Motives for customers to engage in co-creation activities

Author: Sander Ophof
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands
s.g.h.ophof@student.utwente.nl

ABSTRACT: The focus of this paper is on the identification of motives for customers to engage in co-creation activities. Co-creation is the collaborative creation of value between a firm and the customer, an increasingly used method in new product development. The literature review shows six relevant motivational factors. A conceptual model has been derived from the finding in the literature. Empirical research has been based on this model. Results show that the Learning and Hedonic factor are on average highly rated. The Personal factor is strongly associated with the perception towards co-creation which influences participation. The findings are discussed with other results in the literature and are found to be to a certain extent comparable. Firms can use the insights provided in this paper to more effectively engage customers into co-creation activities while the paper as well contributes and incrementally build on existing knowledge on the topic of co-creation.

Supervisors: 1st E. Constantinides
2nd H.G. van der Kaap

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1. INTRODUCTION

1.1 Background

Recent developments in technologies have led to opportunities for organizations to increasingly engage with consumers via the web, make use of the creativity of consumers and provide empowerment to consumers (Berthon, Pitt, Plangger & Shapiro, 2012). The development of Web 2.0 can be seen as a driver behind these new opportunities.

1.1.1 Web 2.0

Web 2.0 is a notion concerned with changes in the technical infrastructure of the Web, which allow for new features in websites, tools and other applications. Web 2.0 has changed the way in how the Web is being used. While traditionally one could find static content on the web that was being created by a vast amount of individuals or groups, Web 2.0 developments enabled various types of users to create user-generated content in participative and collaborative environments (Kaplan & Haenlein, 2010).

O'Reilly (2007) defines Web 2.0 as:

> the network as a platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences. (p. 17)

This definition illustrates that Web 2.0 benefits from network effects and in particular network externality, i.e. the more users a network has, the higher the value of the network is for its users. In addition to this, user-generated content is of importance for Web 2.0 and social media increasingly allow for more user-generated content.

1.1.2 Social media

Social media can be seen as an evolution from this Web 2.0 development as it uses the underlying principles and technical foundations of Web 2.0 to create platform networks that allow for the creation and sharing of user-generated content among its users (Berthon et al., 2012). For example, social networks such as Twitter and Facebook allow for reaching significant numbers of users and thus customers at once. In addition to this, engaging via social media is perceived as cost-effectively, especially compared to traditional focus groups of organizations.

Being able to make use of engagement via the web, creative consumers and utilizing customer empowerment allows for co-creation with customers. Actively using the "voice" of the customer is likely to enhance the new product development processes in organizations provided that it is effectively being used. It is therefore seen as an essential external resource for new product development (von Hippel, 2009). In turn, it may increase the overall performance of an organization if it is able to effectively co-create with its customers. Innovation projects which largely rely on external developments have shorter development times and demand less investments than similar internal R&D projects (Mansfield, 1986).

1.2 Research problem

While the added value and opportunities of these technologies and social networks are seen by organizations and as such increasingly used, little is known about what the specific underlying rationale is for customers to initiate in co-creation processes. Research has identified customer segments and motivators that are likely to be involved in co-creation. Segments are innovators, lead users, emergent customers and market mavens while the motivators that play a role in co-creation are financial, social, technical and psychological (Hoyer, Chandy, Dorotic, Krafft & Singh, 2010), hedonic and personal (Katz, Blumler & Gurevitch, 1974). However, despite these forms of identification of concepts that play a role, underlying motives for co-creation have not been discussed extensively in the literature. This is underlined by Hoyer et al. (2010, p. 289), by stating that we need "a better understanding of needs, wants, preferences, and the motivation of different segments of co-creating consumers". In addition to this, other researchers (Woodruff & Flint, 2006; Payne, Storbacka & Frow, 2008) as well come to the conclusion that based on existing research little is known about how customers engage in the co-creation of value.

