous research to influence perceived value, these items should be measured separately in developing a measurement scale to measure perceived value. In developing their final PERVAL measurement instrument, Sweeney & Soutar (2001) found four dimensions of perceived value: emotional value, social value, functional value as price and functional value as quality.

The four dimensions are measured through 19 items which Walsh et al. (2014) attempted to reduce, testing both a 12-item and 8-item scale. They concluded that both versions provide usable alternatives to the 19 item scale, but the 12 item scale is preferable as it has better psychometric properties.

e. Holbrook's typology of perceived value

Holbrook (1999) defines customer value along three dimensions, measuring each of these dimensions as dichotomies overlaid on each other to determine eight customer value typologies. The three dimensions are:

1. *Extrinsic vs. intrinsic value:* Extrinsic value is defined similarly to how utilitarian value has been defined earlier, in that it measures the functional value of the service or product and whether it delivers on its intended function. On the opposite end, intrinsic value would indicate the product or service has value simply in consumption, and does not require any functional value.
2. *Self- vs. other-oriented:* As is evident in the name, self-oriented value would indicate the product's or service's value lies in the value it provides to the consumer, while other-oriented value derives its value from the reaction of others to an individual's consumption of the product or service.
3. *Active vs. reactive value:* Active value entails the consumer having to do something in the interaction with the product or service, compared to reactive value where the consumer responds or is affected by the consumption process.

Overlaying the three dichotomies, a 2×2×2 table is obtained, with each cell indicating a different value typology. Holbrook's eight value typologies are usually all present to varying degrees in any consumption experience (Sánchez-Fernández & Iniesta-Bonillo, 2007).

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Table 4: Holbrook's typology of customer value

Adapted from "Customer Value: A Framework for Analysis and Research" by M. B. Holbrook, 1999. *Advances in Consumer Research, 23*, p. 139.

		Extrinsic	Intrinsic
Self-oriented	Active	Efficiency	Play
	Reactive	Excellence	Aesthetics
Other-oriented	Active	Status	Ethics
	Reactive	Esteem	Spirituality

f. Measurement of Customer Perceived Value

Measurement of Customer Perceived Value remains a key business challenge and many methods that attempt to explain the underlying dimensions of it have been put forward. Leroi-Werelds et al. (2014) analyse four methods proposed in earlier research to determine where each of these will be applicable. The four methods range from a simple one-dimensional approach where customer value is considered within the context of the uni-dimensional definition given above, and measured through five questions focussed on the monetary value and perceived benefit offered by the product or service; to multi-dimensional approaches viewing customer value either as a set of attributes, i.e. qualities of the product or service, or as a set of consequences, i.e. what the product delivers. The multi-dimensional measurement included Holbrook's typology (Holbrook, 1999) and uses the PERVAL measurement scale's social value measurement (Sweeney & Soutar, 2001) to measure Holbrook's "Status" typology. The study finds that the four methods can be applicable according to the product under research being a think or feel product and low or high involvement. Additionally, the actionability, predictive ability and practicality of each method all play a role in the decision of which method to use.

2.3.3 Business implications

The business implications of Customer Perceived Value stem from it being viewed as a key determinant of business success, a source of competitive advantage and an indicator of customer retention and intent to repurchase (Martelo Landroguez et al., 2013). Furthermore, the results from an in-depth Customer Perceived Value measurement can be used to determine business and marketing strategies, as it determines how a business is positioned against its competitors and provides insight into how a business can improve its market positioning (Ulaga & Chacour, 2001).

2.3.4 Conclusion

Martelo Landroguez et al. (2013) propose a model that integrates the three views of customer value: Customer Perceived Value, value creation and value appropriation. They argue that there should be an integrated view of value both from the customer's and firm's point of view, and conclude that value is only created if the customer perceives it: if the customer does not perceive that value, no value is actually created.

Although the authors refer to value in the same way as S-D logic scholars, i.e. value-in-exchange and Value-in-use, they still consider value creation and appropriation as something that is the firm's responsibility, and do not include the customer in this value creation process. This research will attempt to establish the relationship between Value Co-creation and Customer Perceived Value, just as Martelo Landroguez et al. (2013) attempted to do with the concept of value created by a firm.

In the debate of Customer Perceived Value being a uni-dimensional or multi-dimensional construct, while Sánchez-Fernández & Iniesta-Bonillo (2007) conclude both arguments have merit and differ only in how complex it views the construct to be, it is clear the multi-dimensional approach covers the concept in greater detail and, in measurement, will provide greater diagnostic detail than the uni-dimensional approach. Evaluating the five research streams, it becomes evident that the consumption-value stream has the most advanced and academically validated measurement scale in Sweeney & Soutar's (2001) PERVAL scale. The shortened PERVAL measurement scale proposed by Walsh et al. (2014) provides an easy replicable measurement of Customer Perceived Value, more so than the multidimensional scales analysed in Leroi-Werelds et al. (2014), which included scales to measure the customer value hierarchy (Woodruff, 1997) and Holbrook's typology of perceived value (Holbrook, 1999). Coupled with this, a Google Scholar search of articles citing Walsh et al. (2014) reveals no further empirical testing of their scale has been done, creating a research opportunity.

2.4 Summary of literature review and conclusions

The review of the literature was structured around three central themes: firstly, the concept of Value Co-creation has emerged in the recent literature as a fundamental principle in how firms should view their roles in providing goods and services to customers. The firm does not simply add value to raw materials through its value chain and then sell this additional value to the customer for a profit; rather, the customer creates value through their use of the products and services that are delivered through a firm's value proposition.

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The idea of a value proposition becomes central then to what a firm does, as this is the only way that business can create value. How a value proposition emerges is not exactly clear yet, although some empirical research has attempted to shed light on this. It is clear however that a firm's value proposition plays a significant role in its ultimate success.

Because the concept of a value proposition has become so important in business, measuring customer perceptions of a firm's value proposition becomes pivotal in understanding whether the firm is able to facilitate value creation with its customers. The concept of Customer Perceived Value was therefore introduced to measure customer perceptions of a firm's value proposition. While value has many definitions in the literature, it becomes clear that consumption value is certainly easiest to measure, but is also most relevant to business as it provides dimensions of value that can easiest be referred back to classic business concepts: price and quality being the obvious ones, while social and emotional value largely speak to branding and aspiration, both of which are well-known in the marketing literature (see, for example, Kotler & Keller (2012 pp. 94, 140-141)).

3. Research hypotheses

3.1 Introduction

Four research hypotheses are suggested in this chapter, based on firstly the overall impact of Value Co-creation, and secondly on the fact that business resources are scarce and understanding how to balance the Co-creation mix can help firms prioritise their resource allocation. Lastly, the hypothesis that Co-creation should form part of the firm's Value Proposition is explored.

Two theoretical constructs form the basis of the research hypotheses put forward. Firstly, the PERVAL measurement of Customer Perceived Value (Sweeney & Soutar, 2001; Walsh et al., 2014), with its dimensions of Price, Quality, Emotional and Social value is considered to be a measurement of the firm's Value Proposition, as perceived by customers. Secondly, the Value Co-creation construct consisting of Value-in-use and Co-production (Ranjan & Read, 2016) is a measurement of a firm's Co-creation efforts with Value-in-use measuring the customer's creation of value in the customer sphere and Co-production measuring the firm's efforts at Co-creation in the joint sphere (Grönroos & Voima, 2013).

3.2 H1: There is a positive relationship between Value Co-creation and Customer Perceived Value

At its core, Value Co-creation allows customers to take an active role in the value generated through their direct or indirect interactions with a firm and its processes. Firms can only co-create value with its customers at points of interaction, and enhance this process by understanding its customers' behaviour and effectively managing interaction processes (Grönroos & Voima, 2013). This requires active effort and investment from firms, and it is therefore important to understand what value these efforts add for the firm. Given the importance attached to customer value perception in the academic literature and its positive implications, it is reasonable to expect that successful Co-creation of value will lead to an increase in Customer Perceived Value. The first hypothesis of this research is therefore:

H1: There is a positive relationship between Value Co-creation and Customer Perceived Value

3.3 H2: Co-production and Value-in-use have differential impacts on Customer Perceived Value

The two underlying dimensions of Value Co-creation, Co-production and Value-in-use, set forth by Ranjan & Read (2016) create an interesting question as to how firms should allocate their resources. Co-production focusses on the interaction between

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firms and customers and requires firms to put greater consideration on their direct interactions with customers and how to co-create value with them in these interactions. Conversely, Value-in-use speaks to customers' independent value creation process through their experience of the firm's products or services, and therefore puts greater emphasis on the firm's value proposition. It is therefore important to understand which dimension of Value Co-creation has the greater effect on customer value perception. The second research hypothesis is therefore:

H2: Co-production and Value-in-use have differential impacts on Customer Perceived Value

3.4 H3: The four underlying elements of Customer Perceived Value are differentially impacted by Co-production and Value-in-use

Using the PERVAL model as explained in Walsh et al. (2014), customer value perception is understood to have underlying dimensions of quality, emotional value, price and social value. Each of these reference a different element of a firm's value proposition, and it would be important to understand how Value Co-creation affects each of these in turn as it allows firms a better understanding of how to employ its resources to affect its value proposition (for example, if Value Co-creation has a significant positive correlation on emotional value, firms have to employ less resources focussed on enhancing brand attachment). The third research hypothesis is therefore:

H3: The four underlying elements of Customer Perceived Value are differentially impacted by Co-production and Value-in-use

3.5 H4: There is a relationship between Value-in-use and Co-production as well as Value-in-use and Perceived Value, and Perceived Value and Co-production differentially impact Value-in-use

Following the logic of Ng et al. (2012) and Roser et al. (2013), the firm's contribution to value creation becomes its Value Proposition, while the customer's contribution manifests as Value-in-use. However, because the firm cannot create value on its own but only produce Value Propositions (Grönroos & Voima, 2013; Vargo & Lusch, 2004; Vargo & Lusch, 2008), its value creating activities will manifest as Co-production. The firm needs to create a Value Proposition that includes Co-production that optimises the customer's Value-in-use. The fourth and final research hypothesis is therefore:

H4a: There is a relationship between Value-in-use and Co-production as well as Value-in-use and Perceived Value

H4b: Perceived Value and Co-production differentially impact Value-in-use

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4. Research methodology

4.1 Introduction

The research methodology is described in this chapter starting with a discussion of the research design. The population that was sampled from is discussed next, as well as the unit of analysis and the sampling methodology; followed by a description of the data collection methodology and process. The chapter concludes with an analysis of the statistical reliability and validity of the measured constructs, partially answering the academic need for the research by validating the two measurement instruments in a different context to the ones they were initially tested in.

4.2 Research design

Saunders & Lewis (2012 p. 103) describe a research design as consisting of a research philosophy, approach, strategy, time horizon and technique. While the research philosophy is an indication of the researcher's personal worldview; in practice it is most often determined by the research question and objectives, i.e. a pragmatic approach (Saunders & Lewis, 2012 p. 107). The research design for this study is therefore described along its approach, strategy, time horizon and technique.

The research followed a deductive approach, in that the theoretical propositions of Value Co-creation, Customer Perceived Value and the relationship between them are analysed through a research strategy designed specifically for this purpose (Saunders & Lewis, 2012 p. 108). A descriptive research strategy was applied, as the design did not allow for the establishment of causality. Descriptive research aims to provide insight into an event or situation, e.g. describing the relationship between Value Co-creation and Customer Perceived Value, but does not provide explanatory or causal insights (Saunders & Lewis, 2012 p. 111). Quantitative methods are most applicable to descriptive studies, and as such survey research was employed in order to collect primary data for this research. The time horizon of the research was cross-sectional, as it provides results at a particular point in time, not over an extended period of time (Saunders & Lewis, 2012 pp. 123-124).

4.3 Population, unit of analysis and sampling

The population under study in this research can be defined as all consumers of goods and services. Sampling took place from this population, although due to cost restrictions and practical considerations the sample only consisted of South African consumers. All regions within the country are represented, but due to the data collection methodology respondents required access to the internet which skewed the sample towards urban areas. With this definition of the research population, it follows

that the unit of analysis was the individual consumer: the research aimed to understand how an individual's perceptions of Value Co-creation correlate with their perceptions of value.

The sample for this research was selected from a panel of respondents who have opted in to receive customer surveys from a South African market research agency. Due to the data collection methodology that was employed a non-probability sampling technique naturally followed, more specifically self-selection sampling. Self-selection sampling is defined as a non-probability sampling technique in which sample members elect to take part in the research (Saunders & Lewis, 2012 p. 140). Since respondents in the research panel have opted into receiving research questionnaires and furthermore decided whether to answer the questionnaire or not, this non-probability sampling technique applied. Potential respondents were randomly selected from this database and an electronic survey was sent to these respondents. A total sample size of 297 respondents was achieved, yielding a maximum margin of error of 6% at the 95% confidence level.

Cognisance needs to be taken of the shortcomings of this sampling technique, the most prominent being that respondents who elect to be in the sample might be different from those that don't, leading to the sample not being representative of the population under study. Because the research panel is large, panel members have signed up for general research (not the specific research being conducted) and potential respondents were randomly selected from the larger panel, self-selection bias was somewhat controlled.

4.4 Data collection

Data was collected through the use of an online survey, details of which can be found in Appendix A: Questionnaire. The questionnaire consisted of three sections: section 1 established the product or service the respondent needed to consider for the remainder of the survey, based on recent interaction. For the sake of simplicity, products and services were limited to South African clothing retailers, as the products offered by these firms have an easily understood Customer Perceived Value. Section 2 measured the respondent's perceived value of the firm they rated using the reduced PERVAL measurement scale provided by Walsh et al. (2014). As per their research, the items in the PERVAL scale were administered as a 7-point Likert scale. Finally, section 3 measured the respondent's perception of Value Co-creation using the scale introduced by Ranjan & Read (2016). Although the authors of this study employed a 5-point Likert scale, in order to avoid respondent confusion, this was administered as a 7-point Likert

scale as well. As will be shown, this did not adversely affect the validity of the measurement instrument, and the 7-point scale was preferred as it allowed for more statistical variability and more useful data. In order to avoid order bias (Salkind, 2010 p. 974) the items in both measurement scales were asked in random order of each respondent.

