



Co-creating Products with Customers

Doctoral Dissertation

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LIST OF ABBREVIATIONS.

ATP	Attitude toward the product
BE	Brand experience
BRINV	Brand involvement
HED	Hedonic dimension of attitude toward the brand
INVCO	Involvement in co-creation activities
IM	Innovation management
KGMs	Knowledge generation mechanisms
MEB	Management of engagement behaviors
MS	Marketing strategy
NPD	New product development
PCA	Willingness to participate to collaboration activities
PRINV	Product category involvement
PRNOV	Perceived product novelty
R&D	Research and Development
TRST	Consumers' trust
UT	Utilitarian dimension of attitude toward the brand
WTP	Willingness to pay
WOM	Word-of-mouth

CHAPTER 1

General Introduction

1.1 The role of customer co-creation in new product development for Marketing Strategy and Innovation Management.

In the last decade, the role of customers in new product development (NPD) has changed. Given increasing demand for more creative consumption and the rise of new interactive communication tools, many firms are abandoning the traditional close system for the NPD activities and are giving customers a more active role (von Hippel, 2005; Fuchs, Prandelli, and Schreier, 2010). In this new concept, consumers are invited to co-create products with firms (Hoyer et al., 2010). Co-creation activities are viewed as a way to obtain products more in line with consumers' needs, but also to encourage engagement behaviors (van Doorn et al., 2010). Indeed, beyond the suggestion of ideas about new and existing products, consumers involved in co-creation activities engage in behaviors, that provide support to firm's products and operations. For instance, forms of customer engagement support new product's diffusion through positive word-of-mouth communications.

This type of activities is due to the combination of many factors. First of all, companies are investing part of their Marketing and R&D budgets to design websites for co-creation activities on-line. The active involvement of customers in the NPD process allows companies to combine two operations: 1) collection of information about customers' needs and 2) design of new solutions that meet these needs.

Second, consumers in developed countries have matured more advanced consumption approaches. Given skepticism and criticism toward abuse of traditional marketing communication, especially toward advertising

claims about product performance (Darke, and Ritchie, 2007), consumers ask for more transparency about firm's operations and more power over the NPD process. Furthermore, "passive consumption", namely the act of purchase and consumption of products, is much criticized by the most knowledgeable consumers, who ask for more information about products and for more creative forms of consumption.

Third, consumers, today, are more skilled than in the past and are able to suggest relevant ideas. This notion is supported by the consideration that many products and services are developed or refined by consumers during use (Hienerth, von Hippel, and Jensen, 2014). Previous research, indeed, found that increasing the relationship between product end-users and firms' employees can produce positive innovation outcomes (von Hippel, 2005).

Fourth, the growth of the Internet allows customers to get easier access to knowledge and creative tools. It also allows higher opportunities for social interaction. Indeed, many co-creation activities occur on-line in brand communities (Muniz, and O'Guinn, 2001; Fuller, Matzler, and Hoppe, 2008) and in social media.

In this new landscape, co-creation in new product development (NPD) represents an activity of cooperation between customers and firms that leads to the creation, selection or refinement of new or existing products. The strength of co-creation activities relies on the number of actors involved, which is constantly increasing, and on the fact that these actors are highly motivated, non-geographically bound and, in many cases, extremely skilled.

By being involved in the NPD process, consumers view themselves as part of a community of co-creators and become more engaged in all the operations regarding the new product. For this reason, co-creation activities are employed not only for knowledge generation objectives (von Hippel, 2005), but also to obtain the behavioral engagement of co-creators (van Doorn et al., 2010). These potential objectives make the co-creation phenomenon highly valuable for firms.

As a result, many firms are launching many co-creation initiatives. The diffusion in different industries of forms of customer co-creation has become quite relevant. Although the most significant examples of co-creation occur in the high-involvement industries, such as the high technology domain, forms of co-creation are also designed in low-involvement industries.

About high-involvement products, Bayus (2013) examined ideas suggested by consumers on the Dell's Idea Storm website, about computer-related products (hardware, software, etc.). In this domain, users are very willing to cooperate with companies, to create new products and to improve existing products. Members of this website can also comment ideas coming from others and vote on others' ideas. In another similar study, Sawhney, Verona, and Prandelli (2005) showed how consumers engage in discussions about motorbikes' development on the Ducati Motor website. In this case, consumers can suggest new technological solutions about engines, exterior designs and materials.

In low-involvement domains, co-creation activities are based on simple procedures for the selection of several product characteristics. Lay's, the potato chips company, usually asks consumers to suggest new product flavors. Danone also asks consumers to select new yoghurt flavors and M&M's organizes voting systems for selecting new colors. In Threadless.com, the most famous case of co-creation, members are invited to submit their t-shirt designs and to vote on those they want to be marketed.

Given the relevance of this relatively young research area, this dissertation contributes with three studies. In the first study, presented in Chapter 2, we develop a theoretical framework to show how co-creation activities affect R&D and Marketing strategy. This study can be valuable for the implementation of strategies in firms that adopt co-creation approaches.

The second study, presented in Chapter 3, examines how trust influences consumer behavior in co-creation activities. In consumer-manufacturer relationships, trust is important in order to reduce uncertainty and, in case of new products, the need to reduce uncertainty is particularly important, because of the novelty of the

product (Rogers, 2003). Hence, in this study, we test how consumer behavior in co-creation activities is affected by trust.

The third study, presented in Chapter 4, explores experiential aspects of co-creation and its effects on consumer's brand experience. Experiential aspects are important inasmuch they add an extra-value to product consumption. Brand experience, indeed, has been found to be related with important marketing results such as customers' repeated purchase (Brakus, Schmitt, and Zarantonello, 2009).

In the next section, an overview of these Chapters is provided. In this overview, we introduce research motivations and questions.

1.2 Outline of the thesis.

Chapter 2: How does Customer Co-creation affect R&D and Marketing Strategy?

In Chapter 2, we develop a theoretical framework to examine how co-creation activities affect firm's R&D and marketing strategy. The research question we provide an answer is: How do co-creation activities affect R&D and Marketing strategy?

Although co-creation in new product development (NPD) is a topic of interest in the Management literature, few studies so far have developed frameworks to integrate both R&D and Marketing perspectives. In this respect, we combine conceptual elements related to knowledge generation mechanisms (KGMs) and the management of engagement behaviors (MEB), to offer a view on factors to be taken into account by companies, that adopt co-creation approaches.

In this Chapter, we show how co-creation activities provide R&D and Marketing Strategy with potential benefits not only for increasing the marketability of new products, but also for stimulating engagement behaviors from consumers. This dual perspective is highly useful because it can help companies develop

integrated procedures, which emphasize synergies between the R&D and Marketing areas. However, the study is intended not to develop organizational procedures, but to map the flow of activities concerning knowledge generation and engagement behaviors.

Chapter 3: The Role of Trust in Co-creation Activities.

In Chapter 3, through an empirical study, we demonstrate how consumers' trust is an important, and so far undervalued, factor that moderates the effects of co-creation on consumer behavior. The relevance of trust relies on the consideration that consumers perceive it as a factor on which new products can be evaluated (Garbarino, and Johnson, 1999). Indeed, consumers are more willing to accept new products from highly trusted manufacturer than from poorly trusted ones. Thus, trust influences consumers' perceptions by reducing uncertainty and generates expectations about future product performance.

The research question of this study is: how does trust influence consumer behavior in co-creation activities?

To answer this question, we first give an outline of consumer behavior in co-creation activities. In our theoretical model, we introduce four concepts, that, in literature, are considered to be the most important consumer's behavioral responses occurring during co-creation: 1) higher product demand, expressed as willingness to pay the new product (WTP); 2) better attitude toward the product (ATP); 3) positive word-of-mouth communications (WOM); 4) higher consumer's willingness to participate to collaboration activities (PCA).

To test the effects of trust on these four aspects, we developed a research setting, that involved 332 consumers in an experimental design with real co-creation activities. Thanks to the help of a research company, First Lab Ltd, these consumers were randomly selected in the London area (UK) and invited for one day to participate to co-creation of food products. The sample was split in two groups: the first

group was used as control and was involved in a traditional market research survey; the second group was involved in the co-creation of cake designs. Both groups were also exposed to three different scenarios to manipulate participants' trust. We set up three levels of trust: high, intermediate and low. At the end of the experiment, we examined the direct and interaction effects of trust and co-creation on consumer behavior.

In sum, this study shows how different effects can occur in co-creation activities with respects to different levels of trust. In particular, this study shows how important it is to carefully evaluate the level of trust a company creates on the market. Companies should also consider the business objectives they would like to pursue, since co-creation activities seems to be not suitable for all kind of objectives.

Chapter 4: Brand Experience in Co-creation Activities.

In Chapter 4, we examine the effects of co-creation activities on brand experience. Brand experience identifies consumers' responses to brand-related stimuli and is associated with important marketing outcomes, such as satisfaction and loyalty (Brakus, Schmitt, and Zarantonello, 2009). Although in literature many concepts have been developed on the consumer-brand relationship (e.g., brand personality, Aaker, 1997; brand involvement, Zaichkowsky, 1985; brand attachment, Thomson, MacInnis, and Park, 2005), we argue that the nature of co-creation embraces more the experiential side of the consumer-brand relationship and, for this reason, brand experience is the most suitable concept to examine in this study. Thus, this study provides an answer to the following question: To what extent does co-creation affect brand experience?

This study provides a new theoretical perspective, given that co-creation activities can be considered an useful context for consumers' experiences. This context is different from the contexts provided in the search and consumption of products. Furthermore, given a brand focus, it can represent a possible bridge between product innovation and branding activities. Thus, co-creation can be an option to strengthen consumer-brand

relationship. As a second-order theoretical insight, we find that the effects of co-creation on brand experience are positively moderated by social factors. Finally, we find also that the more the brand is perceived as hedonic the higher are the effects of co-creation on brand experience.

To test the hypothesized effects, we designed an empirical setting to involve consumers in co-creation activities, as done in the study presented in Chapter 3. These co-creation activities were based on the development of new food products for two brands, Pringles and Philadelphia. We employed two different brands in order to test the effects of the hedonic dimension. Then, brand experience was measured before and after consumers took part into the experiment. This allowed to account for the variation of brand experience resulted from the participants' involvement in co-creation activities. Also, we tested social interaction effects by including a third type of scenario, where co-creators were allowed to interact with others.

CHAPTER 2

How does Customer Co-creation affect R&D and Marketing Strategy?

Introduction.

Customer co-creation is a form of business strategy that involves the cooperation between customers and the firm for the creation of new products, the refinement of existing products and the decision about which products have to be marketed. In this view, markets are forums where firms and consumers share, combine and renovate their ideas about products (Minkiewicz, Evans, and Bridson, 2014). Co-creation activities give consumers an active role in the new product development (NPD) process. Through such activities, indeed, consumers can exert a greater influence on companies' product decisions (Fuchs, Prandelli, and Schreier, 2010). Companies also have beneficial effects from such activities: due to this new form of consumer participation, they can have access to more information, increase their market knowledge and develop new products more in line with consumers' needs.

In the last years, this paradigm has attracted the attention of several scholars in the literature about Innovation Management (Prahalad, and Ramaswamy, 2004; von Hippel, 2005; Cook, 2008; Magnusson, 2009), and Marketing (Payne et al., 2009; O'Hern, and Rindfleisch, 2009; Hoyer et al., 2010 Fuchs, Prandelli, and

Schreier, 2010; Fuller, 2010). These scholars have pointed out how co-creation relies not only on innovation capabilities, but also on the firm's dialogue with consumers, and recognized the importance of factors that are associated less with economic transactions (i.e. sales) and more with consumers' behavioral reactions (i.e. customer engagement, Van Doorn et al., 2010; Bijmolt et al., 2010).

In the NPD process, the Marketing Department is in charge for obtaining information about customer needs, while R&D has to translate this information into technical specifications to be included in new products (Drechsler, Natter, and Leeftang, 2013). With respect to this paradigm, co-creation activities represent a complementary method, that allows consumers to directly suggest new product solutions (Thomke, and von Hippel, 2002; von Hippel, 2005). Previous research, indeed, found that a more active role given to consumers in NPD increases the marketability of new products and reduces the number of product failures (Thomke, and von Hippel, 2002; Cook, 2008).

Beyond NPD operations, co-creation activities enhance consumers' engagement with co-created products and promote consumer-product identification. These positive feelings emerge when consumers view themselves as active contributors of the NPD process and the co-created products are considered the result of their cooperation (Fuller, 2010). Through co-creation activities, companies can build relationships with co-creators and influence their emotions and feelings toward the new product. Relationship building can lead to the formation of a social context based on product-related collaboration. Such a context can be extremely valuable for engaged co-creators.

Given this concept, the objectives of this Chapter are to illustrate how a co-creation approach in NPD affects firm's R&D and Marketing strategy. Since co-creation activities serve strategic functions that go beyond product differentiation and innovation and that affect the customer-firm relationship, integrated strategy making is needed to show managers potential benefits from this approach. This is needed because, although some managers start understanding the importance of co-creation activities, many other are reluctant to

empower customers, because of misunderstandings about potential benefits for the R&D and Marketing activities (O'Hern, and Rindfleisch, 2009).

Theoretical development is also needed to understand which are the main factors, that companies should take into account during co-creation activities. For this reason, we develop propositions that identify important factors responsible for the effects of co-creation on R&D and Marketing objectives. The research project of this Chapter is, indeed, to provide managers with conceptual guidelines about the generation of new knowledge and the engagement of customers in co-creation activities.

This Chapter is structured as follows. In section 2.1, we provide an overview of extant literature. In section 2.2, we define the concept of customer co-creation in new product development. In section 2.3, we highlight the importance of co-creation activities for R&D and Marketing procedures. In section 2.4, we develop a theoretical framework to show how the main factors in co-creation activities affect R&D and Marketing procedures. This section is divided into two parts: 1) we highlight knowledge generation whereby co-creation activities generate positive outcomes for firms in terms of innovation and 2) we show how firms can effectively manage customer engagement behaviors, that result from co-creation activities. In section 2.5, we discuss the contributions of our theoretical framework and highlight its effects on firm's strategy. Finally, in section 2.6, we show managerial implications and directions for future research.

2.1 Extant literature.

A first theoretical stream on co-creation, developed in the mid-80s, explored the impact of co-creation on product innovation (so called user-driven innovation, von Hippel, 1986) and suggested that contributions coming from consumers can lead to successful new product concepts. Through a better fit of co-created products with consumer needs, co-creation can be a way to cut R&D costs and reduce the risk of product failures (Thomke, and von Hippel, 2002; Franke, von Hippel, and Schreier, 2006; Hienerth, von Hippel, and

Jensen, 2014). Although findings on this topic are not conclusive, some studies so far suggest that co-creation can be positively associated with important NPD outcomes, such as increased creativity in the NPD process, decreased time to market, and reduction in NPD costs (Shah, 2006; Franke, von Hippel, and Schreier, 2006). As it is showed in Figure 2.1, this paradigm substantially relies on the collaboration between firm's professionals and consumers.

Beyond innovation outputs, new streams of research have focused on psychological and social effects of co-creation on consumer behavior and have explored co-creation activities from the consumers' perspective (Nambisan, and Baron, 2009; Fuchs, and Schreier, 2011; Minkiewicz, Evans, and Bridson, 2014). Specifically, more recent streams of research found that: (1) co-creation stimulates *empowerment effects*, in a way that customers perceive to have an important role in NPD (Fuchs, Prandelli, and Schreier, 2010); (2) co-creation fulfills consumers' demand for more *creative consumption* (Csikszentmihalyi, 2009) and encourages *customer engagement behaviors* (Van Doorn et al., 2010; Nuttavuthisit, 2010; Kumar et al., 2010; Bijmolt et al., 2010); (3) co-creation produces *social benefits* for co-creators (Nambisan, and Baron, 2009; Fuller, 2010).

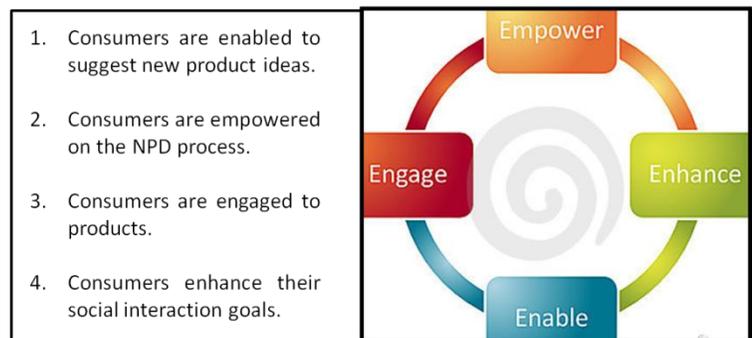
Several scholars highlight how social interaction represents an important component of co-creation activities, since these activities usually occur in community-based systems (von Hippel, 2005; Fuller, Matzler, and Hoppe, 2008). The governance of these systems is usually informal and most issues regarding new products can easily come from the product users. Informal relationships encourage spontaneous behavior among co-creators, who normally feel free to suggest their ideas and are not scared about making mistakes. In these communities, collaboration between product users and firm's professionals is genuine and regularly driven by specific topics of interest. These characteristics cause the establishment of relationships, depending on the network of product users involved. For example, in these communities it is possible to find more naïve and more expert users active in dialogues about the products.

These different aspects are summarized in Figure 2.2. This Figure illustrates the main drivers of co-creation activities. They are related to the firm's capability to establish a dialogue with consumers. Thus, consumers are central and vital participants of the NPD process (Jeppesen, and Molin, 2003; Poetz, and Schreier, 2012).

In sum, past research on co-creation has explored the effects on innovation outputs and on consumer behavior and has provided evidence of positive effects on

both. Co-creation activities are important for innovation purposes, because they result in better products with lower risk of failure, and for marketing purposes, because they encourage consumers' engagement behaviors. These ideas are the starting

Figure 2.1. Effects of co-creation on consumer behavior.



point of this Chapter. In the next section, we define the conceptual domain of co-creation, by pointing out its main conceptual elements.

2.2 Conceptual domain.

Customer co-creation in new product development can be defined as an activity, distinct from consumption, in which customers and firms collaborate in order to create, refine or select products that have to be marketed. We characterize its conceptual domain through three main conceptual elements.

The first element is related to the activity of idea generation. This activity is at the core of a successful NPD process (Kahn, 1996). In traditional NPD, it is conducted by teams of firm's professionals, while consumers are invited only to provide personal feedbacks. On the contrary, the co-creation paradigm involves consumers directly as active participants in the idea generation stage and they become contributors of new product ideas.

Beyond the generation of novel ideas, consumers can also be involved in the refinement of products. Product refinement means that customers have the power to suggest product improvements. They can improve a product's core components or its underlying structure and can select the components that should be incorporated into the final product. Finally, consumers can also be invited to select products that have be marketed. Since co-creators usually select new products for their own interests, without considering firm's interests, internal NPD teams examine beforehand if products selected by consumers can have positive economic returns (von Hippel, and Katz, 2002; O'Hern, and Rindfleisch, 2009). This type of collaboration results in new product solutions more in line with customers' needs and, at the same time, able to meet firms' economic interests.

The second conceptual element is related to empowerment effects (Fuchs, Prandelli, and Schreier, 2010). In co-creation, empowerment is the process whereby consumers have the power to decide new product characteristics. Empowerment effects are caused by the consumers' active role in co-creation activities.

These effects make consumers more psychologically bound to the co-created products. This leads to psychological ownership. In literature, psychological ownership is defined as the value perceived from the simple possession of objects (Shu, and Peck, 2011). In some cases, co-creators wish the possession of co-created products, simply because they participated to their creation. In other cases, co-creators strive for the success of their co-created products on the broad market. These reactions have important emotional implications.

Empowerment can also increase the experiential value for consumers. This happens when consumers experience empowerment on NPD through the use of creativity. Creativity is an important factor for the stimulation of the intellectual dimension (Csikszentmihalyi, 2009). In this case, creativity emphasizes the shift from product consumption to product experience (Vargo, and Lusch, 2008).

From the firm's perspective, consumers' empowerment implies less control over the NPD process and more transparency in the manufacturing of the new product. Empowerment requires also that firms keep their promises about new products. This condition implies the development of internal procedures to guarantee transparency and access to relevant information about products. Objectives are not at all times shared equally as the social consensus in co-creation is always a compromise between what the consumers want, what the company wants, and what the reality allows. For this reason, companies need to specify the objectives of co-creation activities beforehand and have to set relevant procedures to reach them.

A third element regards the development of social relationships among co-creators around the relevant product or brand. This is mainly due to the high interactivity of co-creation activities, supported by interactional exchange mechanisms among consumers and between consumers and companies' professionals (Nambisan, and Baron, 2009; Fuller, 2010). Social interaction is fueled by the fact that co-creators are often organized in communities with their own rules.

These community-based systems provide an ideal environment to collect, evaluate and select the ideas. In sharp contrast with traditional professional NPD teams, where participants have strict roles (O'Hern, and Rinfleisch, 2009), communities of co-creators are very informal and governed by democratic systems with very simple rules. Moreover, differently from internal R&D teams, which are mostly based on economic incentives mechanisms, co-creation activities are spontaneous in nature and fueled by co-creators' personal interests and attitudes. This unstructured form of governance is needed and allows co-creators to freely express their personality. This, in turn, can enhance the creation of true social relationships.

As a consequence, these forms of interaction can result in many social and personal benefits. Consumers' value perceptions are also (subconsciously) influenced by the way companies present co-creation activities in a certain (social) context. For example, companies can invite consumers to submit their own ideas or they can invite consumers to comment others' ideas. The first perspective leads more to consumers' self-enhancement,

while the second leads more to the building of social relationships (Bayus, 2013). Both occasions, however, are relevant for consumers' value perceptions and behaviors.

Finally, given the discussed conceptual elements, Table 2.1. illustrates the conceptual domain of co-creation in new product development.

Table 2.1. Conceptual elements of co-creation in new product development.

Co-creation in new product development: three conceptual elements			
	Idea generation	Empowerment	Development of social relationships
Description	<ul style="list-style-type: none"> ➤ Co-creators generate and select new ideas for the new product development or refinement. 	<ul style="list-style-type: none"> ➤ Empowerment is the process whereby consumers have the power to decide new product characteristics. 	<ul style="list-style-type: none"> ➤ Social relationships among co-creators, developed in co-creation activities around the relevant product or brand.
Characteristics	<ul style="list-style-type: none"> ➤ Co-creators can actively contribute to NPD with ideas. Co-creators are involved in collaborative activities and also interact with firm's professionals. ➤ Co-creators' ideas can affect a whole new product, just one or more new product components or new product structure. 	<ul style="list-style-type: none"> ➤ Consumers become more psychologically bound to co-created products. This leads to psychological ownership and has important emotional implications. ➤ Co-creators can appreciate an higher experiential value than traditional product use. 	<ul style="list-style-type: none"> ➤ Co-creation activities are characterized by an interactive informal social context. ➤ Co-creation activities are usually organized through democratic community-based systems with an unstructured governance. In co-creation communities, co-creators can freely express their ideas and comment others' ideas.
Consequences	<ul style="list-style-type: none"> ➤ Given an increased access to customer knowledge, firms can develop new products more in line with market trends and customer needs. 	<ul style="list-style-type: none"> ➤ A stronger consumer-product relationship can be built. To obtain empowerment effects, companies have to reduce their control over NPD and to provide higher transparency in the manufacturing process. 	<ul style="list-style-type: none"> ➤ The building of social relationships generate many different social and personal benefits. These benefits are important because they are linked to the co-creators' social sphere.

These three conceptual elements provide evidence that co-creation is relevant not only for innovation outputs but also for the engagement of customers from a psychological and social perspective, through a creative, shared and more customer-oriented view of new product development. In particular, co-creation initiatives encourage engagement behaviors, such as word-of-mouth and referral communications (Van Doorn et al., 2010; Nuttavuthisit, 2010; Kumar et al., 2010; Bijmolt et al., 2010). Furthermore, co-creation activities

provide ground for enriched product experiences and can trigger various emotional responses and playful situations (Nambisan, and Baron, 2009).

Since co-creation involves activities highly different from those of traditional NPD, this new paradigm requires the formation of a new approach. A new approach is needed for the formation of appropriate knowledge generation mechanisms, but it should also offer space to the consideration of consumer behavior. Companies can take advantage of this behavior, as consumers participate with a spontaneous, genuine spirit that uniquely shapes a customer-to-firm relationship (Van Doorn et al., 2010). Thus, beyond product ideation, co-creation campaigns encourage consumers also to expand their relationship with the new product and to engage in its success.