In order to increase validity and reliability of the results, a pilot study was conducted before the launch of the survey. The main aim of the pilot study was to ensure ease of understanding of the measurement instrument's wording – the Value Co-creation instrument was of particular concern as the wording provided by Ranjan & Read (2016) seemed too academic and not consumer friendly. The pilot survey was sent out to a selected number of acquaintances of the researcher as well as employees of the research house that managed the data collection process and a total of 13 verbatim comments were received. Figure 2 displays the ranked count of pilot feedback after being coded into themes.

Figure 3: Ranked count of verbatim pilot feedback
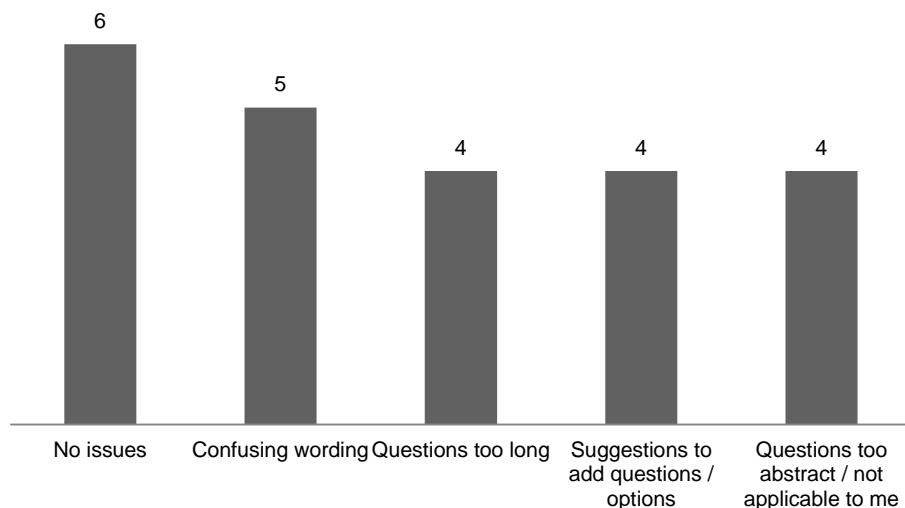
A marginal majority of feedback indicated no major issues with the survey. Confusing wording and length of questions were considered as potential problems with the questionnaire and where specific feedback was given this was incorporated into the final survey. Suggestions to add questions were largely ignored as the measurement instruments were well defined, while applicability of questions was considered a natural occurrence in consumer research (i.e. it is to be expected that not all questions will be applicable to all respondents). All questions, especially those relating to Value Co-

creation, were subjected to simplification before launching the survey in order to ensure ease of understanding.

4.5 Construct validity and reliability

Validity and reliability of all constructs under research is of utmost importance before any conclusions can be made from the data collected. While the validity and reliability of both measurement scales were proven in the respective papers they are derived from, the scales were administered in a different setting than these studies and validity and reliability need to be confirmed. Construct validity was measured through the use of confirmatory factor analysis (Salkind, 2010 p. 219), while reliability was measured through Cronbach's Alpha (Salkind, 2010 p. 151).

4.5.1 Customer Perceived Value

A confirmatory factor analysis specifying four factors and using the Varimax rotation yielded the following results:

Table 5: Customer perceived value confirmatory factor analysis

Theoretical Construct	Item	Component			
		1	2	3	4
Quality	q3_1	**.824**	.245	.200	.323
Quality	q3_3	**.785**	.252	.311	.297
Quality	q3_2	**.763**	.303	.314	.315
Price	q3_7	.115	**.907**	.162	.157
Price	q3_8	.340	**.765**	.291	.229
Price	q3_9	.385	**.750**	.249	.274
Social	q3_11	.307	.206	**.841**	.181
Social	q3_10	.175	.270	**.779**	.334
Social	q3_12	.311	.237	**.668**	.426
Emotional	q3_4	.374	.194	.301	**.748**
Emotional	q3_5	.358	.328	.344	**.702**
Emotional	q3_6	.394	.304	.402	**.664**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

The wording for each item can be found in Appendix A: Questionnaire. Each item's highest loading on each factor is highlighted in bold. From this it is clear that the theoretical constructs hold true in this dataset: each item loads highest on the factor representing its theoretical construct.

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A summary of Cronbach's Alpha test for each Customer Perceived Value construct is shown below:

Table 6: Customer perceived value reliability analysis

	Cronbach's Alpha	N of Items
Customer perceived value	.951	12
Quality	.927	3
Emotional	.905	3
Price	.899	3
Social	.881	3

A Cronbach Alpha value greater than 0.7, as a rule of thumb, is considered good, greater than 0.8 is considered very good and greater than 0.9 is considered high (Salkind, 2010 p. 162). All Customer Perceived Value constructs can therefore be considered to be internally consistent and reliable in this research.

4.5.2 *Value Co-creation*

According to Ranjan & Read (2016), Value Co-creation consists of two dimensions, each in turn made up of three sub-dimensions. Construct validity was therefore tested at both levels – firstly to confirm the validity of the two dimensions of Co-production and Value-in-use, and secondly to test the validity of the sub-dimensions: Equity, Interaction and Knowledge under Co-production and Experience, Personalisation and Relationship under Value-in-use.

Table 7: Value Co-creation confirmatory factor analysis 1

Theoretical Construct	Item	Component 1	2
Co-production	q4_1	**0.844**	0.218
Co-production	q4_11	**0.843**	0.196
Co-production	q4_4	**0.839**	0.143
Co-production	q4_7	**0.807**	0.288
Co-production	q4_5	**0.783**	0.278
Co-production	q4_2	**0.778**	0.286
Co-production	q4_9	**0.775**	0.319
Co-production	q4_8	**0.756**	0.351
Co-production	q4_6	**0.747**	0.395
Co-production	q4_10	**0.735**	0.411
Value-in-use	q4_22	**0.718**	<u>0.383</u>
Value-in-use	q4_13	**0.699**	<u>0.420</u>
Co-production	q4_12	**0.640**	0.212
Value-in-use	q4_17	**0.640**	<u>0.486</u>

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Theoretical Construct	Item	Component 1	Component 2
Value-in-use	q4_15	**0.517**	<u>0.488</u>
Co-production	q4_3	**0.395**	0.372
Value-in-use	q4_16	0.273	**0.761**
Value-in-use	q4_20	0.004	**0.734**
Value-in-use	q4_18	0.321	**0.732**
Value-in-use	q4_21	0.293	**0.686**
Value-in-use	q4_14	0.265	**0.621**
Value-in-use	q4_23	0.459	**0.587**
Value-in-use	q4_19	0.558	**0.579**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

The wording for each item can be found in Appendix A: Questionnaire. Each item's highest factor loading is again shown in bold in the table above. Where an item displays a higher factor loading on a factor it is not expected to, its "expected" factor loading is underlined. The first confirmatory factor analysis reveals four items that load higher on a factor where they are not expected; all four of these are expected to measure Value-in-use but load higher on the Co-production factor. All of these items do still however have moderately high loadings on the Value-in-use factor, indicating that they do display a correlation with this construct as well. For the most part items seem to correlate with their theoretical construct, and the validity of the measurement instrument is accepted at this level.

The confirmatory factor analysis for the six sub-dimensions of Value Co-creation is shown below:

Table 8: Value Co-creation confirmatory factor analysis 2

Theoretical Construct	Item	Component 1	2	3	4	5	6
CP Equity	q4_7	**0.818**	0.323	0.192	0.172	0.154	0.033
CP Equity	q4_6	**0.772**	0.237	0.278	0.181	0.233	0.125
CP Equity	q4_5	**0.761**	0.317	0.213	0.119	0.173	0.097
CP Equity	q4_8	**0.744**	0.315	0.119	0.182	0.333	0.119
CP Interaction	q4_12	0.175	**0.797**	-0.072	0.260	0.287	0.065
CP Interaction	q4_11	0.432	**0.734**	0.242	0.079	0.140	0.074
CP Interaction	q4_9	0.377	**0.659**	0.374	0.133	0.159	0.093
CP Interaction	q4_10	0.400	**0.558**	0.426	0.138	0.258	0.113
CP Knowledge	q4_2	**0.510**	0.474	0.404	0.054	0.083	<u>0.255</u>

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Theoretical Construct	Item	Component					
		1	2	3	4	5	6
CP Knowledge	q4_1	0.489	**0.615**	0.243	0.046	0.143	<u>0.316</u>
CP Knowledge	q4_4	0.488	**0.601**	0.263	0.020	-0.009	<u>0.340</u>
CP Knowledge	q4_3	0.175	0.197	0.114	0.216	0.151	**0.875**
VIU Experience	q4_13	0.466	**0.484**	0.362	0.148	<u>0.354</u>	-0.036
VIU Experience	q4_14	0.138	0.169	0.234	0.188	**0.784**	0.083
VIU Experience	q4_15	0.360	0.311	0.207	0.115	**0.650**	0.101
VIU Personalisation	q4_19	0.411	0.264	**0.681**	0.246	0.135	0.027
VIU Personalisation	q4_16	0.180	0.061	**0.663**	0.317	0.382	0.125
VIU Personalisation	q4_18	0.144	0.175	**0.622**	0.322	0.380	0.141
VIU Personalisation	q4_17	0.476	0.310	**0.612**	0.176	0.104	0.096
VIU Relationship	q4_22	**0.582**	0.376	0.318	<u>0.324</u>	-0.041	0.276
VIU Relationship	q4_21	0.219	0.261	0.255	**0.765**	0.091	0.008
VIU Relationship	q4_20	0.041	-0.013	0.135	**0.721**	0.297	0.183
VIU Relationship	q4_23	0.457	0.186	0.343	**0.591**	-0.027	0.149

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 10 iterations.

The wording for each item can be found in Appendix A: Questionnaire. In the table above, each item's highest loading is shown in bold, while the factor it was "expected" to load on highest is underlined. While most items correspond to their theoretical constructs, there is a concern around the Co-production knowledge construct, which seems to be perceived similar to the Co-production interaction construct. Only one item within the knowledge construct loaded highest on a unique factor, which could indicate that the knowledge and interaction constructs are in reality measuring the same underlying concept. That said, the items theoretically measuring the Knowledge construct all have moderately positive loadings on that factor, indicating that they do to some extent measure the same underlying construct. The validity of the measurement instrument at the sub-dimension level is accepted for the most part, with some reservations.

An analysis of the reliability of each Value Co-creation construct is shown below through the use of Cronbach's Alpha:

Table 9: Value Co-creation reliability analysis

	Cronbach's Alpha	N of Items
Value-Co-creation	.962	23
Co-production	.951	12
Co-production: Knowledge	.863	4
Co-production: Equity	.932	4
Co-production: Interaction	.895	4
Value-in-use	.915	11
Value-in-use: Experience	.803	3
Value-in-use: Personalisation	.866	4
Value-in-use: Relationship	.795	4

All constructs in the Value Co-creation measurement instrument display Cronbach Alpha values that can be considered very good or high, and can therefore be considered to be internally consistent and reliable.

5. Results

5.1 Introduction

The results of the research are presented by firstly considering an overall description of the sample demographics, as well as testing whether demographical skews might influence the generalisability of the research. This is followed by a descriptive analysis of the main constructs in the research, and finally regression models testing the four research hypotheses.

5.2 Sample description

While demographic data were not explicitly asked in the questionnaire (see Appendix A: Questionnaire), certain respondent characteristics were known beforehand as respondents completed this when signing up to be part of the research panel. A description and discussion of the sample's demographics follows below.

Figure 4: Demographic description of sample

Age distribution
% of respondents

Race distribution
% of respondents
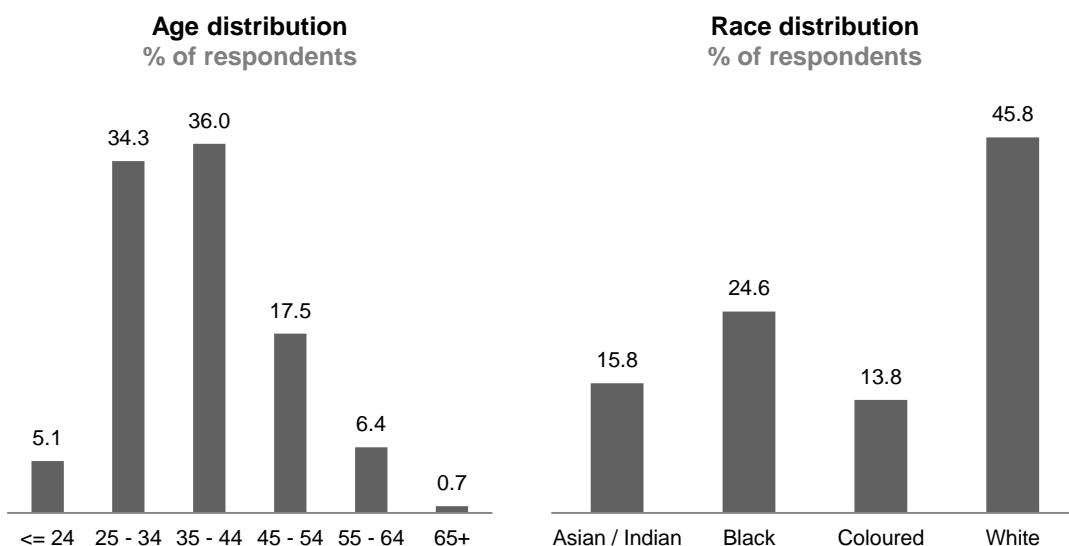
Gender distribution
% of respondents

Male	Female
47.1	52.9
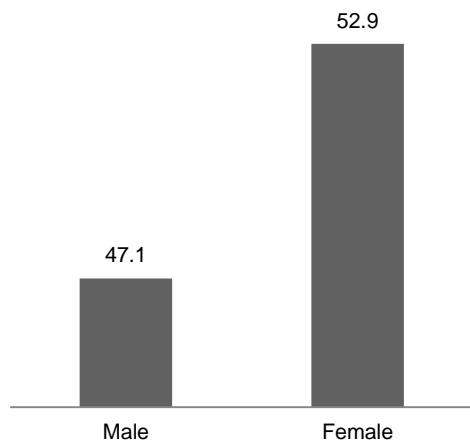
Location distribution
% of respondents

Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
3.7	1.0	43.8	29.3	2.0	1.3	1.7	1.7	15.5
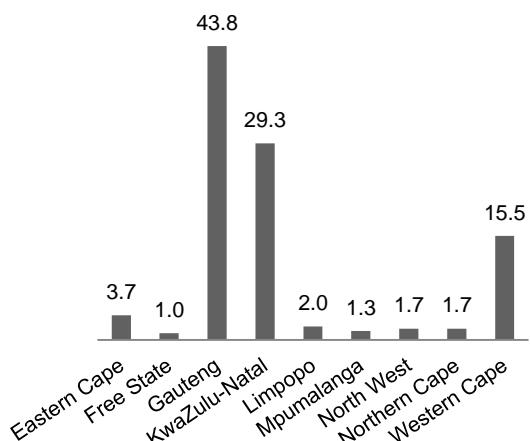
Work status distribution
% of respondents

Working full-time (for a company)	Working full-time (self-employed)	Working part-time (for a company)	Working part-time (self-employed)	Trainee or apprentice	Unemployed, seeking work	Other
82.8	8.1	4.4	3.4	0.3	0.7	0.3
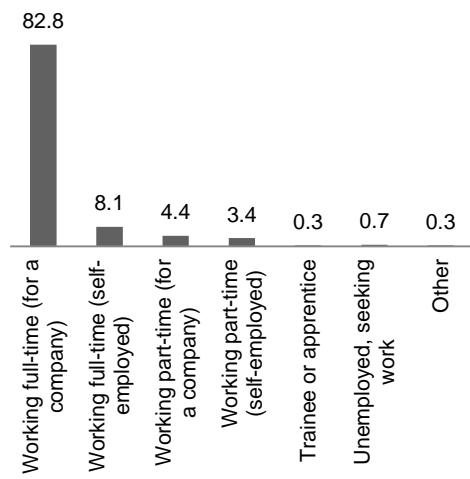
Education level distribution
% of respondents

School education, never matriculated	Matric / Grade 12	Professional certificate	Diploma	Graduate degree	Post-graduate degree
5.1	34.0	15.2	24.2	12.8	8.8
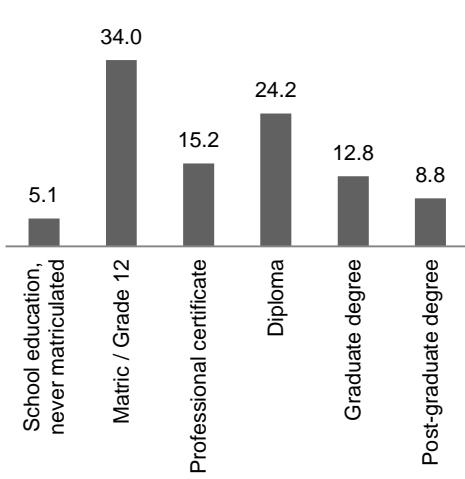
Personal income per month distribution
% of respondents

Under R5,000	R5,000 - R8,999	R9,000-R13,999	R14,000-R17,999	R18,000-R44,999	R45,000+
12.5	11.1	14.8	16.5	30.6	14.5
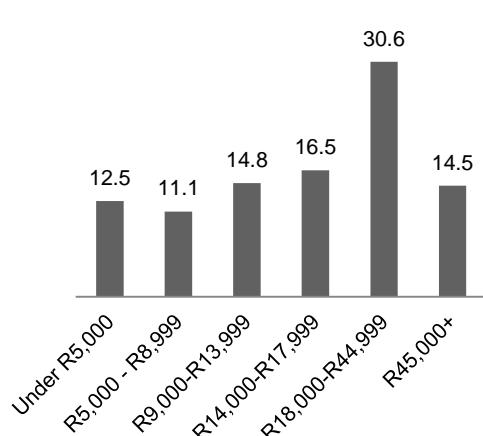
Household income distribution
% of respondents

Under R5,000	R5,000 - R8,999	R9,000-R13,999	R14,000-R17,999	R18,000-R44,999	R45,000+	Unknown
4.0	6.1	9.4	11.1	36.0	32.3	1.0

38
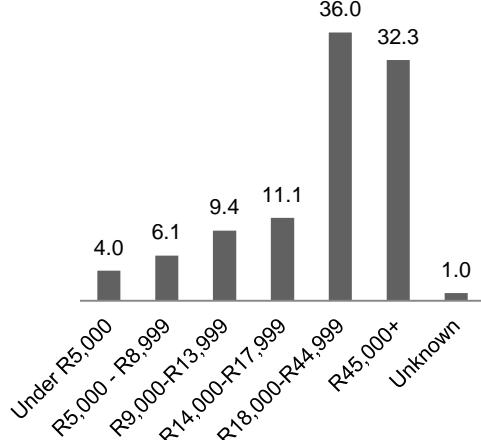
The sample is overrepresented in the age brackets between 25 and 54 years, when compared to the South African national distribution (Statistics South Africa, 2015). It is similarly overrepresented among White and Asian/Indian respondents, while significantly underrepresented among black respondents. Gender distribution is very similar to that of the national average, while Gauteng, Kwazulu-Natal and Western Cape are overrepresented from a location point of view.

According to data from the All Media and Products Survey (AMPS 2015B) (South African audience research foundation, 2015), this sample is underrepresented among respondents with education levels below matric, and consequentially significantly overrepresented among respondents with higher education levels. Similarly, respondents who are full-time employed are overrepresented while those that are unemployed are underrepresented, while lower income individuals are underrepresented compared to those with higher income levels.

The difference in the sample's demographic composition compared to the national average can largely be attributed to the data collection methodology. Because respondents were required to have access to the internet, this automatically introduced a bias towards higher income individuals. The income skew is the cause of the skews in race, education and income levels due to the demographic and social context in South Africa; while the age skew is likely as a result of a higher affinity to technology among younger individuals.

The primary purpose of this research is to understand general perceptions of Value Co-creation and Customer Perceived Value, and does not explicitly aim to understand how customer demographics influence these perceptions. In order to determine whether the demographic make-up of the sample could influence the results of the research, a one-way analysis of variance (ANOVA) was performed on the main constructs in the study, using demographics as the independent variables. The results were as follows:

Table 10: One-way ANOVA of main constructs and sample demographics

ANOVA Table

	F	Sig.
Value Perception Construct * Age (Binned)	0.725	0.605
Value Co-creation - Co-Production * Age (Binned)	1.503	0.189
Value Co-creation - Value-in-use * Age (Binned)	1.14	0.339
Value Co-creation Construct * Age (Binned)	1.349	0.244
Value Perception Construct * Race	1.813	0.145
Value Co-creation - Co-Production * Race	4.7	**0.003**
Value Co-creation - Value-in-use * Race	3.175	**0.025**

ANOVA Table

	F	Sig.
Value Co-creation Construct * Race	4.339	**0.005**
Value Perception Construct * Province	0.684	0.705
Value Co-creation - Co-Production * Province	0.616	0.765
Value Co-creation - Value-in-use * Province	0.345	0.948
Value Co-creation Construct * Province	0.441	0.896
Value Perception Construct * Work status	1.693	0.122
Value Co-creation - Co-Production * Work status	0.468	0.832
Value Co-creation - Value-in-use * Work status	0.446	0.847
Value Co-creation Construct * Work status	0.488	0.817
Value Perception Construct * Education level	0.514	0.766
Value Co-creation - Co-Production * Education level	0.846	0.518
Value Co-creation - Value-in-use * Education level	0.716	0.612
Value Co-creation Construct * Education level	0.718	0.61
Value Perception Construct * Personal Income (Binned)	1.717	0.13
Value Co-creation - Co-Production * Personal Income (Binned)	2.246	**0.05**
Value Co-creation - Value-in-use * Personal Income (Binned)	2.176	0.057
Value Co-creation Construct * Personal Income (Binned)	2.408	**0.037**
Value Perception Construct * Household Income (Binned)	1.293	0.267
Value Co-creation - Co-Production * Household Income (Binned)	2.378	**0.039**
Value Co-creation - Value-in-use * Household Income (Binned)	1.74	0.125
Value Co-creation Construct * Household Income (Binned)	2.191	0.055

The ANOVA indicates that there are no statistically significant differences between different levels of age, province, work status and education level on any of the study's main constructs. There are however statistically significant differences between racial groups on the Value Co-creation constructs, as well as on the Co-production construct and overall Value Co-creation construct between different income levels. The data was further graphically analysed to understand what the implications of these differences are:

Figure 5: Value Co-creation construct averages across selected demographics

Construct averages by racial group

Construct averages by personal income band

Construct averages by household income band
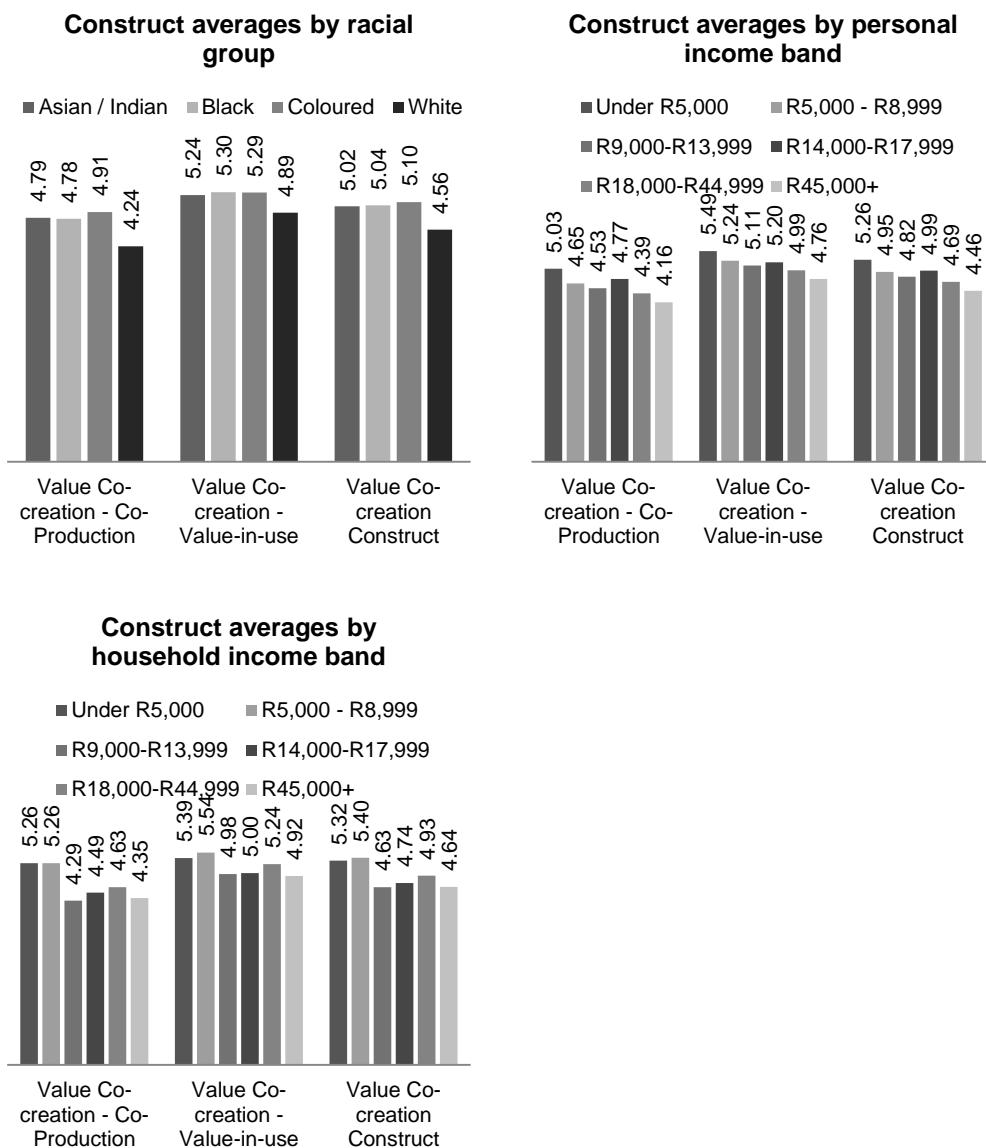
Through inspection it is clear to see that white respondents tended to rate retailers lower on Value Co-creation than other racial groups, while higher income individuals similarly rated retailers lower than lower income individuals. Given the sample's overrepresentation of white and higher income respondents, it is likely that perceptions of Value Co-creation will be understated in this research, compared to the national average. It should however be noted that this research is primarily interested in understanding the relationship between Value Co-creation and Customer Perceived Value, making the magnitude of the perceptions less important. It is nonetheless important to note that the sample demographics could skew the results, potentially making it not entirely representative of the national average.