2.3 The importance of co-creation activities for R&D and Marketing Strategy.

Although research on R&D and Marketing has explored how marketing efforts have to be meshed with those of R&D (Gupta, Raj, and Wilemon, 1986; Gupta, and Wilemon, 1991; Kahn, 1996; Song, Kawakami, and Stringfellow, 2010), limited attention has been given to how co-creation affect both R&D and Marketing activities. The most important studies have examined the effects of co-creation activities on innovation management and marketing strategy separately (von Hippel, 2005; Sawhney, Verona, and Prandelli, 2005; O'Hern, and Rindfleisch, 2009), while little attention has been given to a more comprehensive view on the effects of co-creation on the combination of innovation and marketing activities. Thus, systematic integration of co-creation activities in business has not received attention.

The need for coordination of co-creation activities with the other firm's procedures and resources has been documented in literature since very long (Prahalad, and Ramaswamy, 2000). In this respect, O'Hern and Rinfleisch, (2009) identified a research agenda, integrating co-creation activities within a broader marketing

strategy. Also, in the service-dominant logic, Bolton (2006) highlighted the need for theorization of business practices around the co-creation concept.

To fill this theoretical gap, this Chapter is not to identify organizational mechanisms for higher levels of integration. It is rather to provide a view on the flow of activities occurring in co-creation activities and to examine how they influence the main R&D and Marketing activities. This understanding leads to the recognition of factors directly responsible for the effects of co-creation activities on R&D and Marketing objectives.

Although idea generation is the main objective of co-creation campaigns, we suggest, instead, that innovation, although important, is not the only issue. As already mentioned, co-creation campaigns increases social interaction among co-creators. Thus, they influence the personal and social sphere of individuals involved. This is extremely valuable for obtaining new knowledge. But, social interactions aimed to new knowledge generation also leads to consumers' engagement behaviors. Consumers, indeed, become more engaged toward the new co-created product and this behavior needs to be taken into account, as well.

In sum, whereas the exploitation of consumers' ideas is the main objective, marketing strategists can build around this objective a number of other opportunities for customer engagement. In this realm, when co-creation and consumption are combined in the mind of the consumer – when, in other words, consumers recognize and experience co-creation and consumption as interrelated activities – marketing strategists should emphasize positive contextual aspects and encourage positive reactions from consumers.

The consideration of R&D and Marketing objectives jointly is important because it can lead to the identification of synergies. Knowledge generation and customer engagement, indeed, should be managed in a synergic way, since the more customers are engaged, the more they generate knowledge flows and the more knowledge flows are generated, the more customers are motivated to engage.

In the next Section, we take into account these notions to develop a theoretical framework, that shows how co-creation activities produce knowledge generation mechanisms and engagement behaviors that should be combined with traditional R&D and Marketing activities. This leads to the development of specific theoretical propositions.

2.4 Theoretical framework.

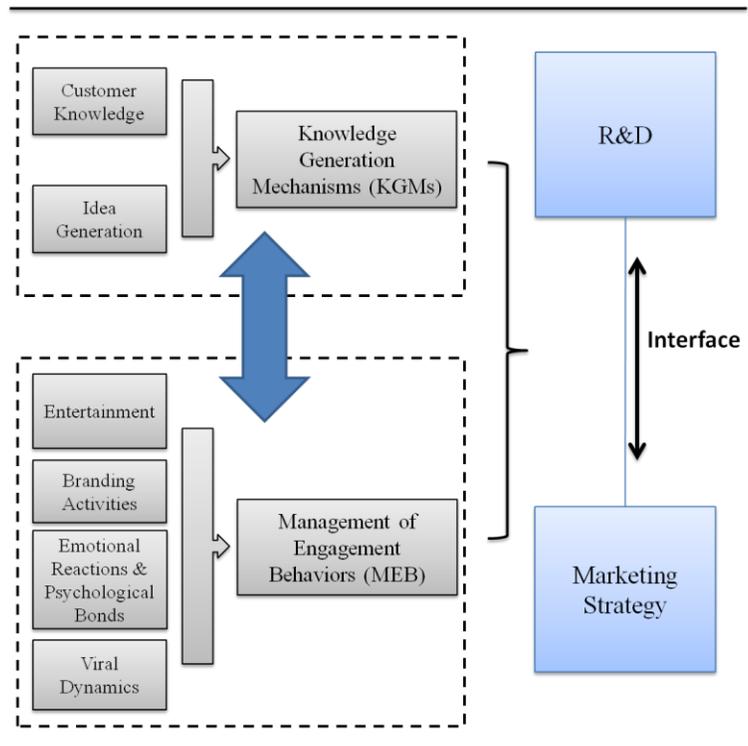
The effects of co-creation on the firm's R&D and Marketing are related to knowledge generation mechanisms and engagement behaviors. This perspective introduces two theoretical pillars.

The first pillar, representing knowledge generation mechanisms, is constituted by two types of knowledge: 1) the analysis of consumer behavior, performed by the firm and 2) users' idea generation through "crowd-sourcing".

The second theoretical pillar, representing engagement behaviors from consumers, is formed by the management of consumer behavior in terms of: 1) perceived entertainment of NPD tasks, 2) emotional responses and psychological bonds with co-created products, 3) branding activities and 4) viral dynamics.

Constitutional elements of these pillars are not disentangled foundations of co-creation, but are highly interrelated. The knowledge flow emerges as a consequence of engagement, but its presence is also a factor

Figure 2.2. Effects of co-creation activities on R&D and Marketing: two theoretical pillars.



that encourages further engagement. Thus, this interrelation should be treated in a synergic way. Figure 2.4 provides an overview of the framework regarding the two theoretical pillars.

We organize theory development as follows. First, we illustrate the first theoretical pillar regarding activities that belongs to knowledge generation mechanisms and we highlight its dynamics. This pillar is responsible for the knowledge flows, thus, its dynamics should lead to the increase of the consumers' contribution to the creation of new products. Then, we examine the second theoretical pillar constituted by activities concerning the management of engagement behaviors. This pillar leverages on knowledge flows developed in the first pillar to obtain customer engagement. The process, then, is self-enhancing: more customer engagement should lead to further knowledge generation and so on.

Hence, the first pillar supports co-creation as a method for obtaining knowledge and ideas from consumers, while the second one proposes co-creation as a location for sustaining customer engagement. The two pillars are interrelated inasmuch they jointly reinforce each other. In the following sections, we better explain the factors responsible for the effects generated by these pillars and we show how companies can take advantage of them. We start discussing the first theoretical pillar about knowledge generation mechanisms.

2.4.1 Knowledge generation mechanisms (KGMs).

Successful NPD requires companies to perform two essential types of activities: 1) to collect information about customer characteristics and needs; 2) to design solutions able to meet these characteristics and needs (von Hippel, 2005). Traditionally, firms manage the first activity by involving consumers in marketing research surveys to obtain more information, while they organize the second activity internally through the use of professional experts. Co-creation campaigns, rather, ask consumers to perform directly the second activity, to suggest directly their ideas and solutions.

These ideas take advantage of consumers' *co-creation for use* and *co-creation for value-exchange* (Humphreys, and Grayson, 2008). These types occur both as a consequence of an increased relationship with the product, but differ in their points of reference: *co-creation for use* is performed by individuals for their own interest, while *co-creation for others* is oriented towards other people. Hence, whereas co-creation for use is aimed at enriching consumption experiences, co-creation for others is aimed at providing others with information, opinions and new ideas about brands or products.

Firms can build knowledge generation mechanisms on these two co-creation types. As a parallel, indeed, it is possible to distinguish the collection of customer knowledge from the collection of customer's ideas. On the one hand, by looking at *co-creation for use*, firms can increase their customer knowledge, which involves a better understanding of the consumers' needs and concurs to the more general market knowledge (Kumar et. al, 2010). We expect firms to collect customer knowledge during the NPD process through the analysis of consumer behavior. On the other hand, through *co-creation for value-exchange*, firms can collect new product ideas. In this other situation, firms can increase their knowledge by relying on the co-creators' skills and capabilities.

In following Sub-sections, the generation of customer knowledge and the generation of new ideas are analyzed as two pivotal knowledge generation mechanisms (KGMs). In this respect, we provide theoretical propositions with relevant factors implicated.

2.4.1.1 Customer knowledge.

A first relevant approach in customer-orientation is to design products in order to meet particular segments' needs and differentiate them from competitive offers (Joshi, and Sharma, 2004). Alongside this approach, firms start investing on market segments that are even more demanding in terms of product differentiation and changing over time. Consumers have evolved their ability to understand a new product and their needs become more and more specific (Rosa et al., 1999). Given the requirement for solutions in line with even

more demanding consumers' needs, firms face the challenge of finding information to make more innovative and differentiated products.

Hence, analysis of consumer behavior is pivotal in this circumstance and communication tools used in co-creation activities can be of help for this purpose. First of all, co-creation campaigns can be a source of important data, given the observation of consumer attitudes, motivations, perceptions and lifestyles. Analyses in this direction can be conducted on consumer reactions to different product features, quality levels, prices and other situational factors.

How can companies increase this type of knowledge? To answer this question, co-creation activities can be of help for the collection of knowledge, if companies are able to guarantee high quality of interaction among co-creators (O'Hern, and Rindfleish, 2009; Bayus et al., 2013). Interaction is, indeed, positively related to knowledge exchange among individuals. This perspective introduces the importance of the communication mechanisms. To get high quality interaction the communication system has to be multi-directional, to allow multiple parties to take part into conversations, equally and in real time. Secondly, the interaction needs to be focused on specific topics and target to a particular audience. In sum, we argue that three important factors are positively related with the generation of customer knowledge: (a) multi-directional communication; (b) focused interaction on specific topics; and (c) use of a targeted audience.

First of all, multi-directional communication helps firms to progressively learn from individual consumers or groups of consumers in a responsive way. It allows consumers to easily share, comment and create contents, that are beneficial, for firms, to create appealing new product features. Then, highly focused interaction is provided through the proposition of topics, that engage consumers in conversation. This situation helps consumers reveal their own attitudes and perceptions. They should be highly interesting since they engage consumers with little or no monetary incentives. Finally, a targeted audience increases the quality of the understanding of needs, inasmuch it allows companies to analyze behavioral characteristics of specific segments of consumers in target. It is important, then, to understand which is the target of consumers that the

new product can be directed to and to find ways to attract this target. Once attracted, it is also important to retain these consumers.

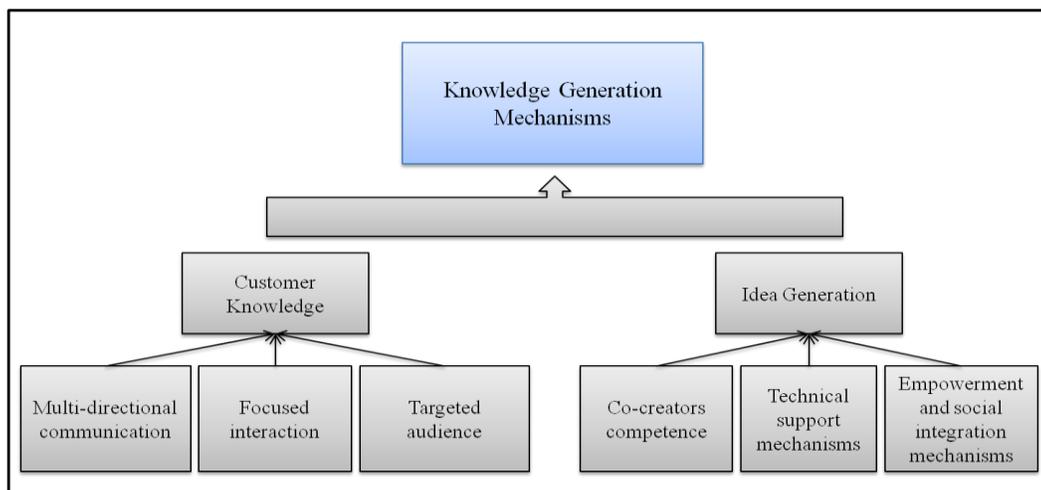
In sum, multi-directional, focused and targeted conversations about new product development increase the likelihood of collecting qualified customer knowledge. Thus, we identify three main mechanisms enhancing the collection of customer knowledge during co-creation activities:

Proposition 1: In co-creation activities, customer knowledge can be improved by a) multi-directional communication; b) focused interaction on specific topics; c) conversations with a targeted audience.

2.4.1.2 Idea generation.

The main rationale of co-creation in new product development is that consumers represent a source of new and original ideas. By smoothing the conventional separation between production and consumption, co-creation activities allow customers to take a number of proactive roles in the NPD process.

Figure 2.3. Knowledge generation mechanisms (KGMs) in co-creation activities.



In the stage of ideation, customers can be part of brainstorming activities about new product features and can offer support to new product concepts.

While customer knowledge results from the analysis of consumer behavior and, thus, is performed by the firm, idea generation can be viewed as the “outsourcing” of new product development to the “crowd” of users. This perspective suggests that the collaboration with product end-users can improve NPD results, given increased access to a distinctive source of knowledge held by consumers (Shah, 2006).

However, since this perspective implies co-creators to have sufficient skills for new product development, idea generation from end-users is still controversial in literature (Thomke, and Von Hippel, 2002; Poetz, and Schreier, 2012). Some studies pointed out how the more competence co-creators possess, the higher the quality of their solutions should be (Magnusson, Matthing, and Kristensson, 2003; Magnusson, 2009). Other studies found that users are able to provide useful ideas as well as professionals (Berthon et al., 2007; Fuller, Matzler, and Hoppe, 2008; Poetz, and Schreier, 2012). This makes it clear how idea generation depends on co-creators’ competence.

Proposition 2: In co-creation activities, idea generation is positively influenced by co-creators’ competence.

However, while consumers’ technical skills are important, it is also relevant to understand how to motivate consumers to co-creation activities. In this respect, Self-Determination Theory (SDT, Deci, and Ryan, 1985, 2002; Sheldon, and Cooper, 2008; Schuler, Sheldon, and Frohlich, 2010) can be taken as a valuable framework under which it is possible to analyze motivation in new product development.

SDT suggests that individuals’ action is driven by extrinsic and intrinsic motivation. Intrinsic motivation is usually a stronger predictor of individuals’ actions given its internal point of reference. Indeed, while extrinsic motivation can be easily stimulated through monetary incentive, three factors are able to promote intrinsic motivation: (1) autonomy in action; (2) relatedness with relevant peers; (3) perceived competence in performing the activities. Hence, co-creation campaigns should be designed in a way that promote these motivational drivers.

While perceived competence mainly depends on individual's characteristics (i.e. the consumer's understanding of the product) and can be increased by offering technical support (O'Hern, and Rinfleisch, 2009), autonomy in action and relatedness among relevant peers can be positively influenced by increasing empowerment (Fuchs, Prandelli and, Schreier, 2011) and social integration mechanisms (Nambisan, and Baron, 2009). Empowerment, as already discussed, can make co-creators feel to have autonomy on the new product decisions. Social integration, encouraged by community-based systems, can enhance the strengthening of social ties among participants, the sharing of ideas and the creation of a social identity. In this case, intrinsically motivated individuals may consider their contribution to NPD as an activity of value. If highly motivated, consumers are encouraged to better articulate their conversations during co-creation activities and transfer their ideas to others.

Proposition 3: In co-creation activities, idea generation can be improved by providing co-creators' with technical support mechanisms.

Proposition 4: In co-creation activities, idea generation can be improved by empowerment and social integration mechanisms.

2.4.2 Management of engagement behaviors (MEB).

Sub-section 2.4.2 is focused on ways to inspire and manage engagement behaviors. Engagement behaviors result from individual and collective consumers' responses to product or brand related stimuli, beyond transactional aspects and consumption, and similarly represent important outcomes for R&D and Marketing objectives (van Doorn et al., 2010). Furthermore, engagement behaviors are synergic with respect to knowledge generation. Engaged customers produce relevant knowledge flows and, at the same time, are stimulated to engage more and more by the chance of obtaining additional information about products and brands.

Thus, beyond product ideation, co-creation activities engage consumers in a number of ways, as personal and social benefits can emerge (Nambisan, and Baron, 2009). Co-creation activities are based on an environment for enriched product and brand experiences, that can trigger various emotional responses, playful elements and enhanced social interactions. These aspects imply the development of a stronger relationship between the customer and the company.

In the following four sub-sections, we illustrate the relevance of engagement behaviors and we examine the factors that should be managed in order to produce positive engagement behaviors.

2.4.2.1 New product development as an entertaining activity.

Depending on personal tastes, consumers consider a series of activities as essentially entertaining. Extant research on consumer behavior has demonstrated that entertaining activities involve sensual pleasure and playful desires (Adaval, 2001) and generates positive moods (Chaudhuri, and Holbrook, 2001). While co-creation activities are well-suited to generate new knowledge, for individuals they can represent a playful situation. Since perceived enjoyment of a task is a relevant factor for its persistence over time, we argue that the entertaining aspects of co-creation activities can increase the participation of individuals and other forms of engagement.

In this respect, Csikszentmihalyi (2009) emphasized the playful elements of creative tasks. These elements concern the creation of objects and this activity is normally viewed as a hobby. Although the need for creation is in the human nature, individuals are more willing to create an object if this activity entertains them. In many websites about co-creation activities, a successful way to attract consumers is to show them how they can have fun during the visit of the website. The study by Sawhney, Verona, and Prandelli (2005) provides evidence of this in the co-creation of Ducati's motorbikes.

However, beyond intrinsic playful elements of co-creation activities, mainly due to personal tastes, a way to enhance enjoyment toward the new product is the provision of learning opportunities to co-creators. Given the nature of co-creation activities, learning opportunities can be perceived as an occasion for enjoyment (Nambisan and Baron, 2009). In many cases, indeed, consumers look for information on the Internet about products and ask others about products' characteristics and performance. Co-creation activities, when designed in a way that provide access to this information, can fulfill this need. By increasing access to new product information, consumers' inclination to creative pursuit can be stimulated. Given the importance of learning in co-creation activities, we formulate the following propositions.

Proposition 5: In co-creation activities, learning opportunities lead to higher perceived entertainment.

Given learning opportunities on a new product, product enthusiasm plays a role in it. Indeed, enthusiasm can be an important factor leading to increasing entertaining aspects of co-creation. There are many definitions of product enthusiasm in literature. To the best of our knowledge, the most accurate definition views product enthusiasm as product involvement at high levels (Bloch, 1986). Product involvement at high levels means that the product in question has an important role in consumers' life and its usage constitutes a source of pleasure along sensory or aesthetic dimensions. Companies can foster enthusiasm around co-created products through the building of brand fan communities (Muniz, and O'Guinn, 2001; McAlexander, Schouten, and Koenig, 2002). These communities receive thousands of visitors, enthusiastic about products and willing to show their affiliation with the brand.

Proposition 6: In co-creation activities, product enthusiasm leads to higher perceived entertainment.

2.4.2.2 Emotional reactions and psychological bonds toward co-created products.

In determining consumer behavior, emotions are important because they enrich actions with personal meanings, that qualify information processing and regulate the pursuit of individual goals (Bagozzi, 1997).

Co-creation activities generate emotional reactions mainly because of the psychological bonds that co-creators feel with co-created products. In psychology, this phenomenon is known as psychological ownership. People can feel ownership about a variety of things (i.e. products, ideas) and this can involve feelings of possession, good citizenship behaviors and stewardship (Pierce, Kostova, and Dirks, 2003). In sum, psychological bonds provide co-created products with unique value.

This uniqueness has been empirically demonstrated by Shu and Peck (2011), who found that consumers who feel stronger psychological connections toward a product show a higher willingness to pay for it. To pursue psychological ownership effects, companies can develop products with consumer-designed features, that highlight their contributions. In this way, it is possible to obtain products intended to evoke consumers' emotions.

Proposition 7: In co-creation activities, consumer-designed features leads to positive consumers' emotional response.

Furthermore, when these features are coupled with other technological advances developed by experts in the company, co-creators may perceive their job to be at professional level (O'Hern, and Rindfleish, 2009). In this respect, co-creators perceive the new product as a symbolic representation of their expertise. Thus, emotional reactions are likely to emerge also when companies highlight co-creators' ideas as complement of those of firm's professionals.

Proposition 8: In co-creation activities, complementarities between consumers' and professionals' ideas lead to positive consumers' emotional response.

In sum, we argue that feelings of being totally or just partially responsible for a new product exert a positive influence on the co-creators' affective sphere and this, in turn, is extremely valuable for encouraging engagement behaviors.

2.4.2.3 Co-creation and branding activities.

Dell's Idea Storm is a well-known example of how co-creation influences brand perceptions. Idea Storm is an online crowd-sourcing platform, where engaged consumers can conjugate interest for technology, idea generation and networking opportunities (Bayus, 2013). While being a tool for crowd-sourcing, the platform increases the reputation of Dell in the market.

Marketing research has often pointed out the interrelations between brand activities and consumer behavior (Carù, and Cova, 2003; Prahalad, and Ramaswamy, 2003, 2004; Arnould, and Thompson, 2005). As clear in Idea Storm, co-creation-brand interrelations naturally emerge because co-creators connect their co-creation experiences to brand characteristics.

More specifically, co-creation-brand interrelations can influence brands in two respects. On one hand, consumers may experience co-creation activities positively and connect this experience to brand characteristics. Positive experiences can be also meaningful when people support concepts they believe in and fight for them. Co-creation activities can be considered as meaningful experiences, when co-creators are involved in focused interaction on specific topics (see proposition 1b) and when they have the chance to defend their ideas. This is important because a person's motivation to act depends also on the perceived meaningfulness of the action (Deci, and Ryan, 2002).

Proposition 9: Meaningfulness of co-creation activities has a positive effects on branding activities.

While meaningfulness of co-creation activities is rather subjective (i.e. they may be more or less meaningful depending on several personal considerations), a brand can be objectively characterized by co-creation in terms of increased customer-orientation. In this way, co-creation activities make brands viewed as more customer-oriented. Perceived customer-orientation can be increased by allowing co-creators' access to

relevant knowledge, by increasing transparency in the information flow and by being responsive to disruptive ideas in the NPD process (Fuchs, and Schreier, 2011).

Proposition 10: Perceived customer-orientation of co-creation activities positively affects branding activities.

These theoretical propositions suggest that co-creation activities play a role also in brand positioning. As brands are important marketing instruments, companies should take care of their characteristics. Successful positioning of brands on the market is not easy, given the forces that shape competition. About both these points, engagement behaviors can positively influence the extent to which brands are perceived and differentiated from competitors.

2.4.2.4 Viral dynamics.

To produce positive viral effects, co-creation can be an ideal context. Several scholars have, indeed, highlighted the importance of viral effects that inhere collaborative activities in innovation and product idea development (Fuller, Matzler, and Hoppe, 2008; Magnusson, 2009).

Co-creation activities can become viral if they are able to motivate substantial word-of-mouth communications (WOM) among co-creators. Viral dynamics are, then, caused by WOM that arises as a result of participation in co-creation activities. A first factor leading to higher WOM is represented by the network of co-creators involved, namely the number of interactions among individuals during co-creation activities. As highlighted in Section 2.2, co-creation is highly based on social interaction (Nambisan, and Baron, 2009; Fuller, 2010). The value perceived by co-creators is related not only to the new product development activity, but also to customer-firm and customer-customer interactions around product development. This circumstance can produce positive viral dynamics.

Positive viral dynamics are also related to consumer behavior. Past research found that individuals engage in word-of-mouth when they are motivated by self-enhancement goals (Sundaram, Mitra, and Webster, 1998; McWilliam, 2000; Hennig-Thurau, Gwinner, and Walsh, 2004; De Matos, and Rossi, 2008). Given the element of collaboration, co-creators can be motivated by self-enhancement goals. In this case, if affiliation with the co-creation community can offer benefits for reasons of identification and social integration, it can be presumed that co-creators engage in word-of-mouth communications as proud participants of the community. Firms can encourage these feelings by increasing autonomy and credibility in information sharing. It is important to remark that source-credibility of involved actors is higher when knowledgeable and independent actors, rather than mere “agents” of the firm, are co-opted in the initiative. This increases participation and encourages co-creators to talk about their co-creation activities to accelerate community growth (Villanueva, Yoo, and Hanssens, 2008).

On the negative side, co-creators’ disappointment can lead to negative viral dynamics. This situation is very detrimental for companies, as it is caused by the diffusion of negative WOM. Negative WOM can arise when consumers’ expectations are disconfirmed (Anderson, 1998; Wetzler et al., 2007): in this case, consumers engage in extensive communications about their disappointment and frustration.

As highlighted with respect to the entertaining aspects of co-creation, a very common way to attract consumers’ interest is to create high expectations with respect to the co-creation process and/or its results. This circumstance can lead to disconfirmation of expectations. Thus, given that companies make promises to attract consumers in co-creation, expectations play an important role. Companies should take into consideration this fact. With very high expectations, co-creation activities are more likely to produce negative WOM if the high expectations are not met. With very low expectations, this phenomenon is less likely to happen (Anderson, 1998; Sundaram, Mitra, and Webster, 1998).