5.3 Descriptive statistics

The 12 items in the PERVAL measurement instrument and the 23 items in the Value Co-Creation instrument were summarised into their underlying constructs by averaging the relevant items. A descriptive summary of these is shown below:

Table 11: Descriptive statistics of research constructs

Descriptive Statistics

	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
Value Perception Construct	5.41	1.14	-0.93	0.14	1.27	0.28
Quality	5.51	1.31	-1.09	0.14	1.36	0.28
Emotional	5.53	1.21	-1.00	0.14	1.38	0.28
Price	5.38	1.32	-1.00	0.14	1.06	0.28
Social	5.23	1.34	-0.83	0.14	0.66	0.28
Value Co-creation Construct	4.83	1.17	-0.07	0.14	-0.67	0.28
Co-Production	4.55	1.36	-0.05	0.14	-0.78	0.28
Knowledge	4.60	1.45	-0.08	0.14	-0.74	0.28
Equity	4.53	1.49	-0.20	0.14	-0.59	0.28
Interaction	4.53	1.48	-0.14	0.14	-0.66	0.28
Value-in-use	5.10	1.10	-0.33	0.14	-0.22	0.28
Experience	5.05	1.29	-0.42	0.14	-0.20	0.28
Personalisation	5.20	1.22	-0.48	0.14	-0.01	0.28
Relationship	5.06	1.19	-0.44	0.14	0.16	0.28

Higher values of skewness specifically on the Customer Perceived Value constructs could indicate a deviation from normality, while low kurtosis values for the Value Co-creation constructs indicate a similar issue. A more formal analysis of normality and its implications follows in the regression analyses.

5.4 Regression analysis

5.4.1 Assumptions of regression analysis

Multiple linear regression has five underlying assumptions of the data being used in the regression model: linear relationship between the dependent and independent variables, multivariate normality, absence of multi-collinearity, absence of auto-correlation and homoscedasticity. Linearity will be tested upfront, while the other assumptions are tested separately for each model.

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Linearity

Figure 6: Scatterplots of Customer Perceived Value constructs against Value Co-creation constructs

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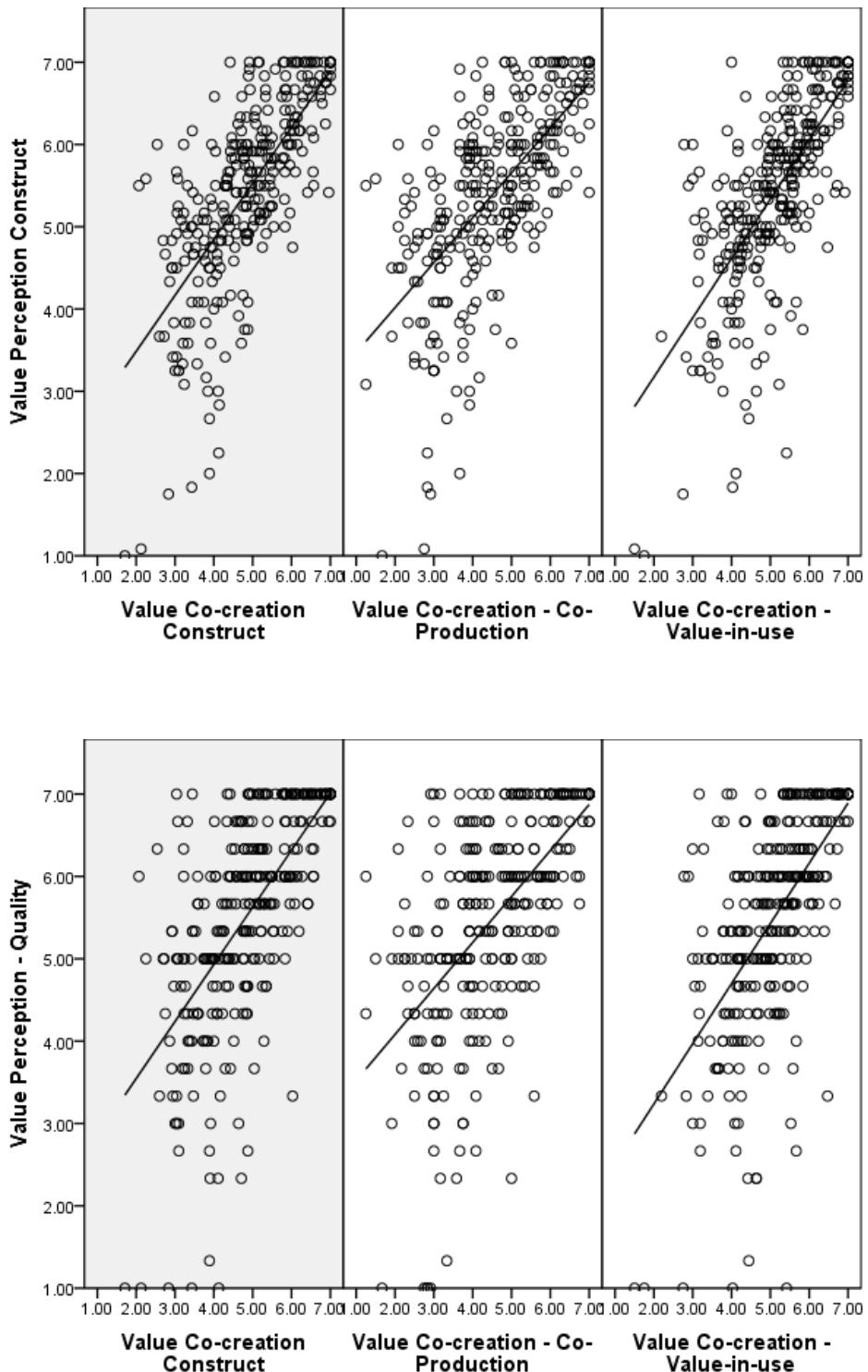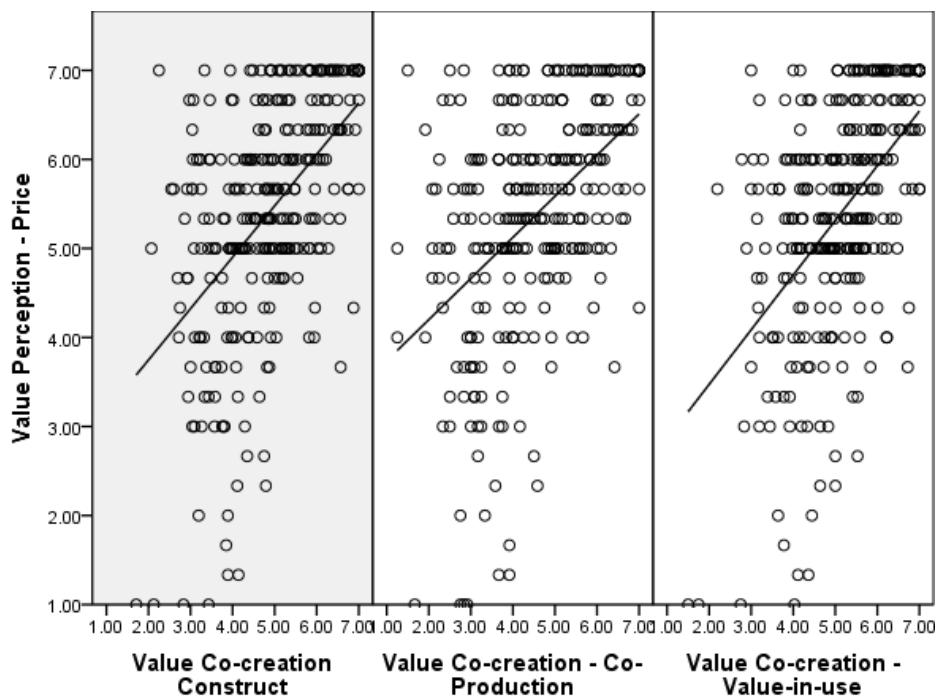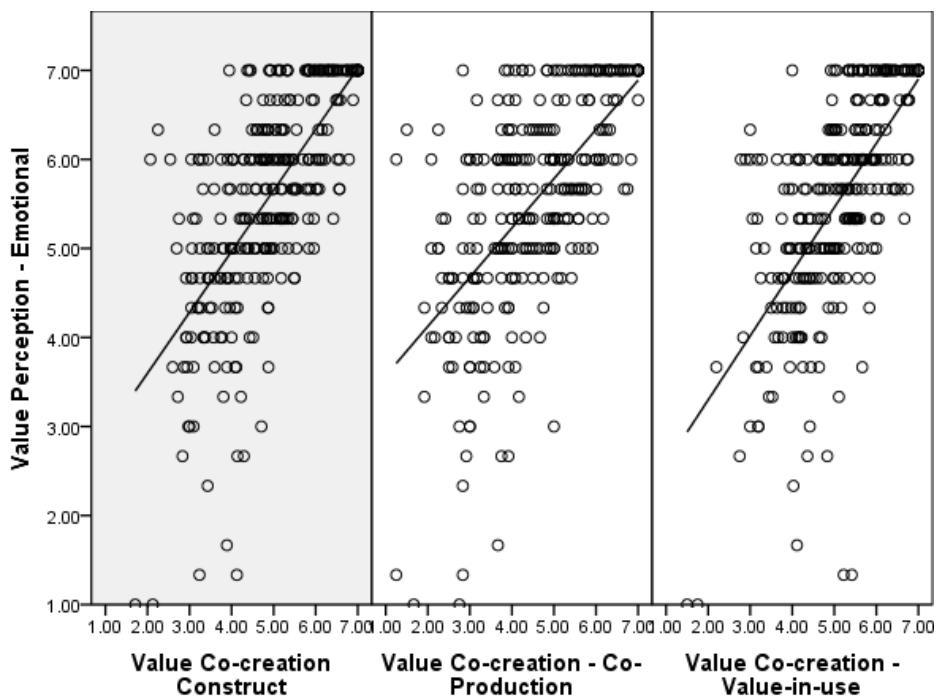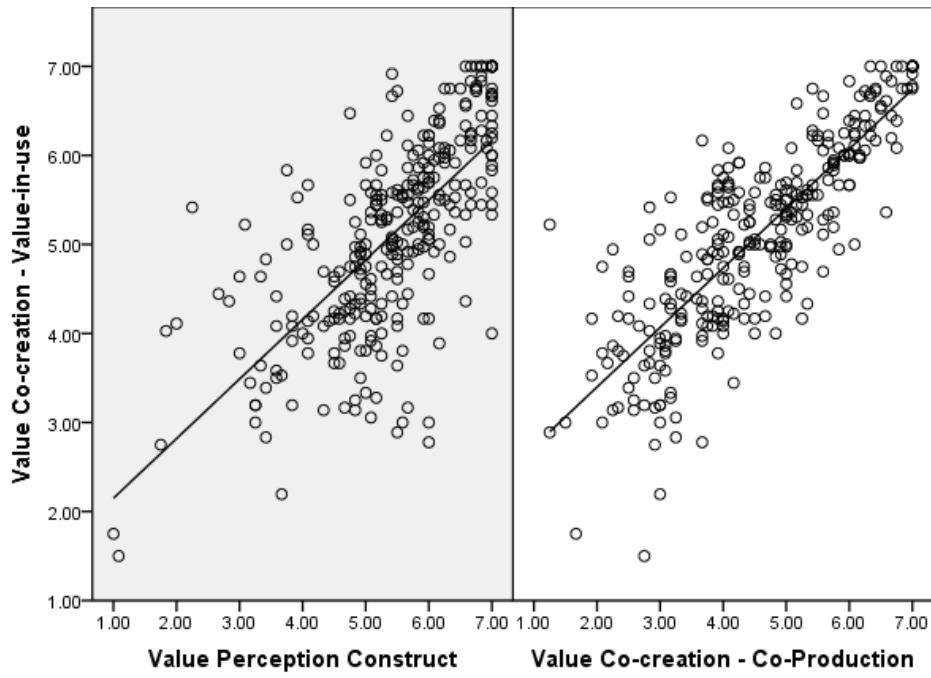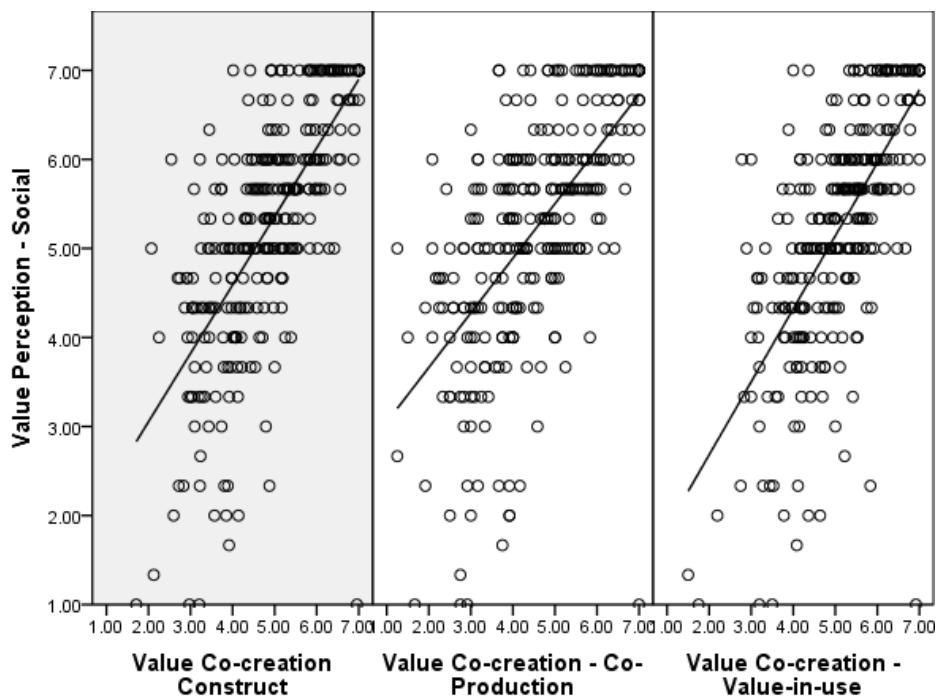
While differing in strength of relationship, a rough linear relationship was evident between all proposed dependent and independent variables. The linearity assumption is therefore fulfilled.

5.4.2 Hypothesis 1: There is a positive relationship between Value Co-creation and Customer Perceived Value

Table 12: Regression results for hypothesis 1

Model Summary[b]

Model	R	R Square	Adjusted R	Std. Error of the
1	.702[a]	.492	.490	.81347

a. Predictors: (Constant), Value Co-creation Construct

b. Dependent Variable: Value Perception Construct

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	189.152	1	189.152	285.840	.000[b]
	Residual	195.213	295	.662		
	Total	384.366	296			

a. Dependent Variable: Value Perception Construct

b. Predictors: (Constant), Value Co-creation Construct

Coefficients[a]

Model		Unstandardized		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.125	.200		10.621	.000
	Value Co-creation	.681	.040	.702	16.907	.000

a. Dependent Variable: Value Perception Construct

Normal P-P Plot of Regression Standardized Residual — Dependent Variable: Value Perception Construct

Scatterplot — Dependent Variable: Value Perception Construct

46
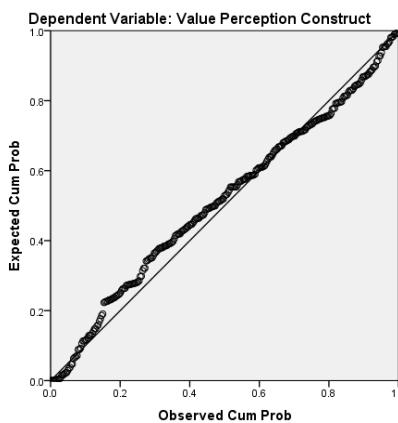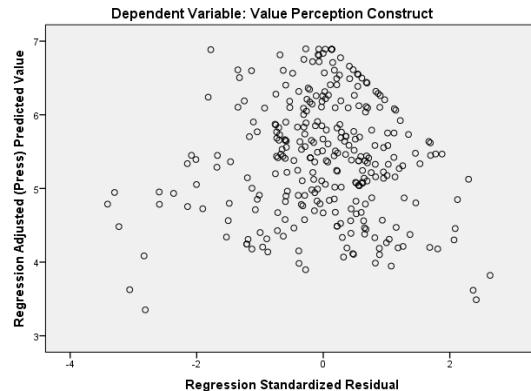
The regression model and model coefficient are significant at the 5% level, with the positive value of the coefficient confirming the first research hypothesis. The P-P plot of the standardised residuals confirms the normality assumption of the error distribution, making inferences from the coefficients valid. The scatterplot of the adjusted predicted value against the standardised residual confirms the assumptions of homoscedasticity and absence of auto-correlation, evident from the random scatter of the residuals. Multi-collinearity does not apply in this model as there is only one independent variable.

Hypothesis 1 is therefore accepted.

5.4.3 Hypothesis 2: Co-production and Value-in-use have differential impacts on Customer Perceived Value

Table 13: Regression results for hypothesis 2

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.708[a]	.502	.498	.80728

a. Predictors: (Constant), Value Co-creation - Value-in-use, Value Co-creation - Co-Production

b. Dependent Variable: Value Perception Construct

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	192.768	2	96.384	147.898	.000[b]
	Residual	191.598	294	.652		
	Total	384.366	296			

a. Dependent Variable: Value Perception Construct

b. Predictors: (Constant), Value Co-creation - Value-in-use, Value Co-creation - Co-Production

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	1.866	.227		8.230	.000	1.420	2.313
	Value Co-creation - Co-Production	.204	.061	.243	3.317	.001	.083	.325
	Value Co-creation - Value-in-use	.513	.076	.494	6.756	.000	.364	.663

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Value Co-creation - Co-Production	.317	3.157
	Value Co-creation - Value-in-use	.317	3.157

a. Dependent Variable: Value Perception Construct

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Value Perception Construct

Scatterplot
Dependent Variable: Value Perception Construct
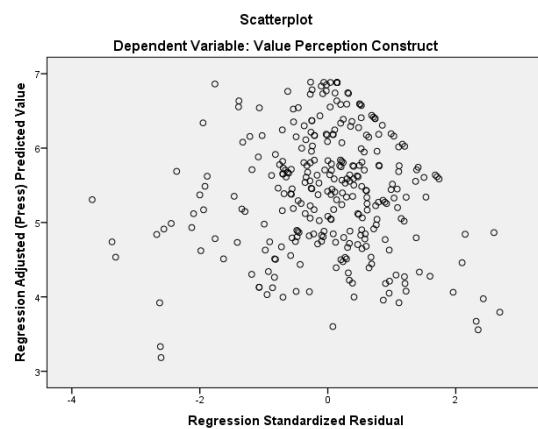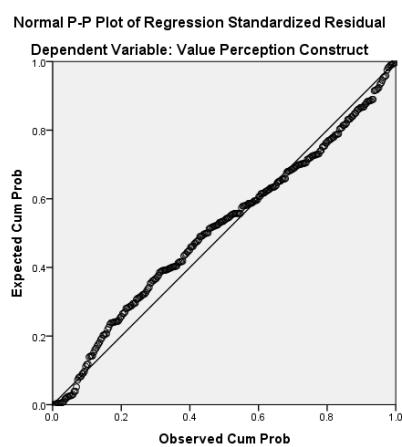
The overall regression model is shown as significant by the ANOVA test, while each independent variable is also shown as significant in predicting Customer Perceived Value by their respective t-tests. Comparing the standardised coefficients, Value-in-use is shown as a relatively more important predictor of Customer Perceived Value than Co-production, confirming the second research hypothesis.

The normality, homoscedasticity and auto-correlation assumptions are all shown to be valid by the P-P plot and residual plot, justifying any inferences that are made from the

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model. Low values for the variance inflation factors indicate that multi-collinearity is not a serious problem in the data, and therefore coefficient signs and p-values can confidently be interpreted.

The 95% confidence intervals for the two coefficients show no overlap, hence the conclusion can be reached that the two coefficients are statistically significantly different from each other. At the 95% confidence level, Value-in-use therefore has a larger impact on Customer Perceived Value than Co-production.

Hypothesis 2 is therefore accepted.

5.4.4 Hypothesis 3: The four underlying elements of Customer Perceived Value are differentially impacted by Co-production and Value-in-use

Table 14: Regression results for hypothesis 3

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Quality	.627[a]	.393	.389	1.02139
Emotional	.669[a]	.447	.444	.90288
Price	.517[a]	.268	.263	1.13736
Social	.684[a]	.468	.465	.97676

a. Predictors: (Constant), Value Co-creation - Value-in-use, Value Co-creation - Co-Production

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
Quality	Regression	198.866	2	99.433	95.312	.000[b]
	Residual	306.710	294	1.043		
	Total	505.576	296			
Emotional	Regression	194.011	2	97.006	118.996	.000[b]
	Residual	239.668	294	.815		
	Total	433.680	296			
Price	Regression	139.084	2	69.542	53.758	.000[b]
	Residual	380.318	294	1.294		
	Total	519.401	296			
Social	Regression	247.132	2	123.566	129.517	.000[b]
	Residual	280.491	294	.954		
	Total	527.624	296			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Quality	(Constant)	1.924	.287		6.705	.000	1.359	2.489
	Value Co-creation - Co-Production	.221	.078	.229	2.841	.005	.068	.374
	Value Co-creation - Value-in-use	.505	.096	.424	5.255	.000	.316	.694
Emotional	(Constant)	2.007	.254		7.914	.000	1.508	2.506
	Value Co-creation - Co-Production	.225	.069	.252	3.277	.001	.090	.360
	Value Co-creation - Value-in-use	.490	.085	.445	5.775	.000	.323	.658
Price	(Constant)	2.353	.320		7.366	.000	1.725	2.982
	Value Co-creation - Co-Production	.163	.087	.167	1.880	.061	-.008	.333
	Value Co-creation - Value-in-use	.448	.107	.371	4.185	.000	.237	.658
Social	(Constant)	1.181	.274		4.303	.000	.641	1.721
	Value Co-creation - Co-Production	.206	.074	.210	2.776	.006	.060	.352
	Value Co-creation - Value-in-use	.609	.092	.501	6.628	.000	.428	.790

Model		Collinearity Statistics	
		Tolerance	VIF
Quality	(Constant)		
	Value Co-creation - Co-Production	.317	3.157
	Value Co-creation - Value-in-use	.317	3.157
Emotional	(Constant)		
	Value Co-creation - Co-Production	.317	3.157
	Value Co-creation - Value-in-use	.317	3.157
Price	(Constant)		
	Value Co-creation - Co-Production	.317	3.157
	Value Co-creation - Value-in-use	.317	3.157
Social	(Constant)		
	Value Co-creation - Co-Production	.317	3.157
	Value Co-creation - Value-in-use	.317	3.157

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Value Perception - Price

Scatterplot
Dependent Variable: Value Perception - Price

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Value Perception - Social

Scatterplot
Dependent Variable: Value Perception - Social
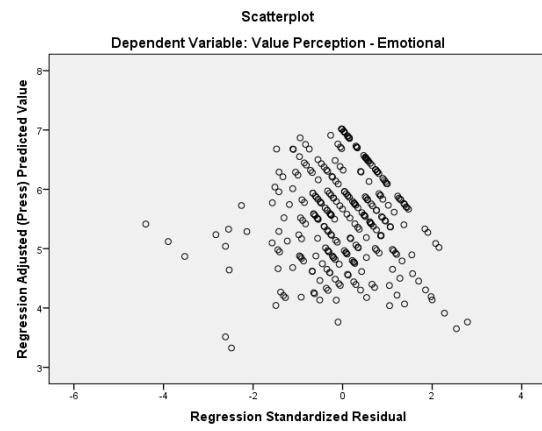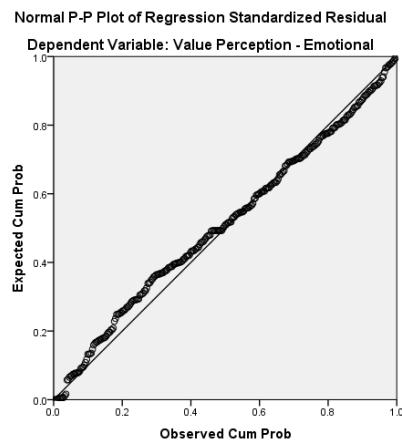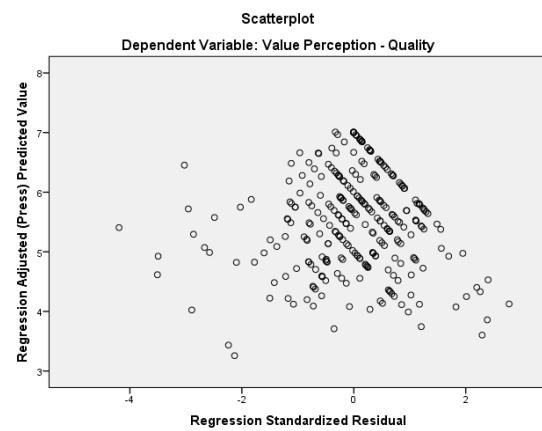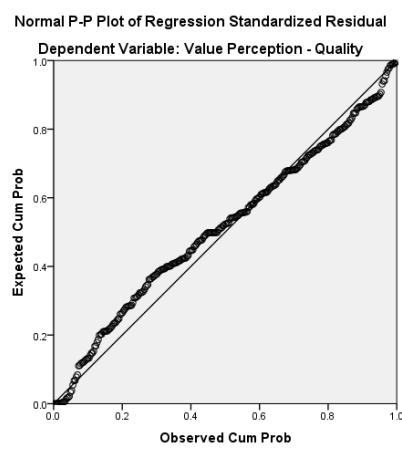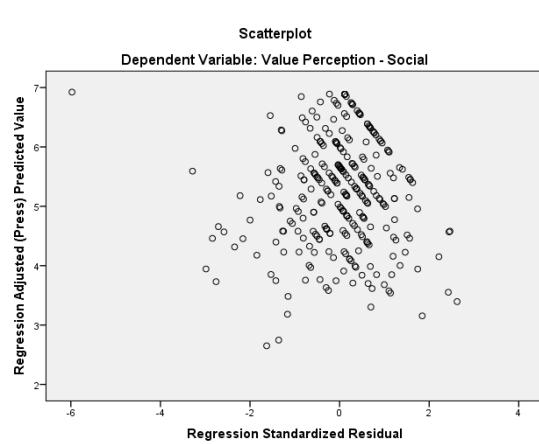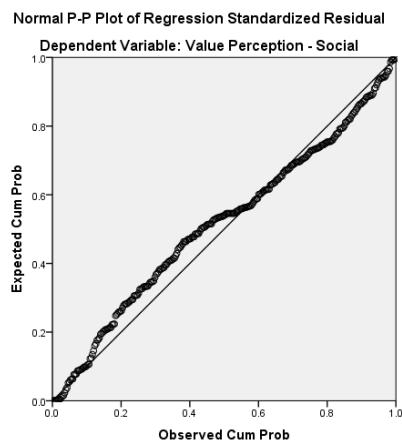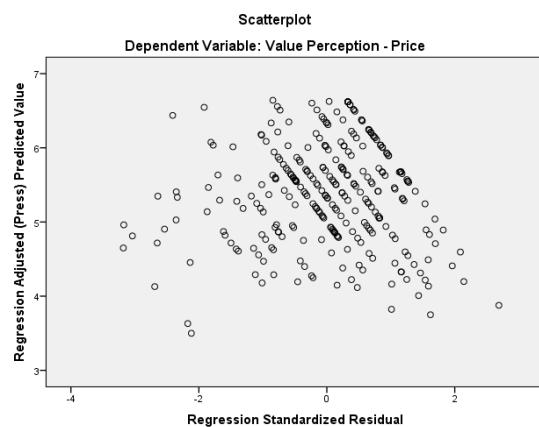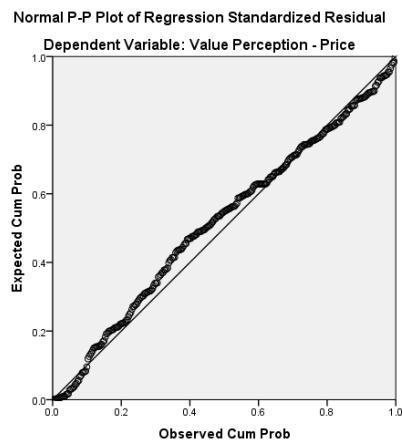
When modelling the relationship between the dimensions of Value Co-creation and the four dimensions of Customer Perceived Value, the ANOVA test revealed a significant relationship for all four models. The magnitude of the F-statistic in the ANOVA test can be used as an initial indicator of which dimension of Customer Perceived Value has the most significant relationship with Value Co-creation; here it is evident that the Social Value dimension has the most significant relationship, followed by Emotional, then Quality and lastly Price.