Hence, the factors causing positive viral effects differ from those causing the negative ones (Hennig-Thurau, Gwinner, and Walsh, 2004). The number of interactions among consumers and the autonomy and credibility

of information sharing should lead to positive viral dynamics. Very high expectations, especially those rooted in the initial promises made to attract consumers, can cause unfavorable viral effects.

Given these arguments, we are now able to formulate the following propositions with respect to viral dynamics in co-creation activities.

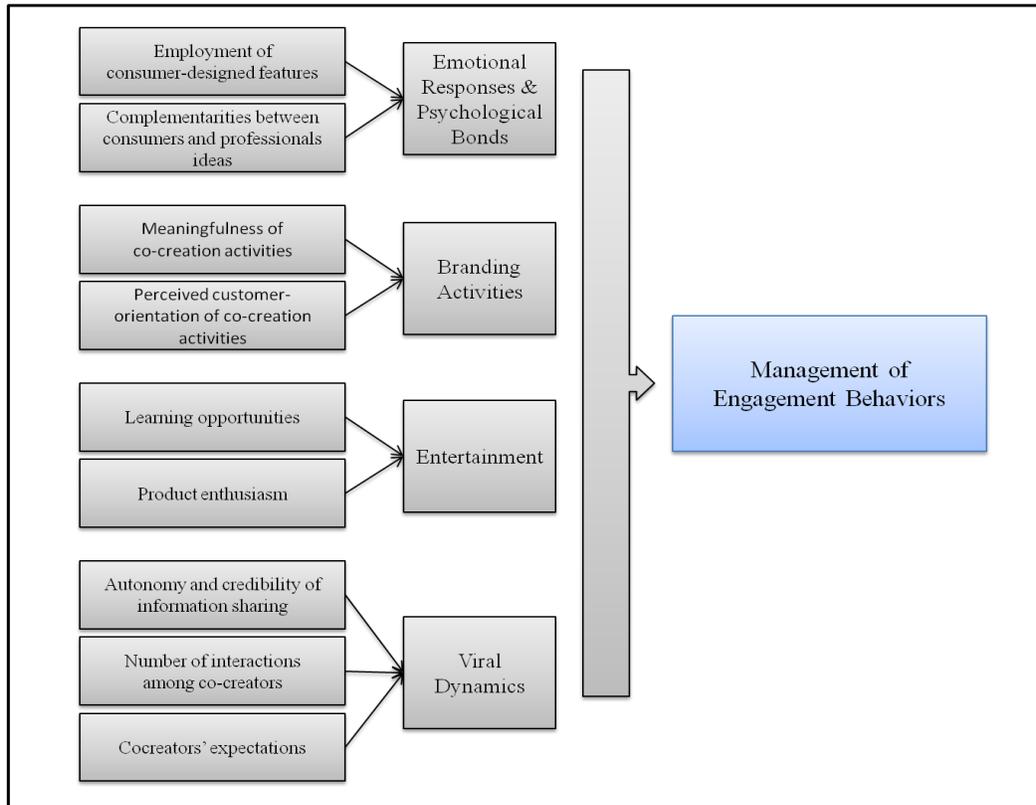
Proposition 11: In co-creation activities, the higher is the number of interactions among co-creators, the more likely are positive viral dynamics.

Proposition 12: In co-creation activities, the higher is the autonomy and credibility of information sharing, the more likely are positive viral dynamics.

Proposition 13: In co-creation activities, the higher are the co-creators' expectations, the more likely are negative viral dynamics.

Finally, we are now able to provide a comprehensive view of engagement behaviors in co-creation activities. Figure 2.5 summarizes all the aspects examined in Sub-sections 2.4.2.1 – 2.4.2.4. As discussed previously, the management of engagement behaviors constitutes the second theoretical pillar about the effects of co-creation on R&D and Marketing objectives. In the next Section, we discuss the synergies, that can be generated, and the eventual downsides from this approach.

Figure 2.4. Management of engagement behaviors (MEB) in co-creation activities.



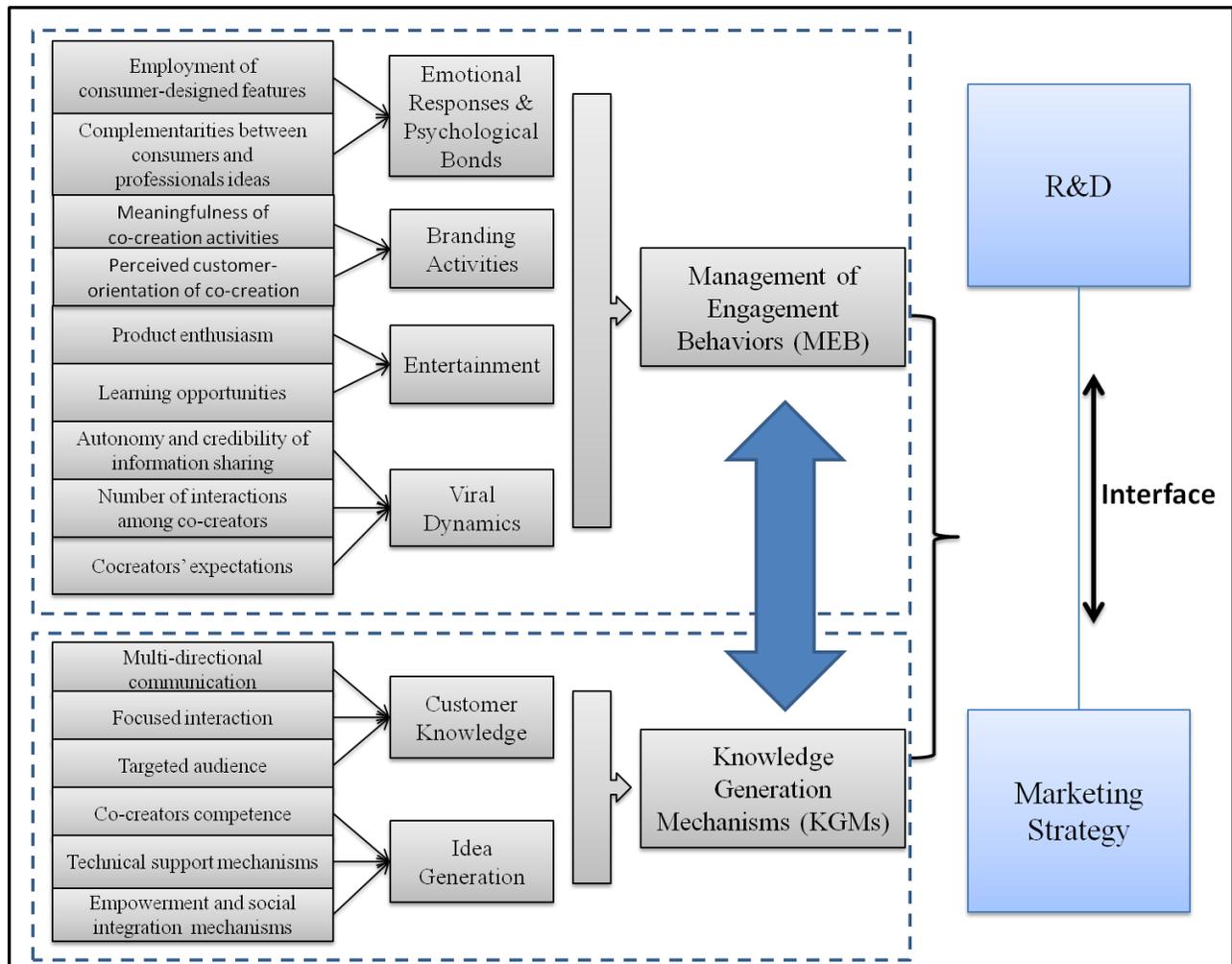
2.5 Discussion.

The discussion in this Chapter builds on the notion that NPD co-creation serves two main firm's objectives: the generation of new knowledge and the management of engagement behaviors. Conceptually, these objectives, while distinct, are interrelated functions of co-creation activities. This interrelation is the consequence of the self-reinforcing nature of co-creation: the more customers are engaged, the more they generate knowledge flows; the more knowledge flows are generated, the more customers are motivated to engage.

According to this view, we structured two theoretical pillars and examined a set of factors in theoretical propositions. Figure 2.6 shows a graphical representation of the comprehensive theoretical framework

outlined in this Chapter. This outline shows how both knowledge generation mechanisms and management of engagement behaviors are synergic pillars of co-creation activities.

On the one hand, new knowledge is critical for increasing the probability of success of new products. In this respect, knowledge integration mechanisms should increase customer knowledge and new idea generation. These activities help firms develop new products more in line with market trends and customer needs (von Hippel, 2005). This requires firms to establish communication plans that exploit existing relationships with customers and build new relationships. This might be done through social media, by implementing ad-hoc communities to attract consumers. In this case, co-creation activities increase knowledge generation only when the firm is prepared to catalogue and evaluate this new knowledge correctly. A wrong or ineffective evaluation might lead to value destruction, in terms of product failures.

Figure 2.5. Comprehensive theoretical framework.

On the other hand, engagement behaviors are relevant because consumers engaged in co-creation activities can develop an enhanced relationship with the relevant product (or brand) based on new product development. In this way, consumers can perceived higher value than traditional consumption or product use. Also companies can obtain higher value than only product sales. Engagement behaviors can be increased by 1) entertaining aspects; 2) effects on consumers' emotions; 3) interrelations with branding activities; 4) viral dynamics. By engaging consumers, companies are no longer limited to making promises and value propositions, only. Instead, markets become forums where firms and consumers can discuss their ideas and produce to joint solutions. Through the four mentioned effects, firms can influence consumer behavior, but

they are also influenced for what concerns their products and brands. This is the main difference between providing consumers with an active role and leaving them with a passive one.

Finally, we discuss some possible downsides for companies resulting from this approach. First, although these activities can produce important positive consumers' reactions and build a win-win customer-firm relationship, the multi-faceted structure of the theoretical framework presented in this Chapter shows how execution may be complex and risky. In addition, it demands very high coordination between the R&D and Marketing Departments.

Second, engagement behaviors are spontaneous in nature and can be hardly bounded by firms' decisions. It is very unlikely to control emotional aspects or viral dynamics. More likely is to create favorable conditions. Moreover, companies need to be prepared to constrain eventual downsides if co-creation activities fail their objectives.

Third, companies should also control for specific environmental conditions, not considered in this Chapter's framework. The environment increases business complexity, as it is an element of influence on consumer behavior and firm's strategy. Co-creation activities, of course, are affected by environmental conditions. On the one hand, the micro-environment (Porter, 1980) influences co-creation activities because of the presence of competition and other stakeholders' interests. On the other hand, the macro-environment, given the presence of many different political, economical, social and technological forces, influences the way consumers develop their beliefs and personal opinions. These two components of influence are under-researched in the literature on co-creation and, for this reason, we suggest future research to examine their effects.

2.6 Conclusions.

In line with extant literature, we illustrated the concept of co-creation based on three main aspects: idea generation (von Hippel, 2005; O'Hern, and Rinfleisch, 2009), customer empowerment (Fuchs, Prandelli, and Schreier, 2010; Fuchs, and Schreier, 2011) and social relationship development (Nambisan, and Baron, 2009; Fuller, 2010). Building on these elements, we developed a theoretical framework to show how co-creation activities affect R&D and Marketing objectives. In this framework, we introduced two theoretical pillars, knowledge generation mechanisms and management of engagement behaviors, responsible for the main effects of co-creation activities on R&D and Marketing. This perspective produces a number of managerial considerations.

First, both the pillars highlight how important it is the direct contact with the customer base. For this purpose, firms should implement ad-hoc touch-points, on-line and off-line. This decision is not only how close the firm wants to be to the customer base, but also how many informational venues the firm wants to employ. In fact, because of customer's reliance on multiple sources of information, co-creation should imply the adoption of multichannel strategies. These strategies need to be supported by efficient supply chain management systems to have consistent and reliable coordination among firm's internal procedures. This implies long-term investments.

Second, managers should avoid the use of customer-averse communication, while being more customer-oriented. Communications should emphasize product characteristics and should avoid manipulations. This encourages engagement behaviors and prevents the irritation of consumers. As pointed out, co-creation is not an unspecified process, but it is formed by a precise set of actions that should lead to clear goals.

Finally, companies should establish long-term relationships with consumers and other stakeholders based on co-creation activities. Following this idea, managers should open the firm's boundaries to include consumers interests. Consumers might even be involved in other business decisions, such as communication and

advertising. The framework outlined in this Chapter suggest important criteria through which it is possible to implement this new business concept. It is important that this business concept is consolidated *in a continuum* with existing R&D and Marketing procedures, avoiding disruptive consequences. Since the value provided by external actors is growing, the recognition of these actors' value in NPD logics is pressing.

CHAPTER 3

The Role of Trust in Co-creation Activities.

Introduction.

As discussed in Chapter 2, co-creation activities require the active collaboration of consumers and produce effects on consumer behavior. In particular, extant literature highlighted the effects of co-creation activities on consumer behavior in terms of 1) higher consumers' participation in NPD (Von Hippel, 2005; O'Hern, and Rindfleisch, 2009), 2) better attitudes toward the product (Prahalad, and Ramaswamy, 2004; Nambisan, and Baron, 2009), 3) promotion via word-of-mouth communications (Hoyer et al., 2010) and 4) more product demand (Fuchs, Prandelli, and Schreier, 2010; Fuller, 2010).

These effects have been examined in empirical studies, where contextual conditions were not considered or held constant. Instead, we argue that contextual conditions can alter the effects of co-creation activities on consumers behavior. In particular, given the activity of creation of new products, an important factor to consider is consumers' trust in the company. Many authors in marketing highlight how consumer trust/distrust can increase/decrease market acceptance of new products and can lead to positive/negative consumers' behavioral intentions (Tax, Brown, and Chandrashekar, 1998; Garbarino, and Johnson, 1999). This occurs because the formation of trust/distrust helps/hinders the development of positive feelings with respect to new products (Garbarino, and Johnson, 1999). We suggest that trust/distrust formation happens also during co-creation activities. Thus, in this Chapter, we aim to answer the following question : How does consumers' trust influence the effects of co-creation activities on consumer behavior?

This question introduces contextual factors in the study of co-creation activities. Contextual factors influence consumers' appreciation of new products, by providing background information about companies. Trust, driven by perceptions about the firm's skills and capabilities, generates expectations about future product performance (Sirdeshmukh, Singh, and Sabol, 2002).

Hence, we introduce the idea that co-creators can develop trust/distrust. Trust/distrust, in turn, can have an impact on the outcomes of co-creation activities. The main aims of this Chapter are to evaluate the moderating effects of trust on consumer behavior in co-creation activities.

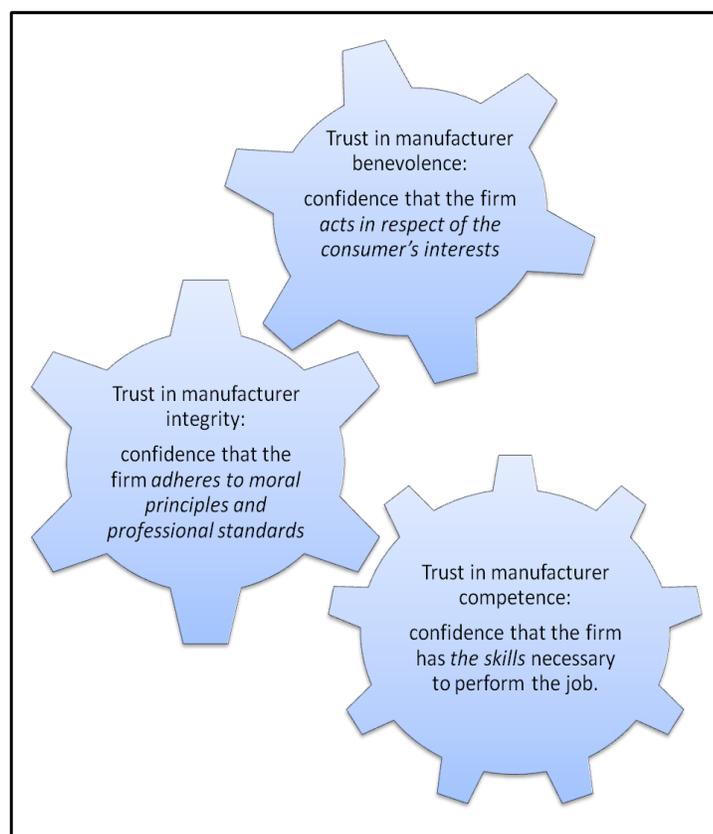
This Chapter is organized as follows. In Section 3.1, we develop theory and hypotheses. In this Section, we highlight the importance of trust in consumer-manufacturer relationships and we develop hypotheses concerning the role of trust on four critical forms of consumer behavior in co-creation activities: 1) willingness to pay (WTP); 2) word-of-mouth intentions (WOM); 3) attitudes toward the product (ATP); 4) participation to collaboration activities (PCA). As discussed before, many studies in literature find that these important variables are positively affected by co-creation activities (von Hippel, 2005; Nambisan, and Baron, 2009; O'Hern, and Rindfleisch, 2009; Hoyer et al., 2010; Fuchs, Prandelli, and Schreier, 2010; Fuller, 2010). In Section 3.2, we present the results of an empirical study designed to test the hypotheses. This study is based on an experiment with data obtained from a sample of consumers in the UK, who have been involved in co-creation of cake designs. To obtain different level of trust, consumers were shown different company's presentations before being involved in the experimental tasks. Then, in Section 3.3, we discuss results and findings of the empirical study and we show how this study contributes to extant literature. Finally, in Section 3.4 we discuss main limitations and highlight managerial implications.

3.1 Theory and hypotheses.

3.1.1 The role of trust in consumer-manufacturer relationships.

In literature, trust is defined as the consumer's confidence that he/she can rely on the manufacturer to deliver what promised (Morgan, and Hunt, 1994). Thus, in consumer-manufacturer relationships, trust helps reduce uncertainty and risk in transactions. Given the novelty and originality of new products in general, the need to reduce uncertainty is particularly important (Rogers, 2003). As a new product involves greater risk and uncertainty than an old product, trust becomes more relevant (Doney, and Cannon ,1997). Indeed, several

Figure 3.1. Components of trust (Schlosser, White ,and Lloyd, 2006).



studies confirm the inferential role of trust during the processing of information about new products (Choi, 1998; Gielens, and Steenkamp, 2007). Other studies confirm that higher trust encourage consumers to product repurchase (Dorsch, Swanson, and Kelley, 1998; Chauduri, and Holbrook, 2001; Harris, and Goode, 2004; Gustafsson, Johnson, and Roos, 2005).

The conceptualization of trust distinguishes a cognitive form of trust (trustworthiness) from a behavioral one: the cognitive is related to simple belief and confidence, while the behavioral one combines the belief with the

engagement in risk-taking behavior, given the reliance on the counterpart (Smith, and Barclay, 1997). It is important to underline that, given the willingness to engage in risk-taking behavior, the behavioral form is a stronger predictor of trust than the cognitive form.

Secondly, as it is showed in Figure 3.1, there are three dimensions of trust: trust in competence, trust in benevolence, and trust in the integrity of the exchange partner (Mayer, Davis, and Schoorman, 1995; Schlosser, White, and Lloyd, 2006). “*Trust in competence*” reflects the consumer’s confidence that the firm has *the skills* necessary to perform the job. “*Trust in benevolence*” is related to the idea that the firm will *act in respect of the consumer’s interest*. “*Trust in integrity*” represents the consumer’s belief that the firm *adheres to moral principles or professional standards* that guide the interactions with customers. While the “competence” component of trust refers to what a company is “*able*” to achieve, the “benevolence” and “integrity” components refer to what a company is “*willing*” to achieve, (Mayer, Davis, and Schoorman, 1995; Schlosser, White, and Lloyd, 2006).

Given the technical characteristics of co-creation, opinions about the manufacturer’s technical competence should prevail on those about the manufacturer’s integrity and benevolence. In this case, consumers, given their concerns about product performance, evaluate whether the manufacturer is able to deliver the promised products or not. Thus, the importance of the competence-component of trust is higher, given that co-creation results can be intangible and variable and consumers can be skeptic about them. Higher trust in manufacturer’s competence should enhance consumers’ perceptions about the reliability of co-creation.

For these reasons, we develop a theoretical framework that examine the effects of trust on consumer behavior in co-creation activities. Given the discussion about trust, we focus only on the competence-component of trust. We explore its effects on consumers’ (1) willingness to pay (WTP); (2) word-of-mouth communications (WOM); (3) attitudes toward the product (ATP); (4) participation to further collaboration activities (PCA). As a parallel, the theoretical framework is organized in four Sub-sections, 3.2.1. – 3.2.4.

3.1.2 When should willingness to pay (WTP) be higher?

In co-creation, the firm undertakes to market those products that consumers design in (virtual) communities. In this case, given their contribution to NPD, consumers can perceive higher product value. Higher perceived product value results from the empowerment effects provided by co-creation activities. As discussed in Chapter 2, empowerment effects make co-creators more psychologically bound to the co-created products. Fuchs, Prandelli, and Schreier (2010) found that consumers who were empowered by a company to co-create new products showed a willingness to pay (WTP) higher than those who were not empowered, although product quality was objectively the same. Consumers are willing to spend more money for co-created products also because they believe that the product is more in line with their needs, given that they have been involved in its creation (O'Hern, and Rindfleisch, 2009).

We challenge the general validity of this notion. The idea that co-creation implies a value, for which consumers are willing to spend more money, can be altered by contextual conditions, that influence the background of co-creation activities. We argue that consumers' trust is a condition that affects WTP in co-creation activities, because consumers usually form trust beliefs about the company before engaging in co-creation. Given the role of trust, we can hypothesize three types of effects.

First, consumers may believe that a company is such a competent company that their contribution in the development of the new product is worthless. Highly-trusted companies specifically try to communicate this idea, namely that consumers can rely on their products. So, if consumers view their contribution to be worthless, they will not be willing to spend more money, because they will not consider co-created products of an higher value.

Second, if consumers perceive low trust in the company, they may believe that the co-created products are not what they expected to be. Their engagement in these products is very unlikely in this case. Thus, consumers will not be willing to spend more money, due to the lack of trust.

Third, companies that create trust at an intermediate level should obtain a higher consumers' WTP. Indeed, these companies should be considered sufficiently trusted to make consumers believe they will be able to deliver the "promised" co-created product, but not so highly trusted that consumers think their contribution is worthless. In this case, the effects of co-creation on WTP should be higher than the two previous cases.

Given this reasoning, we formulate the following hypothesis:

H1: There is an inverted U-shape relationship between consumer's trust in manufacturer's competence and the effects of co-creation activities on consumer's willingness to pay (WTP).

3.1.3 Effects on word-of-mouth (WOM).

Word-of-mouth communications (WOM) play a major role in consumers' buying decisions (Godes, and Mayzlin, 2004; Chevalier, and Mayzlin, 2006). This role is due to the fact that WOM has greater credibility than conventional marketing communications (Villanueva, Yoo, and Hanssens, 2008). Consumers tend to accept product recommendations more from other consumers than from advertising and in shopping environments. WOM is, thus, appealing because it combines the prospect of overcoming consumer resistance with significantly lower costs – especially through the Internet (Trusov, Bucklin, and Pauwels, 2009).

To understand how to inspire positive WOM, it is important to acknowledge its main motives. Scholars agree about the fact that the motives for engaging consumers in positive WOM may differ from those that drive negative WOM (Sundaram, Mitra, and Webster, 1998). For instance, negative word-of-mouth communications mainly arise when consumers' expectations are disconfirmed (Singh, 1990; Anderson,

1998). On the opposite side, positive WOM is hardly driven by confirmation of expectations (Anderson 1998).

Positive WOM can be driven by other motives, such as *product involvement*, *self-enhancement* and *altruism* (Sundaram, Mitra, and Webster, 1998; Hennig-Thurau, Gwinner and Walsh 2004; De Matos and Rossi, 2008). *High product involvement* results in positive WOM (Dichter, 1966), because individuals are willing to share opinions and information about the products they are more involved in.

Self-enhancement is another important driver of positive WOM, since individuals interested and competent about products' characteristics are willing to interact with others in order to gather additional knowledge and to provide others with their knowledge (Hennig-Thurau, Gwinner and Walsh 2004). In this case, the level of involvement in the activity under consideration serves to motivate discussion, while self-enhancement motives lead the discussion to the positive side.

Altruism is a two-sided driver of WOM and strictly depends on past product experiences (Sundaram, Mitra, and Webster, 1998). On the one hand, it can lead to positive WOM if consumers are motivated to help the company after a positive product experience. On the other hand, when product experience is negative, it can lead to negative WOM, since consumers want to prevent others from experiencing the problems they had encountered with the company.