All regression coefficients are significant at the 5% level except for the relationship between Co-production and Price, which is marginally not significant at the 5% level. The size of the standardised coefficients indicate firstly that Value-in-use consistently is relatively more important in predicting each of the dimensions of Customer Perceived Value, and influences these constructs in the same order of impact as the overall model, i.e. it has the greatest impact on Social Value, then Emotional Value, Quality and Price. Co-production influences the dimensions of Customer Perceived Value in a different order of importance, having the greatest impact on Emotional Value, then Quality, then Social Value and lastly Price, although the relationship with Price is not statistically significant.

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Variance Inflation Factors for all four models are sufficiently low to not consider the impact of multi-collinearity, while the P-P plots generally follow a straight line indicating no significant deviation from normality. The scatterplots of predicted values against standardised residuals do not raise any concerns of heteroscedasticity or auto-correlation in any of the models.

In order to determine whether the coefficients from the different regression models are statistically significant from each other, six different models comparing two dependent variables at a time were performed. The setup of the model will be explained using Social Value and Emotional Value; the same procedure was followed for the remaining five combinations.

Firstly, the individual data points for Emotional Value were appended to that of Social Value, resulting in a new dataset with 594 cases (297 × 2 = 594). An indicator variable was created that was set equal to 1 for the first 297 rows (i.e. for all the rows that contained the data points from Social Value), and set equal to 0 for the second 297 rows (i.e. rows that contained the data points from Emotional Value). The two original independent variables were added to this new data file, and duplicated exactly for the second 297 rows. A new model was then ran using the concatenation of Social and Emotional Value as its dependent variable, and entering the duplicated Value-in-use and Co-production constructs as independent variables, together with the dichotomous indicator variable and the two-way interaction effects of the indicator variable and the other two independent variables. Using the following three models, the coefficients of this new model can be explained as follows:

$$Emotional\ Value = \alpha_1 + \beta_1 Value - in - use + \beta_2 Co - production \dots (1)$$

$$Social\ Value = \alpha_2 + \beta_3 Value - in - use + \beta_4 Co - production \dots (2)$$

$$
\begin{aligned}
Social\_Emotional\ Value \\
= \alpha_1 + \beta_1 Value - in - use + \beta_2 Co - production + \beta_5 Indicator\ variable \\
+ \beta_6 Value - in - use \times Indicator\ Variable + \beta_7 Co - production \\
\times Indicator\ Variable \dots (3)
\end{aligned}
$$

Where:

- α_1 = Intercept of model 1
- β_1 = Coefficient of Value-in-use in model 1
- β_2 = Coefficient of Co-production in model 1
- $\beta_5 = \alpha_2 - \alpha_1$

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- $\beta_6 = \beta_3 - \beta_1$
- $\beta_7 = \beta_4 - \beta_2$

The coefficients of the interaction terms therefore measure the difference between the two original model coefficients, and a significant p-value for these coefficients would indicate that the difference in the coefficients are statistically significant. The results from the six models are shown below:

Table 15: P-values for models testing significant difference of regression model coefficients

	Social vs. Emotional	Social vs. Quality	Social vs. Price	Emotional vs. Quality	Emotional vs. Price	Quality vs. Price
Dummy_Variable * Value Co-creation - Value-in-use	.341	.432	.251	.910	.753	.690
Dummy_Variable * Value Co-creation - Co-Production	.851	.892	.701	.966	.570	.615

None of the p-values are significant at the 5% level, and it can therefore not be concluded that there is a statistically significant difference between the model coefficients. There is therefore no statistical evidence that Value-in-use or Co-production have a differential impact on the underlying dimensions of Customer Perceived Value.

Hypothesis 3 can therefore not be accepted.

5.4.5 Hypothesis 4: There is a relationship between Value-in-use and Co-production as well as Value-in-use and Perceived Value, and Perceived Value and Co-production differentially impact Value-in-use

Table 16: Regression results for hypothesis 4

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.852[a]	.726	.724	.57679

a. Predictors: (Constant), Value Co-creation - Co-Production, Value Perception Construct

b. Dependent Variable: Value Co-creation - Value-in-use

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	258.956	2	129.478	389.183	.000^b
	Residual	97.811	294	.333		
	Total	356.768	296			

a. Dependent Variable: Value Co-creation - Value-in-use

b. Predictors: (Constant), Value Co-creation - Co-Production, Value Perception Construct

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	1.295	.163		7.944	.000	.975	1.616
	Value Perception Construct	.262	.039	.272	6.756	.000	.186	.338
	Value Co-creation - Co-Production	.525	.033	.650	16.142	.000	.461	.589

Model		Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)		
	Value Perception Construct	.576	1.737
	Value Co-creation - Co-Production	.576	1.737

a. Dependent Variable: Value Co-creation - Value-in-use

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Value Co-creation - Value-in-use

Scatterplot
Dependent Variable: Value Co-creation - Value-in-use

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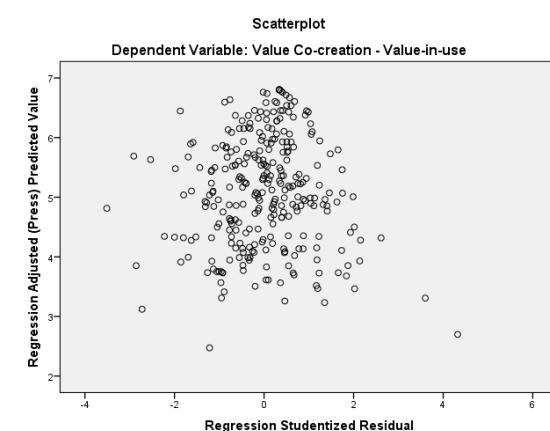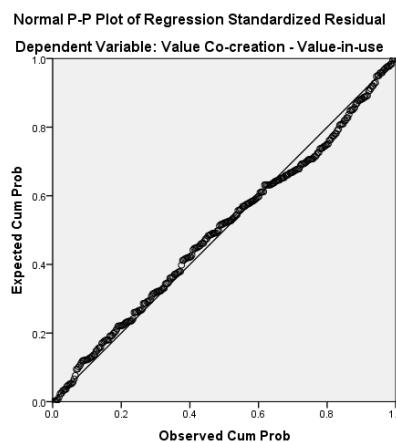
The overall regression model is shown as significant by the ANOVA test and the adjusted R-square value of 0.724 indicates the model explains a substantial amount of the variance in Value-in-use. Both independent variables are significant predictors of Value-in-use, as shown by their respective t-tests. Comparing the standardised coefficients, Co-production is shown to potentially be the more important predictor of Value-in-use, compared to Perceived Value.

The normality, homoscedasticity and auto-correlation assumptions are all shown to be valid by the P-P plot and residual plot, justifying any inferences that are made from the model. Low values for the variance inflation factors indicate that multi-collinearity is not a serious problem in the data, and therefore coefficient signs and p-values can confidently be interpreted.

Given the significance of each predictor, the first part of the fourth research hypothesis can be accepted as it has been shown that there is a significant positive relationship between Value-in-use and Co-production, as well as Value-in-use and Perceived Value. Hypothesis 4a is therefore accepted.

As there is no overlap of the 95% confidence intervals for the coefficients of Co-production and Perceived Value, the second part of hypothesis 4 is also accepted. Co-production is shown to have a greater effect on Value-in-use than Perceived Value. Hypothesis 4b is therefore accepted.

5.4.6   *Summary of results*

Table 17 below summarises the hypotheses tested and their results.

Table 17: Summary of results

Hypothesis	Result
H1: There is a positive relationship between Value Co-creation and Customer Perceived Value	Accepted
H2: Co-production and Value-in-use have differential impacts on Customer Perceived Value	Accepted
H3: The four underlying elements of Customer Perceived Value are differentially impacted by Co-production and Value-in-use	Not accepted
H4a: There is a relationship between Value-in-use and Co-production as well as Value-in-use and Perceived Value	Accepted
H4b: Perceived Value and Co-production differentially impact Value-in-use	Accepted

6. Discussion of results

6.1 Introduction

The following chapter provides a discussion of the research findings. The discussion is presented around the four research hypotheses, and relates the results to the academic literature discussed in chapter 2. Furthermore, the implications of the results for business are discussed in the context of the literature.

6.2 Discussion of research hypothesis 1 findings

Research hypothesis 1 posited that there is a positive relationship between Value Co-creation and Customer Perceived Value. This positive relationship would be supported by a number of studies indicating a positive relationship between Value Co-creation and customer satisfaction (Heidenreich et al., 2015; Ranjan & Read, 2016; Vega-Vazquez et al., 2013). Walsh et al. (2014) demonstrated a significant positive relationship between customer satisfaction and Customer Perceived Value, and there is some indication that Customer Perceived Value is in fact a better indicator of firm performance than customer satisfaction (Woodruff, 1997).

The regression analysis modelling the relationship between Value Co-creation and Customer Perceived Value was significant at the 5% level and the regression coefficient of Value Co-creation was positive, indicating that there is a statistically significant positive relationship between Value Co-creation and Customer Perceived Value. The first research hypothesis is therefore accepted.

The significant positive relationship between Value Co-creation and Customer Perceived Value firstly provides support for the importance of Value Co-creation, given the positive impacts related to positive Customer Perceived Value such as satisfaction, word of mouth and repurchase intentions; which in turn have been shown to affect market share, profitability, new customer acquisition, shareholder value, stock prices and consumer spending (Leroi-Werelds et al., 2014).

The Service Science perspective puts forward that there can be no service without Co-creation (Galvagno & Dalli, 2014). The confirmation of research hypothesis 1 provides cause to investigate whether the same can be said for value, i.e. customers cannot perceive value without it being co-created between the customer and the firm. While Vargo & Lusch (2004; 2008) refer to this in an abstract way in their sixth foundational premise of S-D logic, this can provide initial empirical evidence for the statement. This would however need to be explored further, as the research design does not allow for deducing causality.

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Fundamentally however, the first research hypothesis addresses the issue raised by Vargo & Lusch (2008) that the firm cannot independently create value, but must create value in collaboration with its customers. By confirming that an increase in Value Co-creation behaviour can result in an increase in perceived value, this result provides motivation for firms to actively seek ways in which to co-create value with their customers. If the firm is a facilitator of value to the customer (Grönroos & Voima, 2013), the acceptance of the first research hypothesis provides evidence that Value Co-creation behaviour provides a vehicle for the firm to increase this facilitation of value.

6.3 Discussion of research hypothesis 2 findings

The second research hypothesis proposed that the dimensions of Value Co-creation, Value-in-use and Co-production, have differential impacts on Customer Perceived Value. In other words, one of these dimensions would have a stronger relationship with Customer Perceived Value than the other, making it a more important dimension to consider when designing the Co-creation mix.

This hypothesis is supported by two studies considered in this report: Ranjan & Read (2016) found vastly different relative importance of the two dimensions in predicting customer satisfaction with Co-production being roughly 1.5 times more important than Value-in-use while Yi & Gong (2013) found that customer participation behaviour (which could be seen as similar to Co-production) was relatively more important in modelling Value Co-creation behaviour than customer citizenship behaviour (which shares at least some commonality with Value-in-use).

The regression analysis modelling the relationship between Value-in-use and Co-production as independent variables and Customer Perceived Value as the dependent variable produced statistically significant results, and furthermore indicated that the coefficients of Value-in-use and Co-production in the model can be considered statistically significantly different from each other. This provides support for the second research hypothesis, and the hypothesis is therefore accepted.

Value-in-use is estimated as relatively more important than Co-production in modelling Customer Perceived Value. This result contradicts both Ranjan & Read (2016) and Yi & Gong (2013), who found Co-production (or their equivalent of it) to be more important in modelling customer satisfaction. The difference in results could be caused by a number of differences in the research studies: firstly, neither of the quoted studies used the retail sector in their analysis. Yi & Gong (2013) used multiple industries in their research, while Ranjan & Read (2016) used general service contexts and two well-known brands, Facebook and Subway. Furthermore, Ranjan & Read's (2016) context

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was simulated, providing respondents with scenarios and vignettes to consider, while this research was based on actual experience with a retailer. Secondly, both of the studies mentioned used a population of students to sample from, whose perceptions might be different to that of the general population. The geographic location of respondents could be a third explanation for the differences in results, as Ranjan & Read (2016) used a combination of respondents in the USA and India, while Yi & Gong (2013) likely sampled from a population in the UK (this is not explicitly stated). Lastly, the difference in dependent variables could explain the different results.