Given the nature of co-creation activities, it is plausible to think that negative WOM can occur if the results of the activities do not meet consumers' expectations. Disconfirmation of expectations can lead to consumers' disappointment. Disappointed customers are more likely to engage in negative WOM, given their search for vengeance and moral support (Wetzer et al., 2007). Anderson (1998) found that loyal customers engage in negative WOM, when they are not satisfied, but hardly engage in positive WOM, when they are satisfied. These notions suggest that, in case of co-creation activities with an highly trusted company, consumers are more tempted to communicate negative WOM, when their expectations are not met.

In case of a company with a bad reputation on the market, consumers are less tempted to engage in negative WOM, given their low expectations. But, if the co-creation experience is better than expected, consumers may develop altruistic feelings toward the company and engage in positive WOM. Furthermore, a positive experience may increase product involvement and make consumers more willing to share this experience with others.

Hence, it is plausible to hypothesize a negative moderating effect of trust on WOM intentions. Trust increases consumers' expectations, and this will require consumers to experience co-creation positively. Hence, due to high expectations, highly trusted companies are at risk of negative WOM.

On the opposite side, companies supported by low levels of trust have higher chance of "beating" the expectations, given that expectations are lower. In this case, if co-creation result in a positive experience, consumers may develop altruistic feelings toward the company and a higher product involvement. This makes positive WOM intentions more likely.

Given this line of reasoning, we specify the following hypothesis:

H2: Consumers' trust in manufacturer's competence negatively moderates the effects of co-creation activities on positive word-of-mouth intentions (WOM).

3.1.4 Effects on consumer attitudes toward the new product (ATP).

In consumer behavior, attitudes serve four major functions on the relationship between individuals and objects (such as products): (1) a *knowledge function*, which helps consumers associate predictability to product characteristics and facilitates decision-making (Katz, 1960; Grewal, Mehta, and Kardes, 2004); (2) a *value-expressive function*, which helps consumers communicate their values and self-identities to others through products (Katz, 1960; DeBono, 1987; Grewal, Mehta, and Kardes, 2004); (3) a *social function*,

related to social goals and to the strengthening of social ties with relevant others (DeBono, 1987, Grewal, Mehta, and Kardes, 2004) and (4) a *hedonic function*, which is associated with the consumers' pursue of fun, relax and intrinsic delight (Voss, Spangenberg, and Grohmann, 2003).

Individuals involved in co-creation activities may perceive several types of benefits, which possibly influence consumers' attitudes. First of all, co-creators can acquire new knowledge about products and their underlying characteristics, thus experiencing learning benefits. Knowledge acquisition and generation is also critical for consumers' self-enhancement goals. These benefits enhance the value-expressive and social functions.

Second, the community-based system typical of co-creation activities can generate benefits and can positively affect the consumers' social sphere, given the strengthening of social ties among co-creators. These benefits are related to the social function.

Third, co-creation can be perceived as an entertaining activity. As argued in Chapter 2, object creation can be an engaging hobby. It is essentially an activity that consumers can do in their leisure time, so that they can engage themselves in something that pleases them. As hobbies, co-creation activities are those activities which people choose to do, and not which they have to do. These benefits should positively affect the hedonic function.

Given these effects, the higher is the trust toward the company, the better should be the attitudes toward its products. The idea is that consumers should perceive these products to better serve the attitudes' functions, given the higher trust attributed to the activities performed by this company.

Thus, we hypothesize a positive moderating effects of consumer's trust on consumers' attitudes toward the new product:

H3: Consumers' trust in manufacturer's competence positively moderates the effects of co-creation activities on consumers' attitudes toward the new product (ATP).

3.1.5 Participation to collaboration activities (PCA).

Companies often ask consumers for ideas and feedbacks about their products. Continuous collaboration provides the firm with consumers' ideas for product innovation, contributing, then, to knowledge generation (Kumar et al., 2010). About this point, knowledge generation mechanisms in co-creation, as outlined in Chapter 2, find their foundations in individuals' willingness to participate to collaboration activities with firms.

Collaboration activities can be fueled by the level of trust. More specifically, positive trust beliefs should make co-creators more motivated to act. Several studies demonstrated the effects of perceived trust on outcomes such as cooperation, suggesting that trust encourages positive behavioral intentions among cooperators and matters for the development of long-term relationships (Tax, Brown, and Chandrashekar, 1998; Garbarino, and Johnson, 1999). Co-creation with high levels of trust tend to produce high quality products and services, given that co-creators are more motivated to act. In this case, co-creators are more likely to enjoy co-creation activities, to make their own decisions, to take risks, to embrace the company's vision, mission, and values.

If we consider co-creation activities primarily as collaboration activities (and we do), trust should increase the consumers' willingness to co-create new products. Given a higher level of trust, consumers should be more willing to cooperate with companies about new product development.

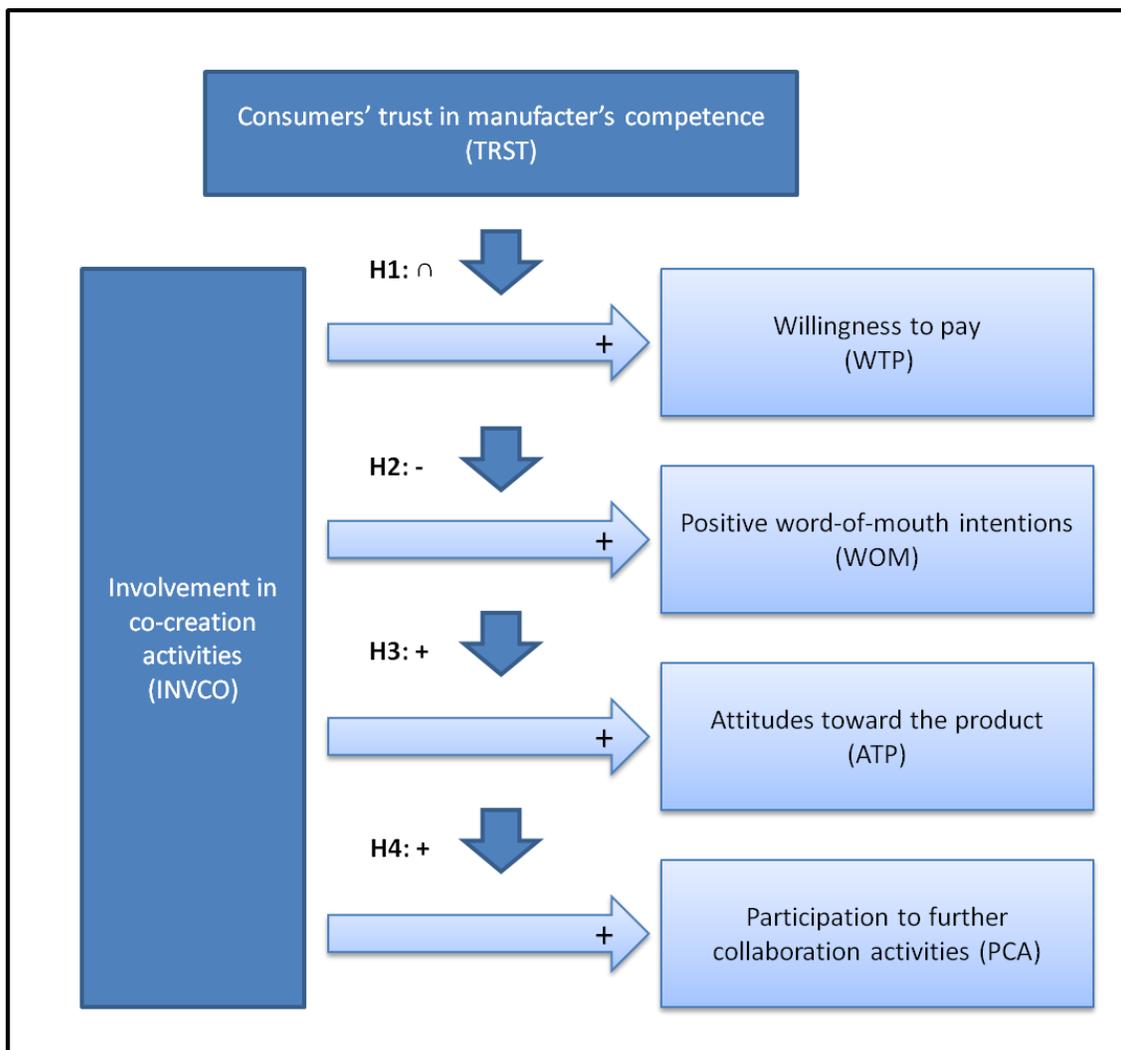
Hence, we hypothesize positive moderating effects of trust on participation to collaboration activities:

H4: Consumers' trust in manufacturer's competence positively moderates the effect of co-creation activities on consumers' intentions to participate to further collaboration activities (PCA).

3.1.6 Theoretical Model.

Given this discussion and the development of four hypotheses, we are now able to specify the theoretical model. As extant literature suggests, we expect that co-creation activities are positively related to WTP (Fuchs, Prandelli, and Schreier, 2010), WOM (Hennig-Thurau, Gwinner, and Walsh, 2004), ATP (Nambisan, and Baron, 2009), PCA (von Hippel, 2005). We, then, expect that trust moderates these relationships in different ways. We expect an inverted U-shaped effect on WTP, a negative effect on WOM, a positive effect on ATP and on PCA. In Figure 3.2, below, there is a graphic representation of the theoretical model.

Figure 3.2. Theoretical model.



3.2 Empirical Study.

3.2.1 Sample and Experimental Procedure.

By use of experimental conditions, we manipulated trust and involvement in co-creation activities and observed the effects (direct effects and interaction effects), on the four dependent variables: willingness to pay (WTP), positive word-of-mouth intentions (WOM), attitude toward the product (ATP) and willingness to participate to collaboration activities (PCA).

To this end, we set up an experiment with the support of two companies: a research company, First Lab Ltd, that facilitated the organization of the experiment and

a company specialized in cake-design, Bella Napoli, that provided the products needed for the experiment. We collected data with a sample of 332 consumers, geographically concentrated in the area of London (UK). Table 3.1, summarizes the main sample characteristics.

The sample was split in six groups. For the manipulation of trust, three scenarios were arranged and, for the manipulation of co-creation, two scenarios. Figure 3.3, below, shows the experimental conditions of each scenario.

Table 3.1. Sample characteristics.

Sample size: 332		
Age		
Mean	➤ 31	
Min – Max	➤ 18 – 72	
Age 18 – 30	➤ 128/332	➤ 38,6%
Age 30 – 45	➤ 101/332	➤ 30,4%
Age 45 – 60	➤ 66/332	➤ 19,9%
Age 60 +	➤ 37/332	➤ 11,1%
Gender		
Male	➤ 157	➤ 47,2%
Female	➤ 175	➤ 52,8%
Income (per month)		
Mean	➤ 1475£	
0 – 1000£	➤ 71/332	➤ 21,4%
1000£ – 1500£	➤ 112/332	➤ 33,7%
1500£ – 2000£	➤ 55/332	➤ 16,6%
2000£ – 3000£	➤ 60/332	➤ 18,1%
More than 3000£	➤ 34/332	➤ 11,2 %

Figure 3.3. Scenarios and experimental conditions.

Scenarios	Experimental conditions	
	Co-creation	Trust
Scenario 1	➤ Yes	➤ High
Scenario 2	➤ Yes	➤ Intermediate
Scenario 3	➤ Yes	➤ Low
Scenario 4	➤ No	➤ High
Scenario 5	➤ No	➤ Intermediate
Scenario 6	➤ No	➤ Low

To manipulate trust, we used three different company presentations, given to participants: 1) the company is depicted as highly competent, with extremely positive market figures; 2) the company is depicted as moderately competent, with both positive and negative market figures; 3) the company is depicted as poorly competent, with negative market figures. These three different scenarios are reported in Appendix 3.5.1 - 3.5.3.

After company presentation, participants were involved in co-creation activities. In the first scenario, participants were asked to participate to the design of a new cake to be marketed. The process consisted of three time-periods. At time 1 participants were offered product trials and answered an initial questionnaire. At time 2, participants were asked to help the manufacturer decide its new line of products. This was the starting of the co-creation process. We employed a voting mechanism: participants voted on the elements to be included into the final product concept. Specifically, participants were, first, asked to suggest new product characteristics (new flavors, new ingredients, new combination of ingredients) and, then, to vote on the characteristics they wanted to be included in the final product. The most voted products were, then, manufactured and presented at time 3. At time 3, participants were exposed to final products and answered a final questionnaire.

In the second scenario, after product trial (time 1), participants were involved in a traditional market survey (time 2). We used this kind of scenario in order to control for product exposure effects (Obermiller, 1985). This scenario is different from the previous ones, because participants were not allowed to suggest their ideas, but only to answer a questionnaire. This type of experimental approach is the most appropriate, since previous studies demonstrated that participation in a traditional market research can cause favorable consumer behavior. Borle et others (2007), indeed, found that survey participation produces exposure effects and has a positive effect on subsequent consumer behavior. Thus, we needed this scenario in order to control for exposure effects and understand whether co-creation activities influence consumer behavior more than mere product exposure. At time 3, participants were exposed to final product concepts - that they did not co-create - and answered a questionnaire. This type of experimental approach allowed us to analyze the effects of involvement in co-creation compared to a traditional NPD involvement and the effects of different levels of consumers' trust.

3.2.2 Model specification and measures.

Given the specific hypotheses, we develop a moderation model to test direct and interaction effects of co-creation and trust on the four independent variables (WTP, WOM, ATP and PCA).

The first dependent variable is consumers' *willingness to pay the final product* (WTP). We use this variable in order to understand how higher/lower was the value attributed by consumers to new co-created product. Consistent with previous studies (Becker, DeGroot, and Marschak, 1964; Wertenbroch, and Skiera, 2002), we employed a BDM auction system. Following this system, participants did not pay their bid's price, but the price indicated on a randomly extracted card, if this card's price resulted in a lower price than their bid's price. If this if this card's price was higher, they were not allowed to buy the product.

The second dependent variable is *positive word-of-mouth intentions* (WOM). This variable is measured by a three-items seven-point Likert scale adapted from Arnett, German, and Hunt (2003). These items measure how likely it is that participants 1) talk about, 2) mention favorably and 3) say positive things about the new product with friends or relevant others.

The third dependent variable is *consumers' attitudes toward the product* (ATP). This variable is measured by the four, nine-point, statements developed by Ziamou, and Ratneshwar (2003). These statements are used to measure a consumer's opinion about a new product.

The fourth dependent variable is *consumers' willingness to participate to collaboration activities* (PCA). This variable is measured by a four items, ten-point, Likert scale, used to assess participants' 1) benefits from participating in this type of new product development activity, 2) intentions to join an on-line community focused on the new product 3) intentions to intervene in other initiatives focused on the final product 4) intentions to provide the company with further product feedbacks and comments in future. This scale is adapted from the study by Algesheimer, Dholakia, and Herrmann (2005) about community participation intentions.

Then, we have two independent variables: (1) involvement in the co-creation of the new product (INVCO) and (2) consumers' trust in manufacturer's competence (TRST). These variables are categorical variables, given the consumers' assignment to the different scenarios. Interaction effects between co-creation and trust are modeled as follows: INVCO x LowTRST; INVCO x IntermediateTRST; INVCO x HighTRST.

To verify whether treatment scenarios were effective, we used scales as manipulation check. For INVCO, we used a three-items seven-point Likert scale, adapted from Pham, and Avnet (2004). This scale measures participants' involvement in the performed task. For TRST, we used a six-items, five-point Likert, scale, adapted from the study by Schlosser, White, and Lloyd (2006). This scale measures participants' beliefs about company's skills and competences.

Finally, three control variables are included: 1) *income* (INC), in order to have an indication of consumers' purchase capacity; 2) *involvement with product category* (PRINV), in order to specify the extent to which a consumer includes the product category among his/her interests (Coulter, Price, and Feick, 2003); 3) *perceived product novelty* (PRNOV), in order to understand how one sees the new product to be distinctive from those he/she is used to buy (Cox, and Cox, 2002).

All measurement items are reported in Appendix 3.5.4.

Equations 3.1 to 3.4 specify the relations between the variables included in the model:

$$3.1 \quad WTP_i = b_0 + b_{1i} INVCO_i + b_{2i} highTRST_i + b_{3i} intermediateTRST_i + b_{4i} lowTRST_i + b_{5i} INC_i + b_{6i} PRINV_i + b_{7i} PRNOV_i + b_{8i} INVCO_i highTRST_i + b_{9i} INVCO_i intermediateTRST_i + b_{10i} INVCO_i lowTRST_i + \varepsilon_i$$

$$3.2 \quad WOM_i = b_0 + b_{1i} INVCO_i + b_{2i} highTRST_i + b_{3i} intermediateTRST_i + b_{4i} lowTRST_i + b_{5i} INC_i + b_{6i} PRINV_i + b_{7i} PRNOV_i + b_{8i} INVCO_i highTRST_i + b_{9i} INVCO_i intermediateTRST_i + b_{10i} INVCO_i lowTRST_i + \varepsilon_i$$

$$3.3 \quad ATP_i = b_0 + b_{1i} INVCO_i + b_{2i} highTRST_i + b_{3i} intermediateTRST_i + b_{4i} lowTRST_i + b_{5i} INC_i + b_{6i} PRINV_i + b_{7i} PRNOV_i + b_{8i} INVCO_i highTRST_i + b_{9i} INVCO_i intermediateTRST_i + b_{10i} INVCO_i lowTRST_i + \varepsilon_i$$

$$3.4 \quad PCA_i = b_0 + b_{1i} INVCO_i + b_{2i} highTRST_i + b_{3i} intermediateTRST_i + b_{4i} lowTRST_i + b_{5i} INC_i + b_{6i} PRINV_i + b_{7i} PRNOV_i + b_{8i} INVCO_i highTRST_i + b_{9i} INVCO_i intermediateTRST_i + b_{10i} INVCO_i lowTRST_i + \varepsilon_i$$

Where i is an index for consumer i ($i = 1, \dots, n$; n is the number of participants) and ε_i are the disturbance terms.

3.4.1 Preliminary Analysis.

First of all, we report correlations between the variables in our dataset (Table 3.2). Then, as reported in Table 3.3, we find manipulation of co-creation and trust to be effective, coefficients of the different scenarios are statistically different from each other. Participants in the “co-creation” scenario showed an higher involvement in the tasks than participants in the “market research” scenario ($\beta=0.06$; $p\text{-value} < .01$). The coefficient related to participants in the “low trust” ($\beta= -2.61$; $p\text{-value} < .01$) and that related to participants in the “intermediate trust” ($\beta= -1.4$; $p\text{-value} < .01$) are significantly different (with “high trust” scenario as baseline and, thus, its coefficient dropped).

Table 3.2. Correlation matrix.

	1	2	3	4	5	6	7	8	9	10	11	12
1. WTP	1.000											
2. ATP	0.6796	1.000										
3. WOM	0.5286	0.6434	1.000									
4. PCA	0.5805	0.6481	0.5643	1.000								
5. Co-creation	0.2840	0.2451	0.1659	0.4713	1.000							
6. Competence Trust	0.3186	0.3604	0.2342	0.1985	-0.0678	1.000						
7. Income	0.1772	0.2024	0.2615	0.1262	-0.1955	0.0341	1.000					
8. Product Involv.	0.3977	0.4090	0.3168	0.3589	0.1862	0.1200	-0.0097	1.000				
9. Product Novelty	0.5158	0.4566	0.4626	0.5543	0.2975	0.3178	0.1048	0.3089	1.000			
10. High Trust	0.2160	0.3241	0.1819	0.2245	-0.0129	0.8120	0.0350	0.1610	0.3069	1.000		
11. Medium Trust	0.2348	0.0417	0.0462	-0.0611	0.0002	-0.0434	-0.0239	-0.0288	-0.0369	-0.5022	1.000	
12. Low Trust	-0.4519	-0.3659	-0.2283	-0.1631	0.0127	-0.7684	-0.0111	-0.1321	-0.2699	-0.4955	-0.5022	1.000

Table 3.3. Manipulation check.

	Co-creation (two groups 0-no 1-yes)		Trust (categorical, three groups: 0-high, 1-average, 2-low)	
		β		β
Involvement in NPD		.06***	High Trust	dropped
			Intermediate Trust	-1.41***
			Low Trust	-2.61***

* $p < .10$.

** $p < .05$.

*** $p < .01$.

3.2.4 Key findings.

Results of the empirical study are reported in Tables 3.4 - 3.7. Each table reports results corresponding to each of the four equations specified in Sub-section 3.2.2. In each table, two different models are showed: Model 1 includes only direct effects, while Model 2 includes direct and interaction effects.

Willingness to pay (WTP). Table 3.4 shows direct and interaction effects of independent and control variables on consumers' willingness to pay (WTP). F-test based on incremental R-squared (Leeflang et al., 2000) indicates that Model 2 must be preferred ($F \approx 7.15$; critical value $F_{3, 322} = 2.6$). Consistent with our theoretical model, the direct effects of co-creation on WTP are positive and statistically significant ($\beta = 5.75$ and $p\text{-value} < 0.01$). Model 2 suggests that the interaction effects between trust and co-creation are non-linear. Given that the scenario “Intermediate trust X Co-creation” is the baseline (and, thus, its coefficient is dropped), participants assigned to this scenario were willing to spend for the co-created product 2.85£ more than those assigned to the scenario “High trust X Co-creation” ($p\text{-value} < 0.05$) and 5.90£ more than those assigned to the scenario “Low trust X Co-creation” ($p\text{-value} < 0.01$).

Table 3.4. Direct and interaction effects on willingness to pay (WTP).

Y = WTP	Model 1 (R-squared=0.52)	Model 2 (R-squared=0.55)
Co-creation	2.76***	5.75***
High trust	-0.09	1.40
Intermediate trust	dropped	dropped
Low trust	-6.99***	-4.14***
Income	0.01***	0.01***
Product involvement	1.06***	1.03***
Perceived product novelty	1.51***	1.37***
High trust X Co-creation		-2.85**
Intermediate trust X Co-creation		dropped
Low trust X Co-creation		-5.90***

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Hence, the scenario “Intermediate trust X Co-creation” is the scenario where consumers showed the highest WTP. This, substantially, leads to **accept H1**.

Effects of control variables on WTP are also interesting. Perceived product novelty is positive and statistically significant ($\beta = 1.37$ and $p\text{-value} < 0.01$): this substantially confirms that consumers are willing to pay more for products that they perceive to be original. Also product involvement and income are positive and statistically significant ($\beta = 1.03$ and $p\text{-value} < 0.01$; $\beta = 0.01$ and $p\text{-value} < 0.01$).

Positive word-of-mouth intentions (WOM). Table 3.5 shows direct effects and interaction effects of independent and control variables on consumers' positive word-of-mouth intentions (WOM). Differently from the previous model, F-test based on incremental R-squared indicates that Model 1 must be preferred ($F \approx 1.73$; critical value $F_{3, 322} = 2.6$). Thus, **H2 is rejected**. Model 1 does not provide us with any information about interaction effects between trust and co-creation on WOM. In Model 1, direct effects of co-creation involvement are positive and statistically significant ($\beta = 0.32$ $p\text{-value} < 0.01$). This confirms what found in previous studies: involvement in co-creation activities increases the likelihood of positive word-of-mouth from consumers.

Table 3.5. Direct and interaction effects on positive word-of-mouth intentions (WOM).

Y = WOM	Model 1 (R-squared= 0.37)	Model 2 (R-squared=0.38)
Co-creation	0.32***	-0.51
High trust	0.27*	-0.10
Intermediate trust	dropped	dropped
Low trust	- 0.59***	-0.74***
Income	0.01***	0.01***
Product involvement	0.25***	0.24***
Perceived product novelty	0.28***	0.30***
High trust X Co-creation		0.75**
Intermediate trust X Co-creation		dropped
Low trust X Co-creation		0.32

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Attitudes toward the new product (ATP). Table 3.6 shows direct and interaction effects of independent and control variables on consumers' attitudes toward the product (ATP). Again, F-test based on incremental R-squared indicates that Model 1 must be preferred ($F \approx 1.82$; critical value $F_{3, 322} = 2.6$). In Model 1, direct effects of co-creation on ATP are positive and statistically significant ($\beta = 0.70$; p -value < 0.01). This confirms that consumers have better attitudes toward co-created products. However, **H3 is rejected**, since interaction effects between trust and co-creation cannot be assessed in Model 1.

Table 3.6. Direct and interaction effects on consumers' attitudes toward the new product (ATP).