Considering the results from this research and interpreting the relatively higher importance of Value-in-use over Co-production has far-reaching implications for business. It follows that the firm's value proposition in terms of the continued use of its product or service is more important than its proposition in terms of customer interaction, as the customer sees more value in usage. Considered differently in the context of value spheres (Grönroos & Voima, 2013), the customer sees more value in the customer sphere than they do in the joint sphere. It should be noted that there is still value in Co-production or the joint sphere, as there is still a significantly positive relationship between Co-production and Customer Perceived Value, however Value-in-use is considered roughly twice as important as Co-production. In determining the mix of Co-creation resources, this would indicate that more resources should be dedicated to the Value-in-use proposition than to the Co-creation proposition. Practically, this means spending more effort on personalising the offer and building a relationship with the customer than providing the opportunity for customers to participate in the firm's processes and sharing knowledge.

Prahalad & Ramaswamy (2004) suggest in their influential paper on Co-creation four building blocks for the process: dialogue, access, risk assessment and transparency; also known as the DART model. In unpacking this model, it becomes clear the DART model views Co-creation largely in a Co-production context, that is, the model focusses on two-way information sharing and creating value in the joint sphere. The results from this study would indicate that the DART model is missing a significant portion of the Co-creation mix, in that Value-in-use or value in the customer sphere is seen as relatively more important by customers. This seems to be consistent with Ranjan & Read's (2016) observation that existing literature on Co-creation often miss one of the two dimensions, yielding inconsistent results.

Grönroos & Voima (2013) suggest changes to the ten foundational principles of S-D logic (Vargo & Lusch, 2004; Vargo & Lusch, 2008) by stating that if value is rigorously

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defined as only Value-in-use, the customer becomes the sole creator of value and the firm a facilitator of value. The results from this study at least partly confirms this definition empirically in that customers indicate they attach relatively more importance to Value-in-use than to Co-production, which is theoretically more concerned with co-opting the customer into the value creation process.

Regarding the three dimensions of customer contribution found by Fliess et al. (2014), the relatively higher importance of Value-in-use, which occurs mostly in the customer sphere, indicates that the emotional dimension and partially the mental dimension are more important to consider than the physical dimension. The researchers did however find that the emotional dimension is influenced by the physical and mental dimensions in the interaction, and underscores again that while Value-in-use is relatively more important, Co-production cannot be ignored as a dimension of Value Co-creation.

Fliess et al. (2014) also found that customers viewed themselves as contributors and creators in the value creation process, rather than as resource contributors. They furthermore found that customers view their purchase decision as a contribution to the value creation or service process in that the process would not initiate without them making the decision to purchase. Customers therefore considered themselves adding value within the customer sphere as well as the joint sphere. Finding that Value-in-use has a greater effect on Perceived Value than Co-production supports this, as it indicates that customers view their value creation activity in the customer sphere more important than in the joint sphere.

Finally, Fliess et al. (2014) found that customers perceived their contributions in the mental dimension of co-creation more intense than in the physical or emotional dimensions. Co-production to a large extent considers the mental contribution customers need to make in the interaction, and with it being less important in determining Perceived Value, it could be argued that firms need to focus more on co-creating through Value-in-use, which has a larger impact and requires less mental strain from the customer.

Galvagno & Dalli (2014) found that in the Value Co-creation research stream that focusses on the marketing and consumer research perspective, interaction between firms and customers has positive consequences when customer expectations are met regarding engagement, involvement and empowerment. The empirical findings of this research provide further support for this: Value-in-use can be used as an indicator of empowerment, while Co-production measures engagement and involvement. The results from hypothesis 2 therefore further indicate that empowering customers has a

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greater effect on the positive consequences of Co-creation than engagement and involvement.

Using literary theory as a base, Ind & Coates (2013) posture that value does not lie within the product or service itself, but in the way a customer acts as a result of acquiring it. This is supported by the findings of hypothesis 2, as it was shown that Value-in-use has a greater effect on Perceived Value than Co-production.

Skålén et al. (2015) state that Value Propositions need to be evaluated from the perspective of the customer's value creation, not only from the value created for the firm. This is supported by the findings under hypotheses 1 and 2, which firstly found that perceptions of the firm's Value Proposition is not only positively correlated with Co-creation, but moreover has a greater relationship with Value-in-use than Co-production. Perceptions of the Value Proposition are therefore more greatly influenced by the customer's value creating activities in the customer sphere than in the joint sphere.

According to Skålén et al. (2015), a firm's Value Proposition consists of three practices: provision practices, representational practices and management practices. Provision practices are those activities that ensure value is realised by the customer and the firm, and can largely be equated to Co-production as measured in this research. Representational practices are concerned with the firm's communication of how the customer will realise Value-in-use; while it can't be directly equated to Value-in-use it is the firm's attempt at showing customers how Value-in-use will materialise from their products or services. The results from this research therefore have implications for how management practices need to align, organise and manage provision and representational practices. As Value-in-use is considered more important in shaping Value Perception, there should be a proportionally greater focus on representational practices than provision practices, i.e. naming, modelling and interaction practices should enjoy more attention from management than operating, problem-finding and problem-solving practices. This does not mean that one should be ignored in favour of the other, but rather that representational practices should be assigned a higher priority when faced with scarce resources.

In studying the Value Proposition of Rolls Royce through an S-D logic lens, Ng et al. (2012) found that focussing on the customer's Value-in-use activities they were able to increase their understanding of how to modify and improve the firm's Value Proposition in order to achieve greater effectiveness and efficiency. They conclude that the firm's value creating activities ultimately becomes its Value Proposition and the customer's contribution creates Value-in-use. The emphasis here is on understanding the

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customer's Value-in-use activities in order to optimise the Value Proposition, and is supported by the findings in hypothesis 2: because Value-in-use was shown to have the greater effect on Perceived Value, this provides additional empirical support for understanding the customer's Value-in-use activities first, and then optimising the Value Proposition including any Co-production activities that could result in additional Value-in-use for the customer.

It is important to repeat that while Value-in-use was indicated relatively more important than Co-production the latter dimension was still significantly related to Perceived Value. The results therefore do not advocate ignoring Co-production, but rather prioritising Value-in-use resources over Co-production resources.

6.4 Discussion of research hypothesis 3 findings

The third research hypothesis considered the relationship between Value Co-creation and the dimensions of Customer Perceived Value, hypothesising that the dimensions of Perceived Value would be differentially impacted by Value Co-creation. Put differently, the third hypothesis indicates that Value Co-creation has a larger impact on one or more of the dimensions of Customer Perceived Value than one or more of the others, creating the opportunity for Value Co-creation to differentially impact a firm's value proposition on one or more of its dimensions.

Consumption-value theory relies on three propositions, two of which support the hypothesis that the dimensions of value can be differentially affected by Value Co-creation. Firstly, it is proposed that the different dimensions of value contribute differently to an outcome in any choice situation; secondly, the different forms or dimensions of value are assumed to be independent (Sánchez-Fernández & Iniesta-Bonillo, 2007). The combination of these two fundamental propositions gives support to the hypothesis that the dimensions of value can be differentially affected by Value Co-creation.

The results of the four regression models considering the relationship between Value Co-creation and Quality, Emotional Value, Price and Social Value in turn indicate statistically significant relationships between all variables considered, with the exception of Price and Co-production. Value Co-creation, and more specifically the dimensions of Co-creation, therefore has a significant relationship with each of the dimensions of Value Perception, apart from Co-production and price. The relationships were however shown to not be statistically significantly different from each other, i.e. there is no evidence to show that Value Co-creation has a larger impact on, say, Social

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Value than any of the other dimensions of Value Perception. The third research hypothesis can therefore not be accepted.

A potential explanation for failing to accept the third hypothesis could be a violation of one of the propositions of consumption-value theory. Sweeney & Soutar (2001) state that the dimensions of value may not be independent; if this is the case the dependence of the dimensions could lead to no difference between the effects of Value Co-creation on each dimension, as they at least in part measure the same thing.

Ind & Coates (2013) state that while an organisation is responsible for creating the various possible outcomes of brand meaning through its value proposition, the ultimate outcome of brand meaning is created through its interaction with customers. While research hypothesis 3 could not be accepted in proving that Value Co-creation has a differential impact on the underlying elements of a firm's value proposition, significant positive relationships were established between the elements of Value Co-creation and each construct of the Value Proposition. This therefore supports the statement from Ind & Coates (2013), as it was shown that there is a significant relationship between Value Co-creation and a firm's Value Proposition. Moreover, if Co-production is taken as a measure of interaction (with Value-in-use referring more to Co-creation in the customer sphere), customer interaction was shown to shape perceptions of intrinsic value, i.e. Emotional and Social Value, and some, but not all, of extrinsic value, i.e. Quality and Price (Holbrook, 1999). Value-in-use, however, has a significant effect on all elements of the Value Proposition, both intrinsic and extrinsic. Ind & Coates (2013) furthermore state that when practicing Co-creation, organisations should aim to create an environment of trust between customers and the organisation. While organisational trust was not explicitly measured in this research, some of the elements of Customer Perceived Value – especially Social Value – can logically be inferred to create organisational trust. Both Co-production and Value-in-use, but especially Value-in-use, are therefore important in engendering this trust. The implication for business here is meaningful, as its Co-creation behaviour should be determined by the elements of its Value Proposition it wants to strengthen.

Fliess et al. (2014) list the positive implications of customer contribution as higher perceived quality and value, lower price sensitivity, higher customer satisfaction, increased loyalty and repeat purchases and more favourable brand image. This is supported by hypothesis 1 which finds a positive relationship between Co-creation and Perceived Value, as well as the results from hypothesis 3 which found a positive relationship between Co-creation and Quality perception as well as a positive

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relationship between Value-in-use and Price perception. The latter relationship can be inferred to indicate lower price sensitivity, as customers' perceptions of being reasonably priced increase with their perceptions of Value-in-use.

The significant relationship between the dimensions of Value Co-creation and the dimensions of Perceived Value indicate that all the elements of a firm's value proposition can be positively affected by adopting a Value Co-creation process. The one exception to this is that price perception could not be shown to be affected by Co-production, i.e. a positive experience in the joint value sphere could not be shown to positively affect price perception.

Value-in-use consistently has a greater impact on Perceived Value than Co-production, consistent with the finding under the second research hypothesis. Value-in-use therefore remains the relatively more important dimension of Value Co-creation, regardless of which dimension of a firm's value proposition is being considered.

6.5 Discussion of research hypothesis 4 findings

The fourth and final research hypothesis firstly proposed that there is a relationship between Value-in-use and Co-production, as well as a relationship between Value-in-use and Customer Perceived Value. The underlying motivation for this hypothesis was that Co-production ultimately becomes a dimension of the firm's Value Proposition, and together with Perceived Value – which measures the firm's "traditional" Value Proposition", should drive perceptions of Value-in-use: the customer's creation of value.

The second part of the fourth hypothesis considered the different elements of the new proposed Value Proposition: traditional Perceived Value as well as Co-production. The hypothesis stated that Value-in-use is differentially impacted by these four constructs, i.e. one or more of these constructs would have a statistically significant larger impact on Value-in-use than the others.

Both parts of hypothesis 4 were accepted, as there was a statistically significant relationship between Value-in-use and the two predictors in the model. Moreover, it was shown that Co-production has a statistically significant greater effect on Value-in-use than Perceived Value, as there was no overlap between the confidence intervals for the two model coefficients.

As was already discussed under the results of hypothesis 2, Ng et al. (2012) concluded in their research that firms' contribution to value creation becomes their Value Proposition, and the Value Proposition is designed to maximise the customer's Value-

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in-use. The researchers aimed to design this Value Proposition in a very pragmatic way by understanding what the customer's Value-in-use activities were, and modify the case study company's Value Proposition in order to co-create value with its customers in a way that increased the customers' Value-in-use. Significantly, this research established that conscious Co-production activity has a greater impact on the customer's Value-in-use than what can be considered the traditional Value Proposition, made up of functional, social and emotional value (Sweeney & Soutar, 2001).

Roser et al. (2013) similarly concluded that Co-creation's aim is to enhance a firm's business model, or ultimately Value Proposition. Over time, the firm creates a value creation philosophy which becomes entrenched in its business model. They also find that intrinsic motivation generally outweighs extrinsic motivation in driving customer engagement, with respondents in their research indicating that being given the opportunity to be heard by a firm allowed them to gain an element of social value. They conclude therefore that Co-creation should first and foremost generate customer engagement that is meaningful and creates intrinsic value. This research once again contributes to this finding, as it shows that Co-production generates far more Value-in-use than the firm's traditional Value Proposition, which is largely concerned with extrinsic value such as Price and Quality.

6.6 Conclusion

The results of the research found various statistically significant relationships between Customer Perceived Value and Value Co-creation, each with its own implications.