Y = ATP	Model 1 (R-squared= 0.40)	Model 2 (R-squared=0.41)
Co-creation	0.70***	1.08***
High trust	0.42**	0.53
Intermediate trust	dropped	dropped
Low trust	-0.94***	-0.49
Income	0.01***	0.01***
Product involvement	0.57***	0.56***
Perceived product novelty	0.32***	0.31***
High trust X Co-creation		-0.19
Intermediate trust X Co-creation		dropped
Low trust X Co-creation		-0.90**

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Willingness to participate to further collaboration activities (PCA). Table 3.7 shows direct and interaction effects of independent and control variables on consumers' willingness to participate to collaboration activities (PCA). In this case, F-test based on incremental R-squared indicates that Model 2 must be preferred ($F \approx 14.80$; critical value $F_{3, 322} = 2.6$). In Model 2, both direct and interaction effects are positive and significant. Thus, this indicates that (1) involvement in co-creation activities encourages co-creators to

further participation to collaboration activities and (2) that this more likely happens, the higher is the trust in manufacturer’s competence. These effects confirm our theoretical arguments (Sub-section 3.1.5) . Hence, **H4 is accepted**.

Table 3.7. Direct and interaction effects on willingness to participate to collaboration activities (PCA).

Y = PCA	Model 1 (R-squared= 0.67)	Model 2 (R-squared=0.71)
Cocreation	2.17***	1.96***
High trust	0.73***	0.11
Intermediate Trust	dropped	dropped
Low Trust	-1.37***	-1.02***
Income	0.01**	0.01*
Product Involvement	0.20***	0.15**
Perceived Product Novelty	0.25***	0.28***
High trust X Cocreation		1.28***
Intermediate Trust X Cocreation		dropped
Low Trust X Cocreation		-0.68**

*p < .10.

**p < .05.

***p < .01.

3.3 Discussion.

In this Chapter, we analyzed the moderating role of trust on the effects of co-creation activities on consumer behavior. Table 3.8 summarizes the hypotheses tested in the empirical study. We demonstrated that higher trust leads to higher participation to collaboration activities, but higher trust does not lead to higher willingness to pay. Higher willingness to pay is more likely, given intermediate levels of trust. To the best of our knowledge, the present study is the first, that illustrates such effects in the literature on co-creation. This study is also relevant because it shows how, in co-creation activities, trust has a different impact on different

types of consumer behavior. We demonstrated that consumers’ behavioral reactions to co-creation activities can be very different, given different levels of trust.

Table 3.8. Summary of hypotheses.

Chapter 3: summary of hypotheses	
H1: There is an inverted U-shape relationship between consumer’s trust in manufacturer’s competence and the effects of co-creation activities on consumers’ willingness to pay (WTP).	Accepted
H2: Consumers’ trust in manufacturer’s competence negatively moderates the effects of co-creation activities on positive word-of-mouth intentions (WOM).	Rejected
H3: Consumers’ trust in manufacturer’s competence positively moderates the effects of co-creation activities on consumers’ attitudes toward the new product (ATP).	Rejected
H4: Consumers’ trust in manufacturer’s competence positively moderates the effect of co-creation activities on consumers’ intentions to participate to further collaboration activities (PCA).	Accepted

About consumers’ willingness to pay (WTP), this study suggests that consumers are willing to spend more money for products co-created with a company supported by an intermediate level of trust. Indeed, given the condition of “intermediate trust”, consumers were willing to spend more for the new product than in both the conditions of “low trust” and “high trust”. This is particularly counterintuitive. It is possible that, when consumers co-create products with a “not-so-highly trusted” company, they evaluate their contribution of an higher value. On the contrary, in case of an “highly trusted” company, consumers assign a lower value to co-created products. This can be caused by a feeling of “not being sufficiently competent” to make a relevant contribution to the new product. To give a more profound explanation to this issue, further research is needed.

About consumers’ word-of-mouth intentions (WOM) and attitudes toward the products (ATP), although we did not find significant interaction effects, direct effects are significant and also of interest. This confirms findings of previous studies (Pralhad, and Ramaswamy, 2004; Nambisan, and Baron, 2009; Hoyer et al.,

2010; Fuchs, and Schreier, 2011). These effects show how co-creation is a promising option for several marketing activities. Given its role in encouraging positive word-of-mouth communications, co-creation can be important for the development of viral communications. Given its positive effects on consumers' attitudes, co-creation can lead to the development of products viewed as more customer-oriented.

About consumers' willingness to participate to collaboration activities (PCA), this study provides evidence that consumers are willing to collaborate with companies, they can trust in. Thus, trust is an important factor in collaboration activities and is critical for knowledge generation objectives. This notion also shows how consumers are willing to interact with companies, given that the interaction, although time-consuming, is knowledge-based and offer them learning opportunities.

Table 3.9, below, summarizes the main theoretical contributions based on the empirical study.

Table 3.9. Contributions based on the empirical study.

Theoretical contributions.	
➤	In case of intermediate trust, consumers are willing to spend for the new product more than in case of low and high trust.
➤	Trust has a positive effect on consumers' willingness to participate to collaboration activities with the firm. Hence, trust is a critical factor for the development of customer knowledge.
➤	Given the different types of consumer behavior resulting from co-creation activities , it is important that companies specify beforehand which are their specific objectives.
➤	Consumers' word of mouth intentions and attitudes toward the product are positively influenced by co-creation activities, but they do not depend on the level of consumers' trust.

Finally, we would highlight the characteristics of the research methodology used in this study. The involvement of consumers in real co-creation activities and the manipulation of various conditions is a useful method for the analysis of effects of co-creation on consumer behavior. Future research can use this methodology to test effects of co-creation in other market situations. The analysis of co-creation under more different conditions should lead to a better understanding of managerial drivers and of relationships between these drivers and other specific marketing objectives. Since extant literature views co-creation as a promising

managerial option, future research should use this research methodology to better reveal when and under which conditions effects of co-creation on consumer behavior are higher (or lower).

3.4 Conclusions.

In this study, we derived conditions, that managers have to take into account for the design of NPD co-creation initiatives. Given previous studies on general effects of co-creation activities (Fuller, Matzler, and Hoppe, 2008; Nambisan, and Baron, 2009; Fuchs, Prandelli, and Schreier, 2010; Fuller, 2010; Ind, Iglesias, and Schultz, 2013), our research introduces more realistic conditions by considering effects on consumer behavior based on both the consumers' involvement in co-creation and consumers' trust.

First, we considered the interaction effects of the two variables on consumers' willingness to pay (Becker, DeGroot, and Marschak, 1964; Wertenbroch, and Skiera, 2002). Second, we included the analysis of word-of-mouth intentions (De Matos, and Rossi, 2008; Villanueva et al., 2008). Third, we considered a measure of consumers' attitudes toward the new co-created product (DeBono, 1987; Voss, Spangenberg, and Grohmann, 2003; Grewal, Mehta, and Kardes, 2004). Finally, we developed a measure of customer knowledge (Kumar et al., 2010), related to consumers' willingness to participate to collaboration activities with the firm.

In sum, we found that the moderating role of consumers' trust in manufacturer's competence does not influence these behaviors in a similar way. Indeed, while we found positive interaction effects on willingness to participate to collaboration activities, the effects on willingness to pay are non-linear and inverted-U shaped. Subsequently, we found that co-creation activities have positive effects on attitudes and word-of-mouth, but these effects are independent from the level of trust.

This study provides several managerial insights about the design of co-creation activities. First of all, it suggests managers to carefully consider beforehand their specific objectives and whether a co-creation approach can be an appropriate option to reach them. Companies that create trust at an "average level" can

obtain more benefits, in terms of new product demand, from a co-creation approach. On the contrary, it is unlikely that top trusted companies increase their products' perceived value through co-creation.

Companies with a bad reputation can very hardly benefit from a co-creation initiative both in terms of products' perceived value and customer knowledge. These companies should support co-creation with other initiatives to increase perceived trust. Several strategies can be of help. First, these companies should invest in communication and advertising directed to increase perceived customer-orientation of products. Second, they should also increase the transparency of their manufacturing operations. Third, they should invest in long-term relationships with consumers.

Finally, we discuss limitations of this study. First, since this research involved consumers only in food products' co-creation (more precisely, cake co-creation), studies that cover a broader spectrum of activities would enable the test of the generalizability of our findings. Specifically, future research should extend this framework to other markets to test whether different types of co-creation activities are influenced by trust. We believe that, in other markets, such as ICT and electronic equipments, co-creation activities are likely influenced by specific product drivers. Thus, tapping into how different drivers in other industries influence consumer participation represents a fruitful direction to pursue.

Second, this study considers the formation of trust in a short temporal sequence. Short time of exposure to products and company's characteristics, indeed, can generate biases with respect to the formation of trust. It would be worthwhile, then, to analyze how trust changes over time. About this, it is possible that consumers adapt their trust beliefs after subsequent co-creation activities. Another important variable responsible for the formation of trust is the social network of the individuals involved. Future research might adopt a longitudinal approach on the formation of trust and explore how social network's characteristics influence it.

Third, many other factors were not considered or held constant in our research design. Instead, several marketing instruments that companies use in their strategies, for instance branding strategies, can influence

the way consumers perceive co-creation activities. Following this idea, future research should examine the combination of trust-related and brand-related effects. By this, we mean that future research should consider the interrelations between trust and branding strategies on co-creation activities. This line of research will allow us to better understand how to combine co-creation activities with branding strategies.

Finally, the number of consumers involved in the research can also be viewed as a limitation. However, given the complexity of the experimental procedure, it was not easy to manage a sample of 332 consumers. Our sample choice had budget constraints. But, although the sample was limited in number, it was sufficient to involve consumers in real co-creation activities.

3.5 Appendix.

3.5.1 Company presentation used for the “high trust” condition.

Company Profile: New Dessert Ltd

New Dessert Ltd is a leading manufacturer of cakes and desserts.

The desserts are completely hand-made and are realized only with natural ingredients. All the stages of the manufacturing process are severely controlled, from the selection of the best ingredients to the delivery of fresh products to the customer.

New Dessert Ltd produces premium price products in 27 different countries and adopts the same manufacturing process in all these countries to guarantee perfect quality standards and freshness all over the world.

Thanks to its specialized capabilities, the company won the award of Best Dessert Producer in Las Vegas (USA) 2012.

New Dessert invests up to 20% of its profits to develop new products every year.



3.5.2 Company presentation used for the “intermediate trust” condition.

Company Profile: New Dessert Ltd

New Dessert Ltd is a manufacturer of cakes and desserts.

The desserts are completely hand-made and realized only with natural ingredients. All the stages of the manufacturing process are severely controlled, from the selection of the best ingredients to the delivery of fresh products to the customer.

New Dessert Ltd is rather a small company and is actually present in only 6 countries, where adopts the same manufacturing to guarantee good quality standards and freshness all over the world.

In these countries, the satisfaction of company's customers is at an average level and stable over the years.

New Dessert invests up to 20% of its profits to develop new products every year.



3.5.3 Company presentation used for the “low trust” condition.

Company Profile: New Dessert Ltd

New Dessert Ltd is a manufacturer of cakes and desserts.

The desserts are realized through an industrial process in order to minimize the manufacturing costs. The quality of the products is good, but needs to be improved.

New Dessert Ltd is rather a small company and is actually present in only 6 countries adopts the same manufacturing process in all the countries. and

Unfortunately, the satisfaction of company's customers is rather low and decreasing. This is mostly due to the lack of new products in the last year.

Due to lack of new products, New Dessert's sales fell by 20% last year and, for this reason, the company is investing money to develop new products.




3.5.4 Measurement items.

1. **Trust in manufacturer's competence (TRST) – adapted from Schlosser, White, and Lloyd, (2006).**

Scale: strongly disagree/agree (1-5).

1. This company seems to be successful on the market.
2. This company seems very capable of manufacturing food products.
3. This company seems to have much knowledge about what needs to be done in developing new products.
4. This company makes customers confident about its manufacturing skills.
5. This company appears to have specialized capabilities that can increase its performance with new food products.
6. This company appears to be well qualified for the design of food products.

2. **Involvement in co-creation activities (INVCO) – adapted from Pham, and Avnet, (2004).**

Scale: strongly disagree/ strongly agree (1-7).

1. You took the new product development tasks seriously.
2. You really took part in the performed tasks as if You actually needed to do it.
3. You took extra care in making a good evaluation of the new product.

3. Word-of-mouth intentions (WOM) – adapted from Arnett, German, and Hunt, (2003).

Scale: very unlikely/very likely (1-7).

1. How likely is that you will talk about the new product with people you know?
2. How likely is that you will say positive things about the new product in conversations you have with friends and acquaintances?
3. How likely is that you will speak favorably about the new product in future?

4. Attitude toward the product (ATP) – adapted from by Ziamou, and Ratneshwar, (2003).

1. How negative/positive is your overall opinion of the final product? (1-7)
2. In your opinion, how good is the final product ? (1-7)
3. In your opinion, how original is the final product ? (1-7)
4. How likely is it that You will buy the final product if You see it in a store? (1-7)

5. Willingness to participate to further collaboration activities (PCA) - adapted from Algesheimer, Dholakia, and Herrmann, (2005).

1. Did you benefit from participating in this type of new product development activity? (1-7)
2. How likely is that you will join an online community (i.e. facebook fan page) about the final product? (1-7)
3. How likely is that you will intervene in other initiatives focused on the final product? (1-7)
4. How likely is that, in future, you will provide the company with feedbacks and comments about other products? (1-7)

6. Perceived product novelty (PRNOV) – adapted from Cox, and Cox, (2002).

1. In your opinion, to what extent this product is new? (1-7)
2. In your opinion, to what extent this product is not usual? (1-7)
3. In your opinion, to what extent this product is novel? (1-7)
4. In your opinion, to what extent this product is uncommon? (1-7)

7. Product category involvement (PRINV) – adapted from Coulter, Price, and Feick, (2003).

Scale: strongly disagree/ strongly agree (1-5).

1. This type of products is part of your self-image.
2. This type of products is boring to you.
3. This type of products portrays an image of you to others.
4. This type of products enjoys yourself.
5. This type of products is fascinating to you.
6. This type of products is important to you.
7. This type of products is exciting to you.
8. This type of products tells others about you.
9. This type of products tells you about other people.

3.5.5 Distributions of variables in this study.

Figures 1-8 show distribution of variables in the sample. Figure 1 shows distribution of trust (Trst, Mean = 3.07, Std. Dev. = 1.16): three peaks, representing the three different scenarios (high, intermediate, low trust), can be recognized in the distribution. Figure 2 shows distribution of willingness to pay (WTP, Mean = 11.64; Std. Dev. = 7.01): it is possible to notice that responses are concentrated around two values, 10£ and 15£, while other important values are 0£, 5£, 20£. Figure 3 shows distribution of involvement in co-creation activities (INVCO, Mean = 4.27; Std. Dev. = 1.59): although this variable was manipulated, with two different scenarios (involvement in co-creation vs. involvement in a market survey), it is normally distributed with one peak around the Mean. Also word-of-mouth intentions (WOM, in Figure 4, Mean = 3.18; Std. Dev. = 1.31) are normally distributed.

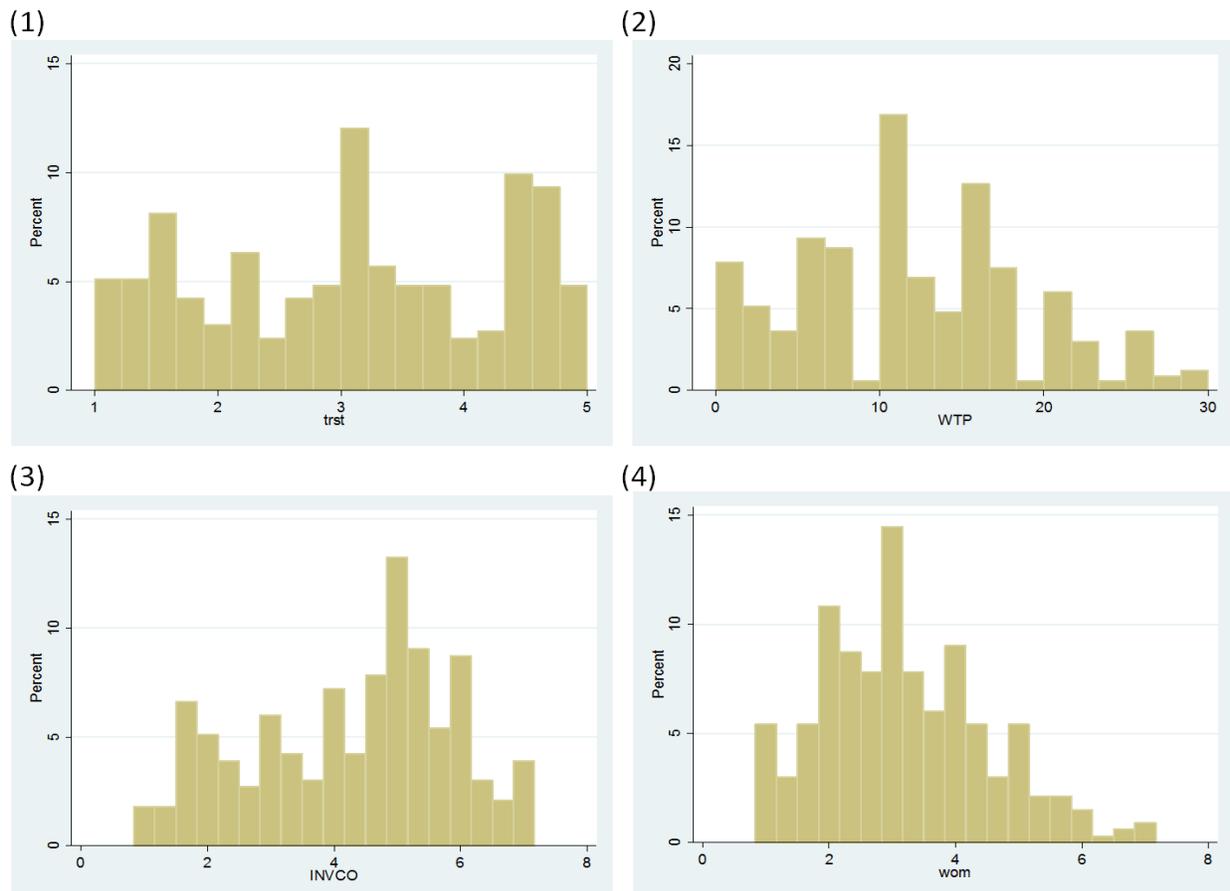
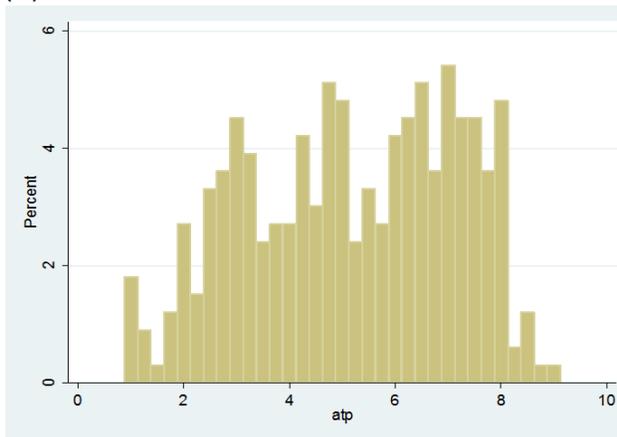
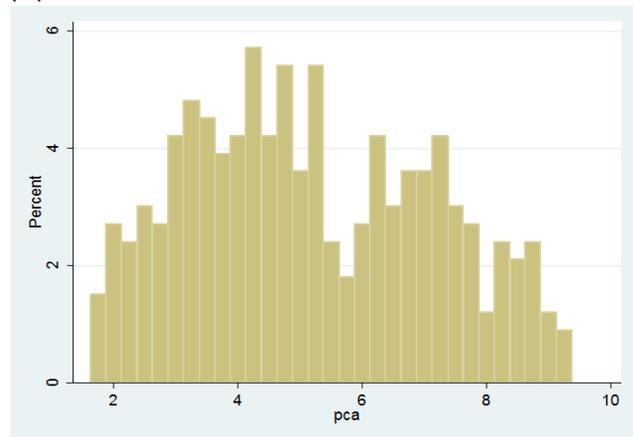


Figure 5 shows distribution of consumers' attitudes toward the product (ATP, Mean = 5.17; Std. Dev. = 1.97) and Figure 6 shows distribution of consumers' willingness to participate to collaboration activities (PCA, Mean = 5.01; Std. Dev. = 1.94). Finally, Figures 7 and 8 show distribution of perceived product novelty (PRNOV, Mean = 3.79; Std. Dev. = 1.25) and product category involvement (PRINV, Mean = 2.97; Std. Dev. = 0.92).

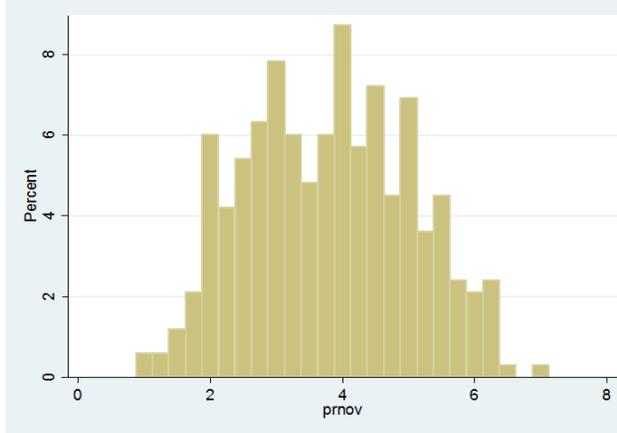
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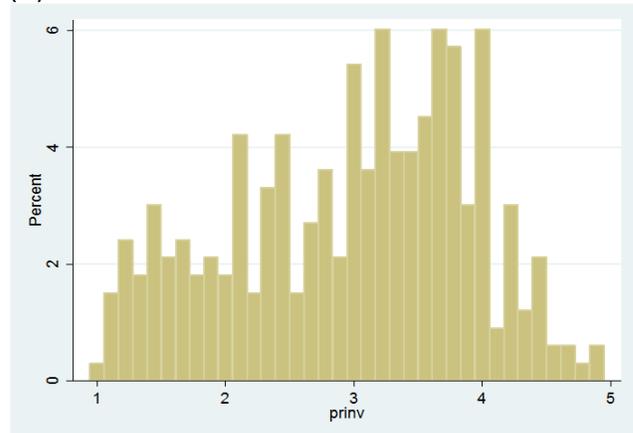
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(7)



(8)



CHAPTER 4

Brand Experience in Co-creation Activities.

Introduction.

Experiences in the consumption of products involve consumers in a way that enables them to “feel” product characteristics versus simply being exposed to them. Personal experiences help people connect to a product and make more informed purchase decisions. Very different types of experiences can be meaningful for consumers. Meaningful experiences can include awareness, discovery, attraction, interaction, purchase, use, cultivation and advocacy (Schmitt, 2003). Past research have increasingly recognized the importance of managing the customers’ experience, given its effects on product and brand differentiation (Holbrook, and Hirschman, 1982; Arnould, Price, and Zinkhan, 2002; Prahalad, and Ramaswamy, 2003; Arnould, and Thompson, 2005).

Although most of the research on the experience concept investigated on experiences about products’ or services’ consumption (Arnould, Price, and Zinkhan, 2002), customer experiences can be also related to a broader brand-focus. Experiences affect a product’s value, but also a brand’s value. Brand experience can be defined as “*subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioral responses evoked by brand-related stimuli that are part of a brand’s identity and design, packaging, communications, and environments*” (Brakus, Schmitt, and Zarantonello, 2009). This definition results from

the consideration that brands, given differentiated products and services, logo, packaging, marketing communications, shopping environments and on-line communities can inspire types of sensory, affective, behavioral and intellectual stimulation.

Given these ideas about the brand experience concept, in this Chapter we analyze whether co-creation activities can influence it. The effects of co-creation on brand experience are important because, while many concepts are useful to describe the relationship between consumers and brands (e.g., brand personality, Aaker, 1997; brand involvement, Zaichkowsky, 1985; brand attachment, Thomson, MacInnis, and Park, 2005), co-creation activities include important experiential elements, that consumers can associate to the relevant brand. Moreover, there is a research gap in the area of consumers' experiences in the NPD process. While past research examined the 1) search, 2) purchase, 3) consumption and 4) after-sale types of experiences (Hui, and Bateson, 1991; Arnould, Price, and Zinkhan, 2002; Arnold et al., 2005; Verhoef et al., 2009; Brakus, Schmitt, and Zarantonello, 2009), no studies so far have considered the product development stage as a possible context for consumers' experiences.

Co-creation in new product development (NPD) can be an important context for consumers' experiences. While shopping and consumption experiences engage consumers in existing products, co-creation activities engage them in the creation of new ones. Given this critical difference, co-creation activities include a number of unique experiential aspects. They fulfill consumers' demand for creativity and offer evident learning and entertainment opportunities. They reinforce consumers' emotional bonds with co-created products. They are based on an important social dimension (Nambisan, and Baron, 2009).

Given this research gap, the research question, we would provide an answer, is: To what extent does co-creation affect brand experience?

To answer this question, Chapter 4 is organized as follows. In section 4.1 we define the brand experience concept and highlight its relevance in the Marketing literature. In section 4.2, we analyze experiential aspects

of co-creation. In this section, we explain how co-creation activities can represent a pleasant experience for co-creators. In section 4.3, we outline our theoretical model with hypotheses. In section 4.4, we present an empirical study to test the hypotheses. This study is based on data obtained through an experimental design where consumers were invited to co-create products with two brands, Pringles and Philadelphia. This empirical study considers the variation of brand experience resulting from consumers' involvement in co-creation activities. In section 4.5, we discuss results of the empirical study and highlight the main contributions. In section 4.6, we discuss managerial implications and limitations of the study.

4.1 Brand experience: conceptual domain.

Since the Holbrook and Hirschman's 1982 study about the experiential aspects of consumption, the notion of experience has been valued highly in Marketing. On the one hand, this importance is given by the high involvement, that consumers show toward determinate product-related occasions. On the other hand, there is a managerial need to differentiate products and managing the consumers' experiences can be useful for this purpose. For both these reasons, several studies in literature examined characteristics of a product/brand experience and showed how these characteristics can affect consumer behavior (Schmitt, 1999, 2003; Carù, and Cova, 2003; Arnold et al., 2005; Ofir, and Simonson, 2007; Brakus, Schmitt, and Zarantonello, 2009).

Schmitt (1999, 2003) illustrated five types of experiences that marketers can create for customers. *Sensory experiences* are related to physical appreciation through the five senses. By affecting consumer's senses, these types of experiences add sensorial value to product or brand identity. *Affective experiences* are related to the arousal of emotions and make consumers associate personal feelings and emotions to products or brands. *Creative experiences* concern intellectual attitudes and encourage consumers to discover, understand and learn something new. *Experiences of action* consist of concrete actions that individuals perform in their everyday life and, for this, shape their lifestyles. Finally, *experiences of relationship* are shaped by the social

interactions of individuals with other individuals, with the reference groups and with the surrounding environment. Following this classification, outlined in Figure 4.1, experiential marketing is an approach that integrates the distinctive elements of the mentioned experiences to increase the involvement of consumers with products and brands.

Although these types of experiences occur mostly during consumption, shopping experiences are very important, too. Shopping experiences happen when consumers get in contact with a retailer's environment, its personnel, its policies and procedures (Hui, and Bateson, 1991; Verhoef et al., 2009). These experiences regard the search and purchase of products. Research in this area shows how the shopping atmosphere and salespeople's behavior influence consumers' perceptions and can result in positive (but also negative) experiences (Arnold et al., 2005; Ofir, and Simonson, 2007).

Figure 4.1. Customer experiences (Schmitt, 2003).

Types of experiences	
Sensory experiences	➤ Physical appreciation through the five senses. These experiences add sensorial value to products or brands.
Affective experiences	➤ Arousal of emotions. These experiences make consumers associate personal feelings and emotions to products or brands.
Creative experiences	➤ Intellectual stimulation. These experiences encourage consumers to discover, understand and learn something new.
Experiences of action	➤ Concrete actions that consumers perform in their everyday life. These experiences shape consumers' habits and lifestyles.
Experiences of relationship	➤ Experiences shaped by social interactions of individuals with other individuals, with the reference groups and with the surrounding environment.

Brand experiences occur when the experience has a particular brand focus and result from brand-related stimuli (Brakus, Schmitt, and Zarantonello, 2009). As a consequence of brand-related stimuli, consumers tend to associate these experiences to the specific brand. So far, the brand experience study of Brakus, Schmitt, and Zarantonello, (2009) provides the most comprehensive reference in this domain. These authors conceptualized brand experience on *four dimensions*: 1) sensory, 2) affective, 3) behavioral, 4) intellectual.

The sensory dimension involves physical perceptions through the senses. The affective dimension refers to the arousal of feelings and emotions. The behavioral dimension shows how consumer behavior is influenced by brand stimuli. The intellectual dimension is related to consumers’ creative thinking and critical reasoning.

In the development of the brand experience concept, the authors do not find a one-to-one correspondence between a stimulus type and a certain experience dimension. Thus, although colors, shapes, typefaces, and designs of brands usually result in sensory experiences, they may also result in emotions or intellectual experiences. In this sense, the concept is holistic in nature. It is not related to consumers’ emotions only: it may increase emotional bonds, but emotions are only one internal outcome of the stimulation evoked in a particular brand experience. Figure 4.2, below, summarizes the conceptual dimensions, so far discussed.

Figure 4.2. Conceptual dimensions of brand experience (Brakus, Schmitt, and Zarantonello, 2009).

Brand Experience	
Sensory Dimension	➤ The brand influences one or more of the five senses. When this occurs, visual or other sensory characteristics of the brand are impressed in consumer mind.
Affective Dimension	➤ The brand causes the arousal of feelings and emotions. Emotions, linked to the brand, promote the development of lasting consumer-brand relationships.
Behavioral Dimension	➤ The brand triggers behavioral reactions from consumers. Consumers can act in favor of or against the brand.
Intellectual Dimension	➤ The brand influence consumers’ creative thinking and critical reasoning.

The notion of brand experience has several consequences on consumer behavior. As already mentioned, consumers tend to associate experiences to the relevant brand. This association is important because it can make consumers differentiate brands through experiences’ characteristics (Weinberg, 2001). Moreover, consumers buy brands with which they had encountered positive experiences (Ha, and Perks, 2005). Thus, perceptions about brands are influenced by past experiences.

An environment for brand experiences can be represented by co-creation. In it, consumers can experience the operations that lead to the creation, selection or refinement of products. As already discussed, past research has still not considered this option. We examine experiential aspects of product co-creation in the next Section.

4.2 Experiential aspects of co-creation activities.

As argued in Chapter 2, co-creation activities can be crucial for knowledge generation (Jeppesen, and Molin, 2003; Cook, 2008) and can encourage consumers' engagement behaviors (van Doorn et al., 2010). Both these aspects can increase experiential value. Experiential value is the personal value that consumers attribute to a particular experience. In co-creation activities, experiential value can be related to three aspects.

First of all, co-creation is based on idea generation (von Hippel, 2005). Thus, creativity is rewarded. Creativity leads to new ideas and these ideas can lead to new products or services. In substance, while types of shopping and consumption experiences constrain individuals to the search and use of "something already existing", co-creation activities encourage individuals to imagine and develop "something new". Imagination is highly stimulated and provides a deep fulfillment of the individuals' need for creation (Csikszentmihalyi, 2009). These experiences can involve intellectual stimulation and can also have an impact on the five senses. Hence, they can be valuable in the sensory and intellectual dimensions.

Second, co-creation can increase the emotional value related to the relevant product or brand. As discussed in Chapter 2, empowerment effects (Fuchs, Prandelli, and Schreier, 2010) strengthen the psychological bonds, that co-creators perceive toward co-created products – a sort of psychological ownership of co-created products (Shu, and Peck, 2011). Given the share of opinions and ideas, empowerment effects make co-creators more personally involved in the future outcomes of NPD. This can lead co-creators to perceive a more intimate relationship with the product or brand. These aspects influence the affective dimension.

Third, given the community-based system, co-creators relate themselves to others and this, in turn, can lead to the building of social relationships. The importance of relationship-building in co-creation has been discussed extensively in the academic literature (Prahalad and Ramaswamy, 2004; von Hippel 2005; Nambisan, and Baron, 2009). In many cases, co-creation activities are shaped by a network of supportive co-creators, who share ideas, and promote each other's work. Social networks have made it easy to share content that is informative and can be distributed quickly through the Internet. This can be valuable for many individuals and can affect the behavioral dimension.

Given the mentioned effects on the four dimensions of brand experience, co-creation activities can be viewed as an option for increasing brand experience. This option is still under-researched in literature. For this reason, in the next Section, we present a theoretical model that introduces factors responsible for the effects of co-creation activities on brand experience.

4.3 Theoretical model and hypotheses.

4.3.1 Effects of co-creation activities on brand experience (BE).

The line of reasoning exposed in the previous section showed how co-creation activities include experiential aspects highly relevant and that can be related to the four dimensions of brand experience. Hence, the questions we would now answer are: 1) Do consumers relate experiential aspects of co-creation to the brand? 2) If so, are these experiential aspects more likely to affect brand experience positively or negatively?

To answer the first question, we argue that co-creation activities can provide brand-related stimuli and can affect brand experience. The brand is an important component through which consumers evaluate product characteristics in co-creation. The co-creation process enhances the role of the consumer-brand relationships: ideas emerging during co-creation activities are encouraged by co-creators' beliefs, interests and insights related to the brand. About this, past research highlighted how involvement in co-creation is higher, when

brand involvement is higher (Bayus, 2013). Thus, this suggests that co-creators are involved not only in the products, but also in the brand.

To answer the second question, we argue that co-creation activities have a positive effect on brand experience. Reasoning supporting this idea is twofold. First, experiential aspects exposed in Section 4.2 should lead consumers to associate positive experiential value to brand experience. Second, past research showed how characteristics of co-creation make consumers perceive co-created products as more customer-oriented (Fuchs, and Schreier, 2011). As a parallel, also brands should be perceived as more customer-oriented.

Thus, we hypothesize that involvement in co-creation activities leads consumers to perceive higher brand experience.

H1: Co-creation in new product development affects brand experience positively.

4.3.2 Social interaction.

As argued, a relevant component of co-creation's experiential value is the social dimension. Communities of co-creators are, indeed, based on highly interactive conversations. Social interaction can influence the behavioral dimension of brand experience in several ways.

First of all, given the dynamics of community-based systems, there is an important social incentive to participate to co-creation activities. Since co-creation activities result in informal and playful situations, individuals are little subjected to environmental pressures and feel free to openly suggest their ideas.

Another aspect that can increase the relevance of co-creation activities in the social environment is co-creators' self-enhancement (Dholakia, Bagozzi, and Pearo, 2004). In this case, co-creators are interested about supporting their ideas in the community. They show off their competence, leadership, and seek the

appreciation and approval of other peers. Several studies found that consumer behavior can be related to enhancement goals and that these goals positively affect individuals' self-esteem (Bearden et al., 1989; Deci and Ryan 2002). If motivated to emerge, co-creators may view co-creation as an opportunity to enhance themselves. This, in turn, may make their participation more meaningful.

In the process of product co-creation, we argue that the social dimension is an important component of the perceived experiential value and, for this, we would specifically test its effects on brand experience. This test is highly relevant, given that many brands, today, are investing money in building strong social relationships with consumers.

Given this reasoning, we believe that social interaction has a positive effect on the link between co-creation and brand experience. Hence, we test the following hypothesis:

H2: Social interaction increases the effects of co-creation on brand experience.

4.3.3 The hedonic dimension.

The hedonic dimension is very important for the examination of the experiences. Consumer product choices are, indeed, influenced by utilitarian and hedonic needs. Utilitarian needs are primarily instrumental and are related to practical benefits. Conversely, hedonic needs are related to fun, pleasure, excitement. Thus, consumers purchase goods and services for two basic reasons: hedonic gratification and instrumental requirements. Hedonic products fulfill more consumers' needs for gratification and pleasure, while utilitarian products fulfill more instrumental requirements (Dhar, and Wertenbroch, 2000).

The extent to which a consumer perceives a product or brand as utilitarian or hedonic is very subjective (Park, Jaworski, and MacInnis, 1986). While there are products primarily hedonic or primarily utilitarian, personal attitudes can result in different perceptions. In this domain, hedonic and utilitarian dimensions of consumer's attitudes serve to measure the perceived hedonic and utilitarian values of products (Voss,

Spangenberg, and Grohmann, 2003). Measuring these dimensions increases the understanding of how consumers perceive the nature of an object, such as a product, a brand or an advertising campaign.

In consumers' experiences, the fulfillment of hedonic needs elicits emotions, while this element is missing in the fulfillment of utilitarian needs. Pham, (1998) showed how experiences are more meaningful under hedonic motives than under instrumental ones. Thus, products consumed for hedonic purposes tend to be more rich in emotions than those consumed for utilitarian purposes.

Given a higher emotional involvement, the extent to which a consumer perceives a brand to be more hedonic should increase the experiential value of that brand. Hence, we expect that a higher hedonic dimension leads to higher effects of co-creation activities on brand experience.

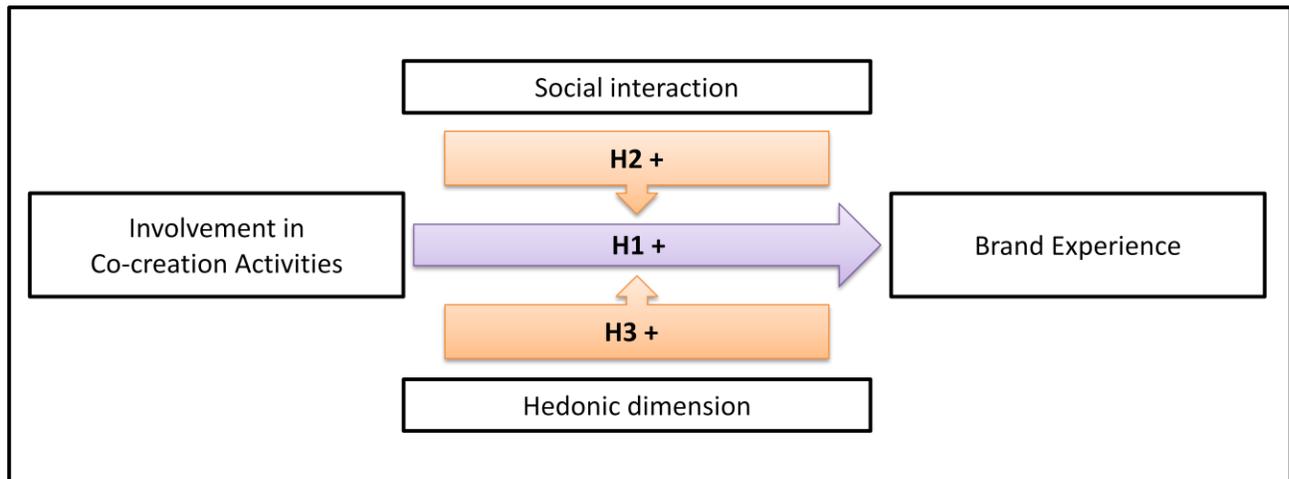
Then, we test the following hypothesis:

H3: The more the relevant brand is perceived as hedonic, the higher is the effect of co-creation on brand experience.

4.3.4 Theoretical Model.

Figure 4.3 shows the theoretical model with hypotheses developed in previous Sub-sections. In H1, we hypothesize a link between co-creation and brand experience. This link finds theoretical support in 1) the experiential aspects of co-creation activities and 2) the relations between these aspects and the characteristics of the brand. In H2 and H3, two additional effects are hypothesized: 1) the influence of the social environment, that emphasizes the importance of the interactions among co-creators; 2) the hedonic dimension, that introduces effects due to consumers' perceptions about the relevant brand.

Figure 4.3. Theoretical model.



4.5 Empirical Study.

4.5.1 Research Design.

We tested the hypotheses through an experimental study. We involved a sample of 304 individuals, randomly selected in the London area (UK), in experimental co-creation activities of new food products for two brands, Pringles and Philadelphia. Then, we observed effects on perceived brand experience through a survey method.

Table 4.1, summarizes the main sample characteristics.

Several weeks before taking part into experimental scenarios, participants were all asked to fill a prior questionnaire about personal information, prior brand experience and brand involvement. This prior questionnaire was needed because it allowed us to understand differential effects occurred before and after experimental tasks. It was also necessary to leave out of the experiment those people who were absolutely not familiar with the relevant brands.

We selected two different brands, Pringles and Philadelphia, to test H3. H3 requires the use of two brands differently perceived in the hedonic dimension and we arranged a pre-test to confirm that these two brands are statistically different in this dimension. Details of the pre-test can be found in Sub-section 4.5.2.

Three treatment scenarios were arranged. Each scenario was performed by two different groups, one exposed to Pringles and the other to Philadelphia. In the first scenario, participants were involved in co-creation activities and they were not allowed to interact with

other people. In substance, they were individually asked to suggest ideas about new product flavors regarding the two brands. Details of the first scenario are in Appendix 4.8.1.

In the second scenario, participants were involved in co-creation activities, but, differently from the first scenario, they were also allowed to interact with other people. This information is needed to test H2. Details of the second scenario are in Appendix 4.8.2.

In the third scenario, participants were asked to provide product feedbacks: this task was necessary in order to control for exposure effects (Obermiller, 1985). In this scenario, participants were not asked to suggest their own new ideas, but to provide product feedbacks. This condition is needed, because previous studies demonstrated that participation in a traditional market research is positively related to favorable consumer behavior. Borle et al., (2007), indeed, found that survey participation produces exposure effects and has a positive effects on subsequent product demand. Thus, this condition serves to understand whether co-creation activities influence brand experience more than mere exposure to the brand. Also Fuchs, Prandelli and Schreier (2010) employed the same procedure to test the effects of empowerment on willingness to pay. Details of the second third scenario are in Appendix 4.8.2.

Table 4.1. Sample characteristics.

Sample size: 304		
Age		
Mean	➤ 28,6	
Min – Max	➤ 18 – 47	
Age 18 – 30	➤ 165/304	➤ 54,4%
Age 30 – 45	➤ 133/304	➤ 43,7%
Age 45 – 60	➤ 6/304	➤ 1,9%
Age 60 +	➤ 0/304	➤ 0%
Gender		
Male	➤ 140	➤ 46,1%
Female	➤ 164	➤ 53,9%

After having performed experimental tasks, participants were asked to answer a final questionnaire about their brand experience.

Figure 4.4, below, summarizes the different experimental conditions presented in each scenario.

Figure 4.4. Scenarios and experimental conditions.

Scenarios	Experimental conditions	
	Co-creation	Interaction
Scenario 1	➤ Yes	➤ No
Scenario 2	➤ Yes	➤ Yes
Scenario 3	➤ No	➤ Indication not given

4.5.2 Pretest.

A pre-test was needed in order to select the brands for the experimental design. In order to properly test H3, we needed two brands perceived to be different in terms of the hedonic dimension. Consistent with this, a

Table 4.2. Pre-test: hedonic dimension of seven brands (Mean and Standard Deviations).

	Mean	Std. Dev.
Lay's	5,26	0,98
Mars	5,18	0,86
Cadbury	5,14	0,77
Pringles	4,95	1,05
Philadelphia	3,64	0,89
Kellogg's	3,52	1,07
Uncle Ben's	2,68	0,91

sample of 355 individuals, randomly selected in the London area (UK), was exposed to the two companion scales developed by Voss, Spangenberg, and Grohmann, (2003) to measure hedonic and utilitarian dimensions of consumers' attitudes toward seven different brands (Uncle Ben's, Kellogg's, Philadelphia, Pringles, Cadbury, Mars, Lays). The scale is in a 10 items 7-point Likert format, in a way that the higher is the score the more the brand is perceived as hedonic (details can be found in Appendix 4.8.4).

Table 4.3. Hedonic dimension: Pringles versus Philadelphia.

Y = Hedonic dimension	
Pringles vs Philadelphia	1.31***

*p < .10.
**p < .05.
***p < .01.

In Table 4.2, mean values and standard deviations are reported. We decided to select the two contiguous brands with the largest difference in their means, thus, Philadelphia and Pringles. To confirm this choice, results shown in Table 4.3 indicate that these brands are statistically different in the hedonic dimension. Overall, Pringles is perceived 1.31 points higher than

Philadelphia in the hedonic dimension (p-value < 0.01).

4.5.3 Model specification and measures.

A multivariate regression model is developed to test the hypotheses. The main dependent variable is consumers' brand experience. Brand experience is measured by the empirical scale developed by Brakus, Schmitt, and Zarantonello, (2009). The scale is composed of 12 items. These items analyze the four components of the brand experience concept, 1) sensory, 2) affective, 3) intellectual, 4) behavioral. To

understand variation of brand experience as a result of experimental conditions, this variable is modeled as *the variation of participants' brand experience occurred after taking part into the experiment* (DELTABREXP). Appendix 4.8.6 – 4.8.8 shows how participants evolved their brand experience during the experiment.

The main independent variable (H1) is involvement in co-creation activities (CO-CREATION(no-interaction)), *modeled as participation in the first scenario*. However, to verify whether conditions in the first scenario were effective, we used a three-items seven-point Likert scale adapted from Pham, and Avnet, (2004), to measure participants' involvement in the experimental tasks.

In H2, we hypothesize that the effects of co-creation on brand experience are higher when co-creators are allowed to interact with other people. *Co-creation with social interaction* (CO-CREATION(with-interaction)) *is modeled as participation in the second scenario*. Again, to verify treatment conditions, we used a three-items seven-point Likert scale that measures participants' perceived interactivity of the tasks (Sicilia, Ruiz, and Munuera, 2005).

In H3, we hypothesize that the more the brand is perceived as hedonic, the higher are the effects of co-creation activities on brand experience. The hedonic dimension of consumers' attitudes toward the brand (HED) is measured through the scale developed by Voss, Spangenberg, and Grohmann, (2003). This scale is composed of ten, seven-point Likert, semantic differentials, that measures the extent to which the relevant brand is perceived as hedonic. Thus, we introduce a variable to model interaction effects between co-creation activities and the hedonic dimension of the attitudes toward the brand (CO-CREATION(no-interaction) x HED).

Finally, we have three control variables: participants' brand involvement (BRINV), perceived competence in performing the tasks (COMPETENCE), and age (AGE). Consistently with previous studies (Brakus, Schmitt, and Zarantonello, 2009), we expect brand involvement and brand experience to be positively related and we

need to control for this. To measure brand involvement, we used a scale composed of three items, which specifies the extent to which a consumer is particularly involved in the brand. The scale is adapted from Voss, Spangenberg, and Grohmann, (2003).

Then, we take into account co-creators' perceived competence in performing the tasks. Extant literature suggests that co-creation activities are perceived more favorably by co-creators, who believe to be competent on product characteristics (Fuchs, Prandelli and Schreier, 2010). To control for this effect, we employed a three-items scale adapted from Spreitzer, (1995).

All empirical scales reported Cronbach's alpha coefficients above 0.78. Details of all the measurement items are reported in Appendix 4.8.4.

Equation 4.1, below, specifies the model to test.

$$4.1 \text{ DELTABREXP}_i = b_0 + b_{1i} \text{ CO-CREATION(no-interaction)}_i + b_{2i} \text{ CO-CREATION(with-interaction)}_i + b_{3i} \text{ HED}_i + b_{4i} \text{ CO-CREATION(no-interaction)}_i \times \text{HED}_i + b_{5i} \text{ BRINV}_i + b_{6i} \text{ COMPETENCE}_i + b_{7i} \text{ AGE}_i + \varepsilon_i .$$

Where i is an index for consumer i ($i= 1, \dots, n$; n is the number of participants) and ε_i are the disturbance terms.

4.5.4 Results.

In Table 4.4, we show the possible correlations between the independent variables. Then, in Table 4.5, we show the results of the multivariate analysis. Given R-squared value equal 0.55, the model fit is reasonably good. Coefficients of co-creation without and with interaction are positive and statistically significant ($\beta_1 = 0.45, p < .10$; and $\beta_2 = 1.40, p < .01$). The results confirm that co-creation has a positive effect on brand experience and that this effect is higher in a situation with social interaction. Hence, **we can accept H1 and H2**. The hedonic dimension also plays a positive moderating role. We find a positive and statistically

Table 4.4. Correlations between independent variables.

	Co-creation no interaction	Co-creation with interaction	Hedonic/ Utilitarian	Brand Invovement	Perceived Competence	Age
Co-creation no interaction	1					
Co-creation with interaction	-0.501	1				
Hedonic dimension	-0.141	0.021	1			
Brand Invovement	-0.083	0.019	0.154	1		
Perceived Competence	0.1453	0.055	-0.128	0.047	1	
Age	-0.117	0.158	0.019	-0.041	-0.125	1

significant interaction effects between involvement in co-creation and the hedonic dimension ($\beta_4 = 0.13, p < .05$). This means that the more the relevant brand is perceived as a hedonic brand, the more co-creation activities affect brand experience. Hence, **H3 is accepted**. Interestingly, the hedonic dimension direct effects are negative ($\beta_3 = -0.19, p < .01$): our interpretation of this coefficient is that hedonic brands have negative effects on brand experience, given higher consumers’ expectations with respect to experiences with these brands.

Table 4.5. Direct and interaction effects of co-creation activities on variation of brand experience.