Table 18: Summary of results related to the literature

Hypothesis	Result	Supported by	Contradicted by
H1: There is a positive relationship between Value Co-creation and Customer Perceived Value	Accepted	Heidenreich et al., (2015); Ranjan & Read, (2016); Vega-Vazquez et al., (2013); Walsh et al. (2014)	
H2: Co-production and Value-in-use have differential impacts on Customer Perceived Value	Accepted	Grönroos & Voima (2013)	Ranjan & Read (2016) ; Yi & Gong (2013)
H3: The four underlying elements of Customer Perceived Value are differentially impacted by Co-production and Value-in-use	Rejected	Sweeney & Soutar (2001)	Sánchez-Fernández & Iniesta-Bonillo, (2007)
H4a: There is a relationship between Value-in-use and Co-production as well as Value-in-use and Perceived Value	Accepted	Ng et al. (2012); Roser et al. (2013)	
H4b: Perceived Value and Co-production differentially impact Value-in-use	Accepted	No existing research	

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7. Conclusion

7.1 Introduction

This research paper aimed to understand how the concept of Value Co-creation relates to Customer Perceived Value, and through the use of two measurement instruments introduced in recent literature tested four research hypotheses: whether there is a positive relationship between Value Co-creation and Customer Perceived Value, whether the dimensions of Value Co-creation had a differential impact on Customer Perceived Value, and whether the dimensions of Customer Perceived Value are differentially impacted by Value Co-creation. Additionally, the research created the opportunity to validate the two measurement instruments in a context where it had not been tested before.

The study confirmed its first two research hypotheses; i.e. a positive relationship was established between Value Co-creation and Customer Perceived Value, and Value-in-use was shown to have a statistically significant greater impact on Customer Perceived Value than Co-production. It could however not be conclusively shown that the four dimensions of Customer Perceived Value – Price, Quality, Emotional Value and Social Value – are differentially impacted by Value Co-creation. Furthermore, the measurement instrument for Customer Perceived Value was validated in its proposed form through this research, while the measurement instrument for Value Co-creation was shown to not fully fit its assumed structure, raising questions around its validity in the context it was tested in.

The concluding chapter of this research will firstly discuss the academic implications of the results and thereafter the business implications. Limitations of the research are identified and suggestions for future research are made, ending with some concluding thoughts from the researcher.

7.2 Academic implications

The academic implications of the research are threefold: firstly, it adds an additional study to sparse empirical research on Value Co-creation and its consequences. Research done using the customer centric point of view of Value Co-creation is even fewer and this study adds to the body of work that present empirical findings of the effects of Value Co-creation. More specifically, this research adds an additional empirical study to the research stream termed Service Innovation by Galvagno & Dalli (2014).

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In addition, extant empirical research on the consequences of Value Co-creation has focussed on its relationship to customer satisfaction, whereas this research established a relationship with Customer Perceived Value. Academically this builds on the implications of Value Co-creation and adds an additional, previously non-existent relationship. It also opens the door for more rigorous empirical research into the idea of Co-creation in the joint sphere forming part of a business's Value Proposition, as this has been theorised but not empirically tested.

Most fundamentally, however, one of the main academic objectives of this research was to validate the two research instruments used to measure Customer Perceived Value and Value Co-creation. From the factor analyses presented in Chapter 4, the conclusion can be reached that the Customer Perceived Value scale was fully validated in a different economic context and industry than it was tested in before. Each item in the scale showed high factor loadings on its theoretical constructs and comparatively low loadings on the other factors, completely validating the instrument.

The Value Co-creation instrument was less successfully validated. Several of the items that were expected to load higher on the Value-in-use factor showed higher factor loadings on the Co-production factor. It should however be noted that their loadings on the Value-in-use factor could still be considered moderately high.

Considering the sub-dimensions of Value Co-creation, within the Co-production factor only one of the items expected to measure knowledge loaded on a unique factor, with the other three loading highest either on Interaction or Equity. Similarly for Value-in-use two items loaded highest on factors that were supposed to measure Co-production. While the sub-dimensions were not used in this research, it is nonetheless advisable that further work be done to validate this research instrument.

7.3 Business implications

This research has firmly established the need for business to consider Value Co-creation as part of their business strategy, given its relationship to Perceived Value and its known positive implications. While the levels of Co-creation will differ according to a firm's industry, customer base and competitive environment, it is clear that trends in consumer behaviour and technology have necessitated that organisations consider how they Co-create value with their customers.

The finding that Value-in-use trumps Co-production in its impact on Perceived Value provides insight into how firms need to employ their scarce resources. A fundamental premise of S-D logic is the integration of the firm's resources in order to Co-create

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value with is customers (Skålén et al., 2015; Vargo & Lusch, 2008); understanding the importance of the dimensions of Co-creation allows firms to prioritise how they allocate resources. Co-production requires resources dedicated to interacting with the customer, collecting data and providing information and allowing the customer access to the firm's processes in order for them to be able to influence it. Value-in-use focusses on the Value Proposition and ensuring the customer perceives a personalised interaction and forms a relationship with the organisation.

However, arguably the most significant finding of the research is in bringing together the concepts of Value-in-use, the firm's Value Proposition and joint Value Creation. When Value Creation in the joint sphere is considered a fundamental part of the firm's Value Proposition, the customer's Value-in-use is enhanced. Moreover, Co-production or joint Value Creation was found more important in its relationship with Value-in-use than the traditional Value Proposition, changing the way firms should view their Value Propositions.

The implication of Co-production, or stated differently, the firm's Co-creation efforts with the customer in the joint sphere, having a greater impact on Value-in-use than Perceived Value is far reaching. It implies a shift in business logic that aims to understand the customer's Value creation activities first, and then design a Value Proposition that includes conscious efforts to co-create value with the customer in order to maximise their Value-in-use. It gives new meaning to the concept of firms only being able to design Value Propositions (Vargo & Lusch, 2008), as conscious co-creation in the joint sphere becomes the most important part of designing that Value Proposition.

While the results from research hypotheses 2 and 4 may seem contradictory, they could be considered complementary in a reciprocal way. Providing the opportunity for the customer to perceive greater Value-in-use, the firm can increase perceptions of its (traditional) Value Proposition. However, if the firm considers Value-in-use as the most important customer outcome, it can use its traditional Value Proposition together with Co-production to enhance Value-in-use, thereby in turn enhancing its Perceived Value. Figure 7 provides a simple graphical depiction of this reciprocal relationship.

Figure 7: Reciprocal relationship between Value-in-use, Co-production and Perceived Value

Source: Author's own
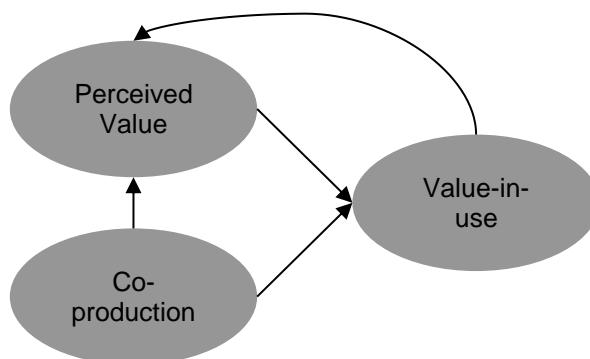
7.4 Limitations

The research methodology has resulted in certain limitations in terms of understanding causality and the generalisability of the results. Firstly, the use of non-probability self-selection sampling can cast doubts on the external validity of the research. However; because the research panel is large, panel members have signed up for general research (not the specific research being conducted) and potential respondents were randomly selected from the larger panel, self-selection bias was somewhat controlled. Secondly, because the sample consisted only of South African residents, there could be doubts whether the results are applicable in an international setting. The demographic skews introduced by the data collection methodology could also bring into question whether the results are applicable to the South African population, however it could be argued that the results are applicable to at least a subset of the population.

Because there were questions on the internal validity of the Value Co-creation measurement instrument some care should be taken in interpreting the relative importance of the underlying constructs. At the very least however, the overall relationship holds and the significance of the underlying dimensions should also hold. It was pointed out by pilot respondents that the Value Co-creation instrument was too academically worded to be applicable in all cases to the general consumer. This could have affected understanding and interpretation of the questionnaires, as well as played a part in the validity of the instrument.

Finally, the results of this research are limited to a single industry and are relevant only in a B2C context. While there are some adjacent industries that the results could be applied to (e.g. FMCG retail or homeware), the results for the most part are only relevant to the clothing retail industry.

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7.5 Future research

The decision to apply a descriptive research strategy meant no causal links could be established between Value Co-creation and Customer Perceived Value or between Perceived Value, Co-production and Value-in-use. Since relationships were established between the constructs, future research could establish if there are causal links between them.

Further work needs to be done on the Value Co-creation measurement instrument; firstly in simplifying the wording, but also in ensuring the validity of the instrument. Future research can also focus on establishing if a similar relationship exists in a B2B setting, and other industries can be surveyed in order to see if the relationship exists universally and with the same underlying construct relative importance.

Existing research on this topic has mostly been conducted in developed economies. While this research was conducted in a developing economy, the sample was skewed towards more affluent members of the population and therefore might not have captured all of the differences that might exist in a developing economy compared to developed economies. Future research could focus on establishing whether different perceptions of Co-creation exist in developing economies compared to developed economies and what the implications of these differences are.

A better understanding of Value-in-use can go a long way in formalising the links between Co-production, Value Propositions and Value-in-use. Qualitative research that aims to understand the customer's Value Creation activities in the customer sphere, followed by quantitative research that tests the relationship on more defined Value-in-use activities is recommended.

7.6 Concluding remarks

Ind & Coates (2013) make the rather bold statement that current management thinking lacks a focus on the customer, and quote views that business thinking should move from maximising shareholder value to maximising customer value. While it is beyond the scope of this research to recommend which paradigm should be adopted by business at large, it is clear from the results discussed in this paper that in order to achieve better customer value, Value Co-creation can play an integral part. The concept and its constructs are significantly related to all elements of a business's value proposition, and co-creating value with customers whether through end use or Co-production in customer interactions can lead to better customer perceptions of value with all the positive consequences associated with it.

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Appendix A: Questionnaire

Section 1

1. Which of the following companies have you interacted with in the past three months?

Edgars	1
Jet	2
Mr Price Clothing	3
Woolworths Clothing	4
Truworths	5
Foschini	6
PEP	7
Ackermans	8
Cotton On	9
H&M	10
None of the above	11	*Close interview*

2. Which **one** of these would you say you can best recall your interaction with?

Edgars	1
Jet	2
Mr Price Clothing	3
Woolworths Clothing	4
Truworths	5
Foschini	6
PEP	7
Ackermans	8
Cotton On	9
H&M	10

Section 2

3. Thinking of the products that <company in Q2> offers, to what extent do you agree with the following statements? Please answer on a scale from 1 to 7, where 1 means completely disagree, 7 means completely agree, and any number in between indicates your degree of agreement.

Note: Randomize order of items

Items adapted from "Replicating, validating, and reducing the length of the consumer perceived value scale" by G. Walsh, E. Shiu & L.M. Hassan, 2014, *Journal of Business Research, 67*(3), p. 263

Construct	Item	1	2	3	4	5	6	7
Quality	3.1. Has consistent quality							
	3.2. Is well made							
	3.3. Has an acceptable standard of quality							
Emotional	3.4. Is something I would enjoy having							
	3.5. They make me want to use their products							
	3.6. Makes me feel good							
Price	3.7. Is reasonably priced							

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Construct	Item	1	2	3	4	5	6	7
	3.8. Offers value for money							
	3.9. Is a good product for the price							
Social	3.10. Would help me to feel acceptable							
	3.11. Would improve the way I am perceived							
	3.12. Would make a good impression on other people							

Section 3

4. On a scale from 1 to 7, where 1 means completely disagree, 7 means completely agree, and any number in between indicates your degree of agreement, to what extent would you agree with the following statements regarding <company in Q2>?

Note: Randomize order of items

Items adapted from "Value co-creation: concept and measurement" by K.R. Ranjan & S. Read, 2016, *Journal of the Academy of Marketing Science, 44*(3), p. 301

Construct	Item	1	2	3	4	5	6	7
Co-production: Knowledge	4.1. They are open to my ideas and suggestions about their products or towards developing new products							
	4.2. They provide sufficient information to me							
	4.3. I would willingly spare time and effort to share my ideas and suggestions with them in order to help them improve their products and processes further							
	4.4. They provide the opportunity for me to offer suggestions and ideas							
Co-production: Equity	4.5. They have easy access to information about my preferences							
	4.6. Their processes are aligned with the way I wish them to be (i.e. the way I wish them to be)							
	4.7. They consider my role in our interactions to be as important as their own							
	4.8. We share an equal role in determining the final outcome of our interactions							
Co-production: Interaction	4.9. During our interactions I can easily express my specific requirements							
	4.10. They convey to their customers the relevant information related to their processes							
	4.11. They allow sufficient customer interaction in their business processes (product development, marketing, assisting other customers, etc.)							
	4.12. In order to get maximum benefit from their process/product, I play a proactive role during my interactions (i.e. I have to apply my skill, knowledge, time, etc.)							
Value in use: Experience	4.13. Interacting with them is a memorable experience for me							
	4.14. My experiences in our interactions might be different from other customers depending on the reason and nature of the interaction							

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Construct	Item	1	2	3	4	5	6	7
	4.15. It is possible for a customer to improve interactions with them by experimenting and trying new things							
Value in use: Personalisation	4.16. The benefit, value or fun from their product depends on the user and their reason for using the product							
	4.17. They try to serve the individual needs of each of their customers							
	4.18. Different customers, depending on their taste, choice or knowledge, involve themselves differently in their processes or with their product							
	4.19. They provide an overall good experience, beyond just providing a product							
Value in use: Relationship	4.20. They need to be involved in the interaction over and above normal service and product provision in order for customers to fully enjoy their service/product							
	4.21. There is usually a group, community or network of consumers who are a fan of them							
	4.22. I feel an attachment or relationship with them							
	4.23. They are renowned because their consumers usually spread positive word about them in their social networks							

Appendix B: Ethical clearance letter

Dear Mr Pierre Coetzee

Protocol Number: **Temp2016-01320**

Title: **The relationship between value co-creation and value perception**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

Adele Bekker