Number of observations = 304						
F (7, 296) = 56.71						
Prob > F = 0.000						
R-squared = 0.5459						
Root MSE = .61692						
Y = Variation of Brand Experience	Coefficients	Robust Std. Err.	t	P > t	[95% Conf. Interval]	
Co-creation - no interaction	0.45*	.264	1.70	0.090	-.709	.967
Co-creation - with interaction	1.40***	.090	15.63	0.000	1.23	1.58
Hedonic dimension	-0.19***	.042	-4.63	0.000	-.276	-.111
Hedonic dimension X Co-creation	0.13**	.062	2.08	0.039	.007	.250
Brand involvement	0.05*	.028	1.90	0.058	-.002	.108
Perceived competence	0.11***	.032	3.56	0.000	.051	.177
Age	-0.01**	.005	-2.11	0.036	-.021	-.001
β_0	0.09	.279	0.35	0.725	-.450	.647

*p < .10.
**p < .05.
***p < .01.

About effects of control variables, brand involvement and perceived competence have positive significant effects ($\beta_5 = 0.05$, $p < .10$; $\beta_6 = 0.11$, $p < .01$), while age has negative and significant effects ($\beta_7 = -0.01$, $p < .05$).

4.5.5 Robustness tests.

The experiment is configured in a way that allows to test the effects of “co-creation” vs. “no co-creation” and the effects of “co-creation with interaction” vs. “co-creation without interaction”. Given this configuration, it is not possible to explicitly test the effect of “co-creation with interaction” vs. “interaction without co-creation”. A control group is missing with respect to the scenario “interaction no co-creation”, because in the third scenario (involvement in a market research survey), there were no explicit indications about whether participants were allowed to interact or not. In substance, the effects of an “interaction-only” situation are not taken into account by the combination of experimental conditions.

To reject the hypothesis of “interaction-only” effects on brand experience, we show two robustness tests.

First, we focus on the participants in the third scenario and we add a regressor in the Equation 4.1 to distinguish the individuals that in this scenario interacted with others from those that did not. To make this distinction, we use the answers that these individuals provided about the variable “Interaction” (Appendix 4.8.4.4; Sicilia, Ruiz, and Munuera, 2005). As already discussed, this variable is measured by a three-items seven-point Likert scale and evaluates participants’ perceived interactivity of the tasks. Given that we take this variable as normally distributed (the variable distribution is in the Appendix 4.8.5.4), we can use the sample’s Mean as discriminating value. Then, we assume that those who provided an answer above the Mean (Mean = 2.63; Std. Dev = 0.66) perceived an higher level of social interaction than those who provided an answer below the mean.

Table 4.6, below, shows the result of the first robustness test.

Table 4.6. Effects of the condition "interaction - no co-creation" on the variation of brand experience.

		Number of observations = 304				
		F (8, 295) 51.25				
		Prob > F = 0.000				
		R-squared = 0.5460				
		Root MSE = .61787				
Y = Variation of Brand Experience	Coefficients	Robust Std. Err.	t	P > t	[95% Conf. Interval]	
Co-creation - no interaction	0.47*	.277	1.70	0.090	-.073	1.02
Co-creation - with interaction	1.423***	.111	12.83	0.000	1.20	1.64
Hedonic	-0.19***	.042	-4.59	0.000	-.275	-.111
Hedonic X Co-creation	0.13**	.062	2.05	0.041	.005	.250
Brand involvement	0.05*	.028	1.91	0.057	-.002	.108
Perceived competence	0.11***	.032	3.56	0.000	.051	.177
Age	-0.01**	.005	-2.07	0.039	-.021	-.001
Interaction - no co-creation	0.04	.095	0.39	0.697	-.15	.22
β_0	0.07	.291	0.23	0.815	-.505	.641

*p < .10.
**p < .05.
***p < .01.

In the second robustness test, we concentrate on the whole sample’s data about the variable “Interaction” (Appendix 4.8.4.4; Sicilia, Ruiz, and Munuera, 2005). Hence, we add a regressor in the equation 4.1 as a control variable for “Interaction”. This regressor represents the extent to which participants in the whole sample perceived the experimental tasks as interactive.

Table 4.7, below, shows the result of the second robustness test.

Table 4.7. Effects of social interaction (whole sample’s data) on the variation of brand experience.

							Number of observations = 304
							F (8, 295) 49.67
							Prob > F = 0.000
							R-squared = 0.5462
							Root MSE = .61773
Y = Variation of Brand Experience	Coefficients	Robust Std. Err.	t	P > t	[95% Conf. Interval]		
Co-creation - no interaction	0.46*	.264	1.73	0.085	-.063	.975	
Co-creation - with interaction	1.45***	.135	10.71	0.000	1.18	1.72	
Hedonic	-0.19***	.042	-4.64	0.000	-.276	-.111	
Hedonic X Co-creation	0.13**	.062	2.06	0.041	.005	.248	
Brand involvement	0.05*	.028	1.85	0.065	-.003	.106	
Perceived competence	0.11***	.032	3.59	0.000	.051	.177	
Age	-0.01**	.005	-2.11	0.035	-.021	-.001	
Interaction (scale)	-0.02	.048	0.49	0.622	-.118	.077	
β_0	0.16	.323	0.51	0.609	-.470	.802	

*p < .10.
**p < .05.
***p < .01.

In the two robustness tests, the coefficients representing “interaction-only” effects are not significant, while the coefficients representing effects of co-creation “without” and “with” interaction remain positive and significant. Hence, we reject the hypothesis of “interaction-only” effects on brand experience and confirm the acceptance of H1 and H2 about the effects of co-creation “without” and “with” interaction.

4.6 Discussion.

In this Chapter, we presented an empirical study about the effects of co-creation activities on brand experience. Table 4.8 summarizes the hypotheses tested, while Table 4.9 highlights the theoretical contributions from this study. Findings can be summarized as follows: 1) co-creation activities positively affect consumers’ brand experience; 2) interaction among individuals amplifies this effect; 3) this effect is higher, the more the relevant brand is perceived as hedonic.

Table 4.8. Summary of hypotheses.

Summary of hypotheses	
H1: Co-creation in new product development affects brand experience positively.	Accepted
H2: Social interaction increases the effects of co-creation on brand experience.	Accepted
H3: The more the relevant brand is perceived as hedonic, the higher is the effect of co-creation on brand experience.	Accepted

Table 4.9. Contributions based on the empirical study.

Theoretical contributions
➤ Co-creation activities positively affect consumers’ brand experience;
➤ The presence of social interaction among individuals amplifies the positive effect of co-creation on brand experience;
➤ The effect of co-creation on brand experience can be observed more when the relevant brand of the co-creation activities is perceived as hedonic.
➤ Co-creation activities can be used to build a bridge between innovation and brand management. This occurs because co-creation activities can generate a positive “halo” effect on the brand, beyond that on the new product.

These notions support the idea that co-creation can constitute a promising alternative to increase experiential value related to the brand. This value is shaped by the experiences resulting from brand stimuli. Extant literature has mainly focused on experiential value in the search, purchase and consumption of products, while this study finds experiential value in the stage of new product development.

Second, the positive effects given by interactions among participants show how co-creation has an important social dimension. This is in line with extant literature (Prahalad, and Ramaswamy, 2004; von Hippel, 2005; Nambisan, and Baron, 2009) and confirms that interactive environments are the “natural habitat” for co-creation activities. Social interaction increases the effects on brand experience by providing co-creators with social incentives and social enhancement (Dholakia, Bagozzi, and Pearo, 2004).

The hedonic dimension is also an important factor leading to higher experiential value. In our experiment, co-creation activities had an higher effect on brand experience when the brand was perceived more as a hedonic brand. The measurement of this dimension was explicitly referred to the brand and its positive and statistically significant effects confirm that participants were highly influenced by their brand perceptions when performing co-creation tasks.

This study is, thus, relevant because it suggests that co-creation activities can be used to build a bridge between innovation and brand management. Given that we find positive effects on the brand, beyond that on the new product, co-creation can be used for both innovation purposes and brand differentiation. For many companies, innovation is a core activity. It is important for their survival and can help the business remain competitive in changing markets. Brand differentiation can also be an important source of competitive advantage. Brand managers know how difficult it can be to create brand differentiation within an existing category. In mature markets, for instance, every market position has already been taken. Hence, this study demonstrates that innovation and brand managers can consider co-creation as a way to combine their (very different) objectives.

Finally, we highlight the characteristics of the research methodology used in this study. The empirical method is original with respect to existing studies about customer co-creation, given the use of real brands in the experimental design. On the one hand, this methodology can be used to test effects of co-creation activities on many different brands. On the other hand, it can be used to test the effects of branding strategies on co-creation initiatives.

4.7 Conclusions.

Positive brand-related experiences arise in a variety of contexts. Authors find that these experiences are associated with important marketing outcomes, such as satisfaction and brand loyalty (Carù, and Cova, 2003; Brakus, Schmitt, and Zarantonello, 2009). As a result, the notion of experiential value, viewed as the personal value that consumers attribute to experiences, has gained ground. Experiences are, today, based on a more active role of consumers. Thanks to the growth of the Internet, consumers can interact more with brands and can influence more the brands' value, given that more interactive communication is allowed.

Given this background, the design of experiences becomes an increasingly important component of a marketing strategy. Co-creation can be viewed as a new type of experience for consumers. In this Chapter, we showed how it can provides consumers with experiential value.

This empirical study sheds initial light on a potentially important under-researched area: to what extent can marketers employ co-creation activities to increase brand experience? We can answer that, given two brands, Pringles and Philadelphia, co-creation activities can lead to higher brand experience. This notion contributes to the literature about consumers' experiences.

The contribution given to the literature about co-creation is more important. First, this study represents one of the few in this literature performed with the use of real and established brands. Second, findings builds a new bridge on the relationship between product innovation and brand management. This new focus highlights the opportunity to use co-creation not only in order to have new products more in line with consumers' needs, but also to improve product-brand associations. Third, the study demonstrates that co-creation can be employed as part of an integrated brand management plan, in accordance with other strategies related to brand positioning. In sum, a distinctive brand positioning can be obtained, given the effects of co-creation on consumer behavior.

Beyond the positive effects just mentioned, we should also consider the potential downsides of co-creation activities that emerge from this study. First, given that social interaction contributes to the effects of co-creation on brand experience, we raise doubts about whether the positive effects of co-creation without interaction are sufficient or not. In substance, we do not know the threshold beyond which experiential value is sufficiently determined in co-creation activities.

Other potential downsides are related to the case of brands perceived as intrinsically utilitarian. Effects of these brands on co-creation activities deserve more attention in future research. Given the use of utilitarian brands, do co-creation activities produce low experiential value, do not produce experiential value at all or destroy experiential value? This is an important question to answer.

Finally, our study has several limitations. First of all, we highlight limitations in external validity. These limitations regards the use of two specific brands, taken from the FMCG marketplace and active only in the food industry. Hence, this study shows that co-creation activities influence brand experience in the context of FMCG and food, but it is unsure whether this also holds for co-creation activities in more engineered, technological product domains.

When product technology is more complex, we expect that brand experience is more influenced by the real co-creators' product competence (not only the perceived one). In some cases, it is possible that co-creators perceive more experiential value because they are more able to suggest appealing ideas (e.g. in case of co-creation of motor engines). In other cases, co-creators need to be able to suggest appealing ideas, given that companies invite only highly skilled co-creators (e.g., in case of co-creation of a computer software). Hence, future research should examine the effects of co-creation on brand experience in other product domains. It is also important to better elucidate the process, whereby experiential value is shaped by co-creation activities.

A second limitation regards the treatment conditions. Given the research objective to understand whether brand experience is influenced more by a scenario *with* co-creation than a scenario *without* it, the whole

experiment was mostly conceived in terms of “black and white” situations (co-creation vs. no co-creation; interaction vs no interaction), while in the real world more “grey” situations happen. In some cases, indeed, companies ask co-creators’ ideas concerning only some characteristics of the final product rather than a comprehensive new product idea. For example, companies might invite co-creators to conceive a particular exterior design, while they develop internally the core product concept. It is also possible to allow co-creators *to only select* a new product idea among many company’s ideas. Future research should analyze how such different situations affect brand experience.

A third limitation concerns this study’s main dependent variable, brand experience. The present study applies a comprehensive conceptualization of brand experience. However, this comprehensive concept can be disentangled in more specific concepts. Experiences, indeed, may be quite diverse in nature. Future research should conceptually and empirically establish different views on brand experience. A qualitative research, in this case, would be promising.

4.8 Appendix.

4.8.1 First scenario: involvement in co-creation without interaction.



We are launching a campaign about a new product and we are looking for new astonishing flavours.

We would like your suggestions.

At the moment Pringles' Potato Chips flavours are:

1. Barbecue	2. Cheddar Cheese	3. Chili and Cheese	4. Chili and Lemon
5. French Onion	6. Honey Mustard	7. Jalapeno	8. Baked Potato
9. Memphis BBQ	10. Pizza	11. Ranch	12. Salt and Vinegar
13. Sour Cream and Onion	14. Original		

You can check on our website...but we hope you have already tasted some of them.

We want You to suggest us a new potato chips' flavour, which might interest you and your friends. Tell us also **why**, you think, we should promote your new flavour.

To do so, You can search info on the internet, **but you cannot interact with others.** You can do this for the next 30 minutes.

Please write here your suggestions and few comments supporting them. You can also draw pictures.

4.8.2 Second scenario: involvement in co-creation with interaction.



We are launching a campaign about a new product and we are looking for new astonishing product flavours.

We would like your suggestions.

At the moment Pringles' Potato Chips flavours are:

1. Barbecue	2. Cheddar Cheese	3. Chili and Cheese	4. Chili and Lemon
5. French Onion	6. Honey Mustard	7. Jalapeno	8. Baked Potato
9. Memphis BBQ	10. Pizza	11. Ranch	12. Salt and Vinegar
13. Sour Cream and Onion	14. Original		

You can check on our website...but we hope you have already tasted some of them.

We want You to suggest us a new potato chips' flavour, which might interest you and your friends. Tell us also **why**, you think, we should promote your new flavour.

To do so, You can search info on the internet **and interact with others**. You can do this for the next 30 minutes.

Please write here your suggestions and few comments supporting them. You can also draw pictures.

4.8.3 Third scenario: involvement in a market research.



We are collecting consumer feedbacks about Pringles' products and we wish yours, too.

For you information, Pringles' product flavours are:

1. Barbecue	2. Cheddar Cheese	3. Chili and Cheese	4. Chili and Lemon
5. French Onion	6. Honey Mustard	7. Jalapeno	8. Baked Potato
9. Memphis BBQ	10. Pizza	11. Ranch	12. Salt and Vinegar
13. Sour Cream and Onion	14. Original		

Please, answer the following questions about Pringles' products.

1. Which of the following flavours have you ever tasted?

Barbecue	Cheddar Cheese	Chili and Cheese	Chili and Lemon
French Onion	Honey Mustard	Jalapeno	Baked Potato
Memphis BBQ	Pizza	Ranch	Salt and Vinegar
Sour Cream and Onion	Original		

2. Do You think that these flavours are enough?

Flavours are enough	You should add, at least, other two flavours	You should add, at least, other five flavours	You should add, at least, other ten flavours
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3. Which of these flavours do you like the most? (you can indicate more than one flavour).

Barbecue	Cheddar Cheese	Chili and Cheese	Chili and Lemon
French Onion	Honey Mustard	Jalapeno	Baked Potato
Memphis BBQ	Pizza	Ranch	Salt and Vinegar
Sour Cream and Onion	Original		

4. Which of these flavours do you dislike? (you can indicate more than one flavour).

Barbecue	Cheddar Cheese	Chili and Cheese	Chili and Lemon
French Onion	Honey Mustard	Jalapeno	Baked Potato
Memphis BBQ	Pizza	Ranch	Salt and Vinegar
Sour Cream and Onion	Original		

4.8.4 Measurement items.

1. **Brand experience (BE) – Adapted from Brakus, Schmitt, and Zarantonello, (2009).**

Scale: strongly disagree/ strongly agree (1-7)

1. This brand makes a strong impression on my visual sense or other senses.
2. I find this brand interesting in a sensory way.
3. This brand does not appeal to my senses (reverse).
4. This brand induces feelings and sentiments.
5. I do not have strong emotions for this brand (reverse).
6. This brand is an emotional brand.
7. I engage in physical actions and behaviors when I use this brand.
8. This brand results in bodily experiences.
9. This brand is not action oriented (reverse).
10. I engage in a lot of thinking when I encounter this brand.
11. This brand does not make me think (reverse).
12. This brand stimulates my curiosity and problem solving.

2. **Hedonic vs utilitarian dimensions of consumer's attitude toward the brand (HED) – adapted from Voss, Spangenberg, and Grohmann, (2003).**

Utilitarian – semantic differentials (1-7):

1. effective / not effective
2. helpful / not helpful
3. functional / not functional
4. necessary / not necessary
5. practical / not practical

Hedonic – semantic differentials (1-7):

1. not fun / fun
2. dull / exciting
3. not delightful / delightful
4. not thrilling / thrilling
5. unenjoyable / enjoyable

3. **Involvement in co-creation activities (INVCO) – adapted from Pham, and Avnet, (2004).**

Scale: strongly disagree/ strongly agree (1-7)

1. You took the new product development tasks seriously.
2. You really took part in the performed tasks as if You actually needed to do it.
3. You took extra care in making a good evaluation of the new product.

4. Interaction (INT)– adapted from Sicilia, Ruiz, and Munuera, (2005).

Scale strongly disagree/ strongly agree (1-7)

1. The performed tasks enabled a two-way communication with others.
2. The performed tasks were interactive.
3. The performed tasks kept your attention high.

5. Brand involvement (BRINV) – adapted from Voss, Spangenberg, and Grohmann, (2003).

Scale: strongly disagree/ strongly agree (1-7)

1. I attach great importance to this brand.
2. One can say that this brand interests me a lot.
3. This brand is a topic which leaves me totally indifferent (reverse).

6. Perceived competence – adapted from Spreitzer, (1995).

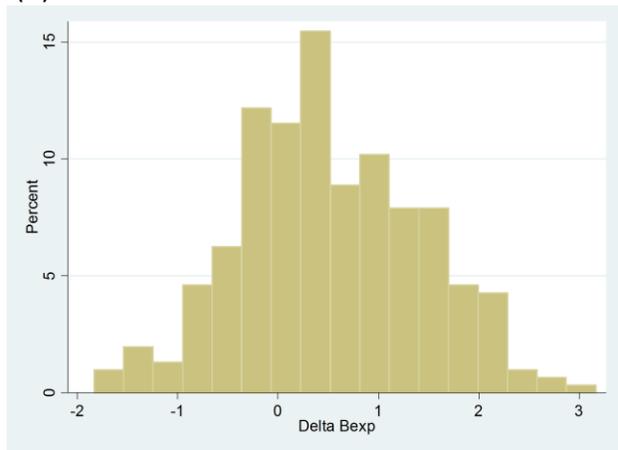
Scale: strongly disagree/ strongly agree (1-7)

1. I feel competent enough to suggest new product characteristics.
2. I feel that I have the relevant knowledge and expertise to make sound product evaluations.
3. I had difficulties evaluating the products properly (reverse).

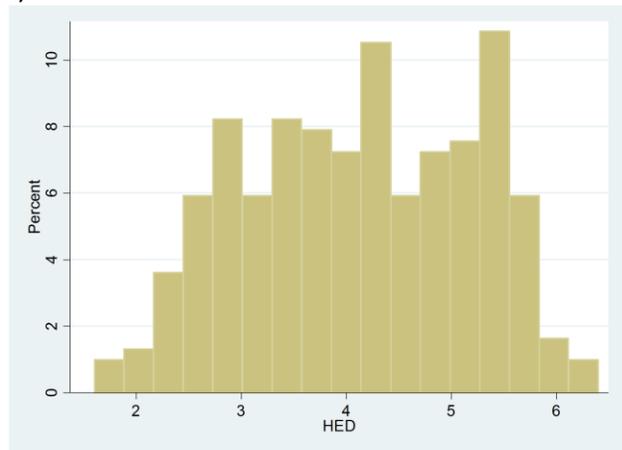
4.8.5 Distributions of variables in this study.

Figures 1-7 show distribution of variables in the sample. Figure 1 shows distribution of the variation of brand experience (Delta Bexp, Mean = 0.52, Std. Dev. = 0.90). Figure 2 shows distribution of hedonic dimension of consumers' attitudes (HED, Mean = 4.11; Std. Dev. = 1.08): it is possible to notice two peaks, because two different hedonic dimensions toward two different brands are measured. Figure 3 shows distribution of involvement in co-creation activities (INVCO, Mean = 4.05; Std. Dev. = 1.06). Figure 4 shows distribution of perceived interaction (INT, in Figure 4, Mean = 3.41; Std. Dev = 1.24).

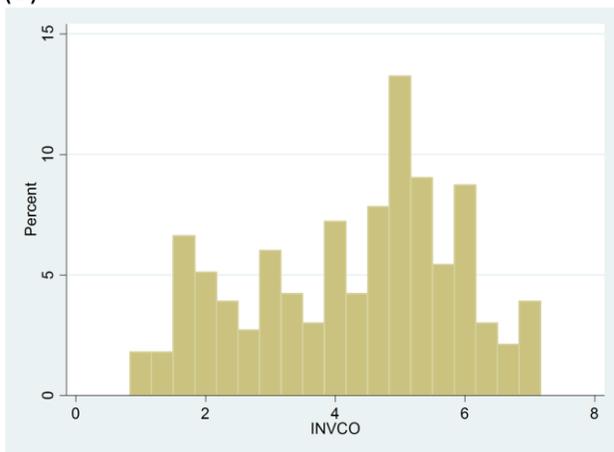
(1)



(2)



(3)



(4)

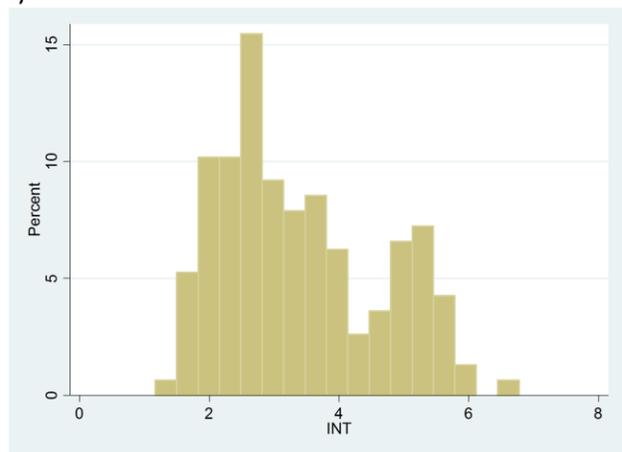
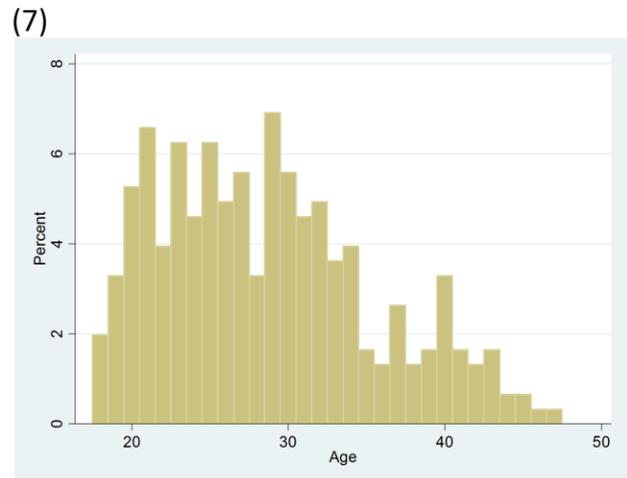
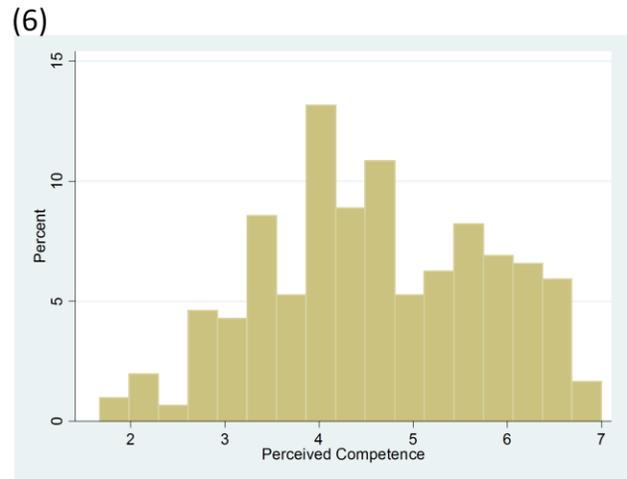
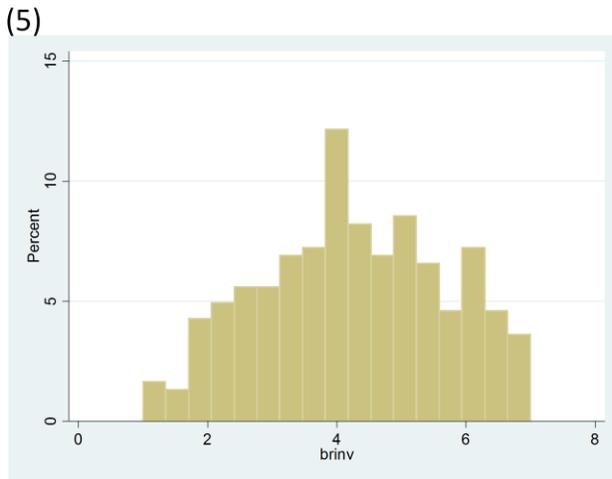
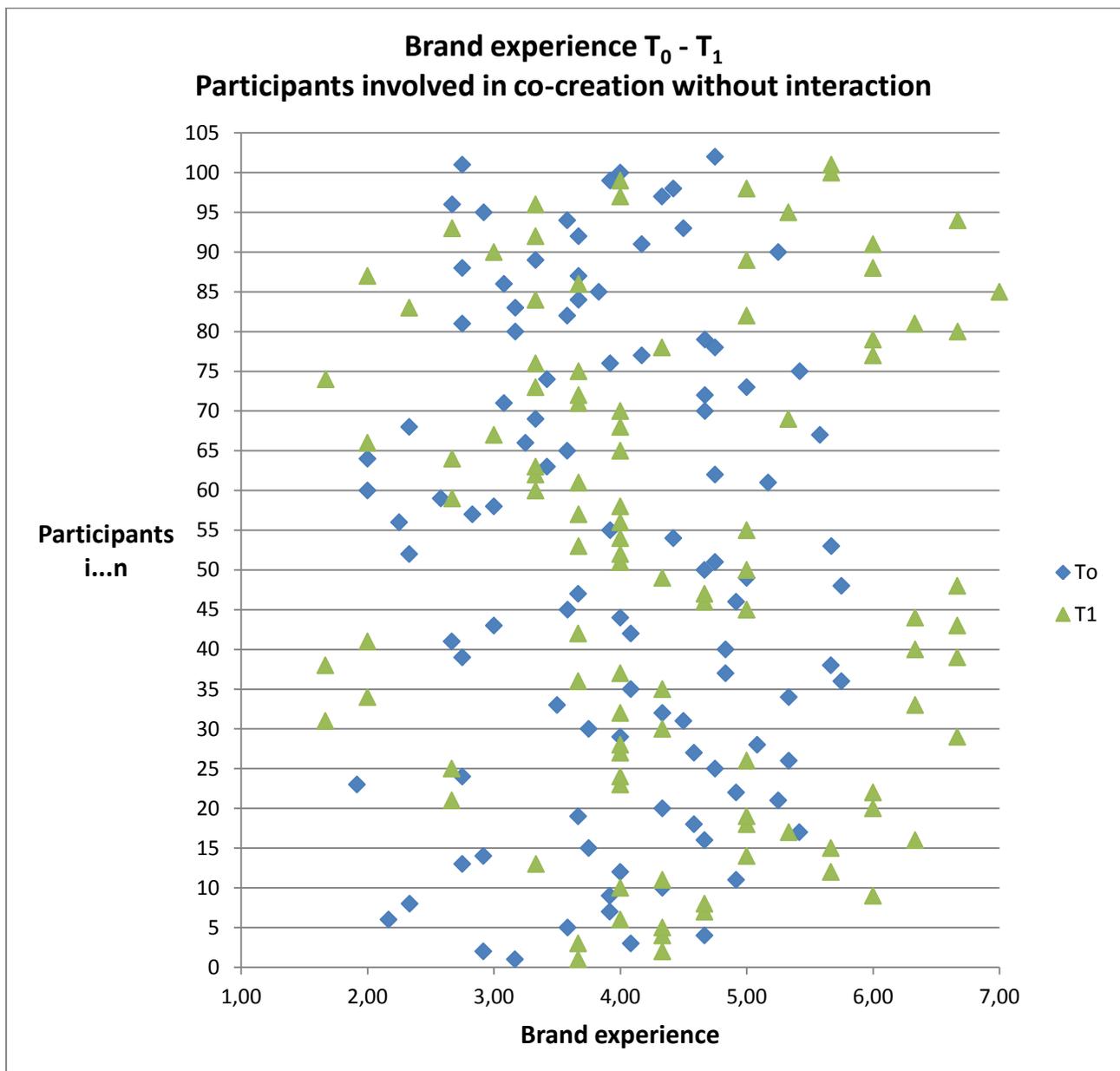


Figure 5 shows distribution of brand involvement (BRINV, Mean = 4.23; Std. Dev. = 1.36). Figure 6 shows distribution of consumers' perceived competence (Perceived Competence, Mean = 4.62; Std. Dev. = 1.26). Finally, Figure 7 shows distribution of age (Age, Mean = 28.63; Std. Dev. = 6.79).



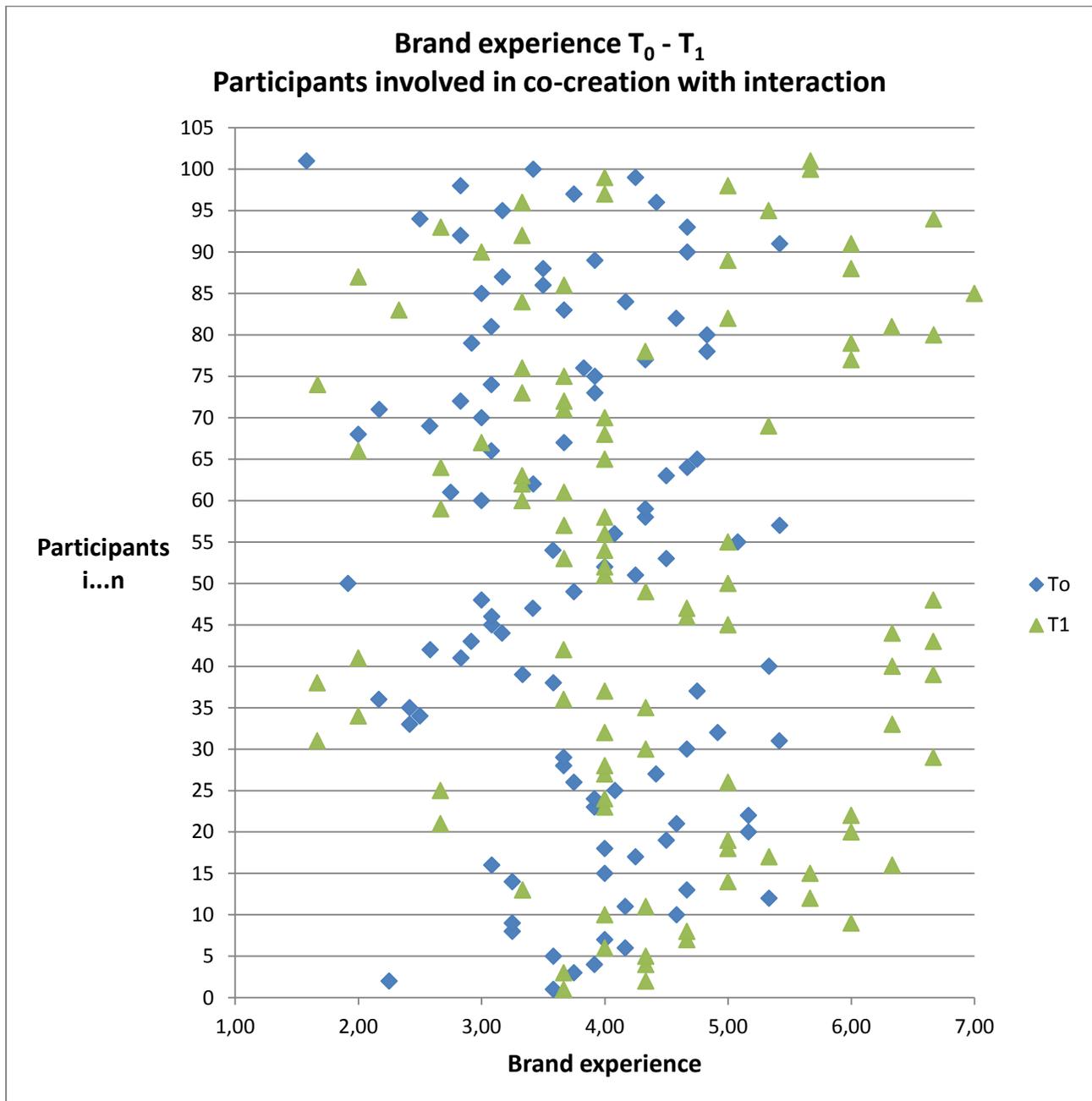
4.8.6. Variation of brand experience $T_0 - T_1$: scenario 1.

The Figure below shows how participants in scenario 1 evolved their brand experience from $T_0 - T_1$. The vertical axe reports participants_(i...n), while the horizontal axe reports participants' brand experience (on a scale 1-7). Blue points represent participants' brand experience before experimental tasks, while green points represent participants' brand experience after experimental tasks.



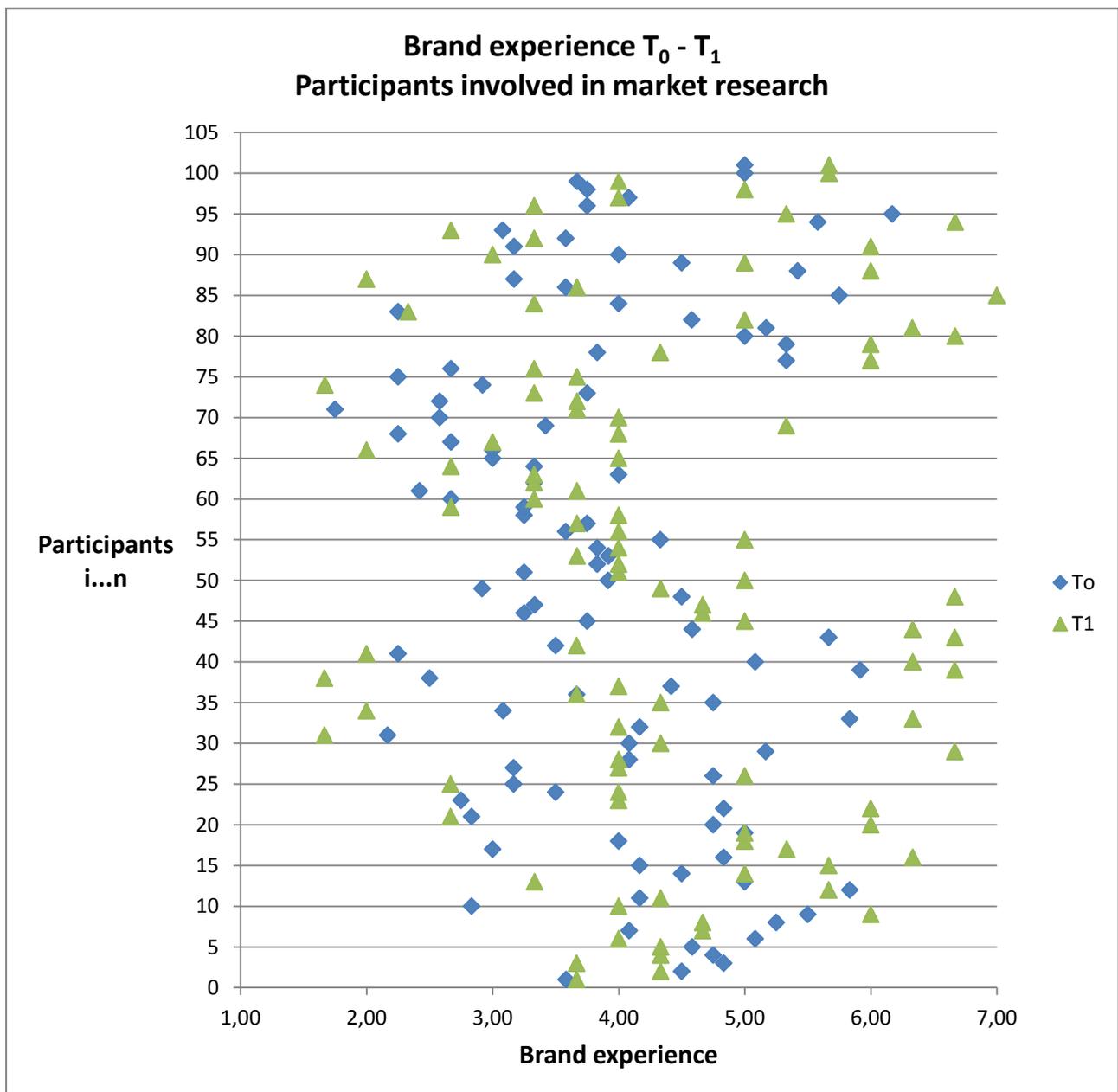
4.8.7 Variation of brand experience $T_0 - T_1$: scenario 2.

The Figure below shows how participants in scenario 2 evolved their brand experience from $T_0 - T_1$. The vertical axe reports participants_(i...n), while the horizontal axe reports participants' brand experience (on a scale 1-7). Blue points represent participants' brand experience before experimental tasks, while green points represent participants' brand experience after experimental tasks.



4.8.8 Variation of brand experience $T_0 - T_1$: scenario 3.

The Figure below shows how participants in scenario 3 evolved their brand experience from $T_0 - T_1$. The vertical axe reports participants_(i...n), while the horizontal axe reports participants' brand experience (on a scale 1-7). Blue points represent participants' brand experience before experimental tasks, while green points represent participants' brand experience after experimental tasks.



CHAPTER 5

Conclusion.

Customer co-creation represents a promising option for the creation of new products more in line with customers' needs (O'Hern, and Rindfleisch, 2009). The collaboration between consumers and firms can be directed toward multiple objectives: product development, product refinement, selection of product components and characteristics. Given that consumers ask for more participative forms of consumption and product use, co-creation activities are enabled to fulfill this need. Today, many firms finally understand that it is time to give customers a more active role in NPD (Prahalad, and Ramaswamy, 2000; von Hippel, 2005; Sawhney, Verona, and Prandelli, 2005). This new role can easily take place on-line, in community-based systems, where co-creators can share personal opinions about products. It is, thus, essential for companies to understand how to manage such environments and to analyze which are the conditions supporting them and their more likely consequences.

In this highly relevant research area, this doctoral dissertation sheds light on ways to organize and manage co-creation activities, by pointing out several effects on consumer behavior. This research is needed to improve the understanding of the underlying managerial mechanisms of such activities.

In Chapter 2, the effects of co-creation activities on R&D and Marketing strategy are examined. This is an important open issue. In Chapter 3, the effects of trust are analyzed, leading the understanding of how several company characteristics affect consumer behavior in co-creation activities. Finally, in Chapter 4 experiential aspects of co-creation are introduced. These aspects are related not only to the co-created products but also to

the relevant brands. This demonstrates that there is an interesting (and probably under-estimated) research area about the relationship between innovation-related activities and brand-related ones.

Since each Chapter is based on a separate study and already includes a detailed section about the discussion of findings and contributions, we would not repeat those sections here. Rather, the main findings of each Chapter are summarized in next Section and in Table 5.1. Then, in Section 5.2, managerial implications of these studies are illustrated. Finally, in Section 5.3 an agenda for future research is suggested.

5.1 Summary of findings.

The main research issues addressed in this doctoral dissertation are not directed toward the understanding of the potentials of co-creation activities, but toward the understanding of how to manage and improve these potentials. In response to this general research gap, we investigated (1) how co-creation activities affect R&D and Marketing procedures, (2) whether and how trust influences consumer behavior in co-creation activities and (3) whether there is a relationship between co-creation and brand experience. Table 5.1 summarizes research questions, theories, research methods and contributions from the studies presented in each Chapter.

In Chapter 2, we presented a study about theory development on the examination of the effects produced by co-creation activities on R&D and Marketing. This study provides several contributions:

1. The study examines how co-creation activities can contribute to two main firm's objectives: the generation of new knowledge and the management of customer engagement behaviors. Given the first general objective, co-creation activities specifically provides the generation of new knowledge through an higher understanding of customer needs and the collection of new product ideas from co-creators. About the second general objective, co-creation activities specifically encourage engagement behaviors from customers, in terms of entertainment, emotional reactions, branding activities and viral dynamics.

2. The study shows how these two objectives, knowledge generation and engagement behaviors, are interrelated: the more customers are engaged, the more they generate knowledge flows; the more knowledge flows are generated, the more customers are motivated to engage.
3. The study develops a set of theoretical propositions, to draw attention on factors leading to the generation of new knowledge and to the management of engagement behaviors.

In Chapter 3, we introduced the concept of consumers' trust. We argue that this concept is highly relevant in co-creation activities, given the building of a relationship between co-creators and the company. This relationship is affected by trust in different ways. To analyze these effects, an experimental research design was developed by inviting consumers to co-create cakes with a company. The results of this experimental setting provide interesting findings:

1. In the condition of intermediate trust, consumers are willing to spend for the new product more money than in both the conditions of low and high trust.
2. Trust has a positive effect on the consumers' willingness to participate to collaboration activities with the firm; hence, trust is critical for the development of customer knowledge.
3. Consumers' word-of mouth intentions and attitudes toward the new product are independent from the level of trust.

In Chapter 4, we introduced experiential aspects of co-creation and examined their effects on brand experience. Through another experimental research setting, effects of co-creation activities on brand experience are tested. We found that:

1. Co-creation activities positively affect consumers' brand experience.
2. Social interaction among consumers amplifies the positive effects of co-creation on brand experience.
3. The effects of co-creation activities on brand experience are higher, the more the relevant brand is perceived as a hedonic brand.

Table 5.1. Overview of research findings.

	Chapter 2	Chapter 3	Chapter 4
Research Questions	<ul style="list-style-type: none"> How do co-creation activities affect R&D and Marketing strategy 	<ul style="list-style-type: none"> How does consumers' trust influence the effects of co-creation activities on consumer behavior? 	<ul style="list-style-type: none"> Do co-creation activities affect brand experience?
Theories	<ul style="list-style-type: none"> Customer co-creation Knowledge generation in NPD Customer engagement 	<ul style="list-style-type: none"> Customer co-creation Trust 	<ul style="list-style-type: none"> Customer co-creation Experiential marketing Brand experience
Methods	<ul style="list-style-type: none"> Theory Development 	<ul style="list-style-type: none"> Data collected through experimental research design with consumers. Use of different market situations. Multivariate regression analysis. Moderation analysis. 	<ul style="list-style-type: none"> Data collected through an experimental research design. Use of different brands. Multivariate regression analysis. Moderation analysis.
Contributions	<ul style="list-style-type: none"> Co-creation serves two main firm's objectives: the generation of new knowledge and the management of engagement behaviors. The two mentioned objectives are interrelated: 1) the more customers are engaged, the more they generate knowledge flows; 2) the more knowledge flows are generated, the more customers are motivated to engage. Several specific factors lead to the generation of new knowledge and customer engagement behaviors. 	<ul style="list-style-type: none"> In the condition of intermediate trust, consumers are willing to spend for the new product more money than in both the conditions of low and high trust. Trust has a positive effect on the consumers' willingness to participate to collaboration activities. Hence, trust is critical for the development of customer knowledge. Consumers' word-of-mouth intentions and attitudes toward the new product are independent from the level of trust. It is important that companies specify beforehand which are their desired objectives in co-creation activities. The methodology of research developed to test the hypotheses can be used to examine the effects of co-creation activities in many different market situations. 	<ul style="list-style-type: none"> Co-creation activities positively affect consumers' brand experience. Social interaction among individuals amplifies the positive effects of co-creation on brand experience. The effect of co-creation on brand experience are higher, the more the relevant brand is perceived as hedonic. Co-creation can be used to build a bridge between innovation and brand management: co-creation activities generate a positive "halo" effect on the brand, beyond that on the specific product. The methodology of research can be used to test effects of co-creation activities on different brands. It can be also used to test branding strategies in co-creation activities.

5.2 Managerial implications.

The involvement of consumers in co-creation activities can be an important source of ideas and support to new products (Prahalad, and Ramaswamy, 2000). This involvement provides, indeed, new forms of creativity and knowledge generation, that can help companies develop more diversified and innovative products and services. Thus, resources and capabilities from consumers can integrate firm's internal resources and capabilities (von Hippel, 2005).

The ideas exposed in Chapter 2 encourage firms to evaluate positively this integration. On the one hand, this integration can increase the level of knowledge companies have about the market and customers' needs. Also technological advances can be obtained, given the competence of co-creators in many product-related topics. Continuous collaboration with consumers can maximize these types of benefits. On the other hand, involvement of consumers in co-creation activities makes them more engaged in co-created products. Engaged customers are more willing to support firm's new products and, for this, are also more willing to contribute to firm's activities (van Doorn et al., 2010).

To promote appealing co-creation activities, firms should coherently align their organizations to assimilate contributions coming from these external actors. The direct contact with the customer base is critical. For this reason, firms should provide ad-hoc touch-points, on-line and off-line. Given the consumers' reliance on multiple sources of information, co-creation activities require coordination among all the organizational procedures.

But, managers should also take into consideration the impact of contextual conditions. The importance of co-creators' trust toward the company shows how contextual conditions influence consumer behavior in co-creation activities. About this point, the study presented in Chapter 3 shows how unlikely highly trusted companies can increase their products' perceived value through co-creation. Higher product value can be

perceived in co-creation activities with companies that create trust at an intermediate level. In this situation, it is possible that consumers view co-creation as an opportunity for increasing product value.

Finally, managers can leverage on experiential aspects of co-creation activities for increasing product and brand experiences. Product and brand experiences are important because they affect relational, non-economic aspects of consumption and are related to positive marketing outcomes, such as satisfaction and brand loyalty (Carù, and Cova, 2003, Brakus, Schmitt, and Zarantonello, 2009). Companies aim to provide customers with distinctive experiences mainly during the search, purchase and consumption of products, while also the development of new products can be a pleasant experience. Managers can use this option in differentiation strategies. Differentiation of products and brands can be obtained in the NPD by providing different co-creation tasks and by increasing the level of social interaction among co-creators.

5.3 Directions for future research.

The analysis of the factors affecting consumer behavior in co-creation activities is such an open and young research area, that many research gaps still need to be explored. We would now provide specific indications for future research.

Given the interrelations between knowledge generation and engagement behaviors, future research should study organizational configurations of R&D and Marketing procedures to exploit these interrelations. Research on organizational behavior in co-creation activities can be highly relevant. The outline of the two pillars in Chapter 2 emphasizes the presence of several synergies. Future research should investigate when, where, and how such synergies can be developed. Contiguous to this research area is the study of partnerships among companies to jointly develop co-creation activities. Another under-researched area is related to exogenous variables that can affect the organization of co-creation activities. Previous research found that

environmental uncertainty increases the need for higher R&D – Marketing integration (Gupta and Wilemon 1991). Environmental uncertainty can have a similar effect on co-creation activities.

Given trust – co-creation dynamics, future research should analyze how trust moderating effects change over time. It is possible that consumers adapt their trust beliefs after the involvement in several different co-creation initiatives and this adaptation should influence their behavior. While we considered trust as an exogenous variable, future research might include it as an endogenous one.

Research is also needed to show how marketing instruments affect trust beliefs in co-creation activities. This area of research is interesting because it should lead to the examination of ways to influence prior contextual conditions (e.g. prior trust beliefs) through managerial actions (e.g. marketing instruments) performed in co-creation activities.

Given the effects of co-creation on brand experience, future research should lead to the understanding of factors responsible for these effects. In this respect, important questions are: why does co-creation affect brand experience? How should managers design co-creation activities in order to maximize brand experience? Answers to these questions might better elucidate the process through which co-creation activities affect brand experience. The understanding of this process should lead to a more specific characterization of experiential elements of co-creation.

Finally, future research should develop ways to improve our experimental design and to make it more adherent to reality. First of all, our experimental design is based on “black and white” comparisons (co-creation vs no-creation), while it would be more realistic to use a continuous or mixed framework. For instance, co-creation activities (1) can regard a whole new product or just some components; (2) can or cannot be supported by professionals; (3) can consist of open-ended or closed tasks. Hence, it is possible to develop empirical settings that examine all these different situations.

Another issue concerns external validity of our findings. Although samples of consumers involved in our research settings were randomly selected, they were all taken from the UK. About this, future research should examine samples of consumers from other markets (i.e. from other European countries or the US). Given our focus on FMCG industries, future research should also test whether our results hold in more technology-intensive and engineered product domains.

Finally, we encourage scholars to employ non-experimental research methods in order to study co-creation activities in more natural environments. About this, qualitative studies would be promising.

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