1.3 Research question

As the above research problem illustrates there is a need to gain insight into what thrives customers to co-create with firms. Subsequently, the research objective that this paper wants to address is finding motives for customers to co-innovate via social media. In relation to this the research question is formulated as follows:

> *"What are the motives for customers to engage in co-creation activities?"*

From the introduction and the research question a set of sub questions can be derived: What is co-creation? What are systems of value creation? What is the role of social media in co-creation? How is co-creation positioned within new product development? Which factors are motivators for co-creation activities? Are these factors associated with perception towards co-creation and how? Is there a link between perception and participation? These sub questions will be addressed in each of the subsections of the literature review and in the analyses of the results to get understanding of the concept of co-creation.

1.4 Relevancy

The paper contributes to the existing pool of knowledge, as it focuses on a research gap that is proposed in the literature by other authors. This research gap is concerned with identifying the underlying motivations for customers on the basis of theory that has been previously described in the literature. The outcomes of the paper might provide scientists with new insights or strengthen their existing theories and thoughts. Overall, by closing the research gap, one is able to get a better understanding of the concept of co-creation as a whole.

In a professional environment one may use the insights provides in the paper to create or re-create the current interactions between customers and the corresponding organization in terms of online co-creation. Organizations new to co-creation and social media could take note of the results while constructing social media strategies that in turn may be more effectively applied due to the insights provided in this paper. This is idem for marketing and/or R&D departments that want to capture customer ideas and foster collaboration and be more effective in doing so.

2. LITERATURE REVIEW

To improve the understanding of the underlying motives behind co-creation, the literature review will address theories and existing knowledge on what is related to co-creation. As a result, the literature review section will respectively focus on the topic of co-creation, value creation systems, the role social media have in co-creation processes, new product development (and the position of co-creation within it) and the identification of motivation factors which tend to increase one's willingness to co-create.

2.1 Co-creation

Co-creation is interchangeably used with concepts such as co-innovation, user innovation and customization (Kristensson & Matthing, 2008; Prahalad & Ramaswamy, 2004). With regard to such concepts, users are often seen as an actor or resource in the innovation processes of a firm. Co-creation is however explicitly focused on the collaborative creation of value between a firm and a customer. Innovation may however still be the result of co-creation, but the collaborative creation of value does not necessarily have to lead to innovation.

Co-creation is concerned with the creation of value between a firm and its customer(s) in a collective context. Kambil, Friesen and Sundaram (1999) proposed the definition for co-creation as co-creation of value by a firm's customers. Sanders and Stappers (2008) see co-creation as an act of collective creativity. They further illustrate this by underlining that it is a form of creativity which two or more people share with each other, while Zwass (2010) speaks of co-creation as "the participation of consumers along with producers in the creation of value in the marketplace" (p. 13). Vargo, Maglio and Akaka (2008) underline the reciprocal and mutually beneficial relationship between the firm and the customer in terms of knowledge and skills by describing the co-creation of value as manufacturers applying their knowledge and skills in the production and branding of the good, and customers applying their knowledge and skills in the use of it in the context of their own lives.

O'Hern and Rindfleisch (2010) address the definition of co-creation from the perspective of new product development, by stating that co-creation is "a collaborative new product development (NPD) activity in which consumers actively contribute and select various elements of a new product offering". While new product development and co-creation are indeed linked to each other, this definition is open for criticism. This paper does not believe that co-creation is only a new product development activity, but that it may be used on other levels of the firm as well. Co-creation is believed to go beyond the boundaries of new product development. For instance, it may as well be used for improving existing products and for feedback on organizational processes of firms. The different levels where co-creation can be used on is also underlined by Wind and Mahajan (1997). They see co-creation as something that exists on different forms and levels of the organization, i.e. new product development, product customization and product improvement.

2.2 Systems of value creation: shifting from company-centric towards customer-centric

In terms of the traditional producer/customer relationship, a customer is seen as a distinct element in Porter's value chain (Porter, 1980). The customer is not utilized in the creation of value, but as an actor that plays a role in the exchange of value. Value is thus internally created by the company inside its value chain. It can be considered as a company-centric perspective on the creation of value.

According to Kambil et al. (1999) the use of co-creation adds a new dynamic to the producer/customer relationship. It results in the direct use of the customer in the production or distribution of value. This means that value creation is as well targeted on the input of customers, leading to a customer-centric perspective on the creation of value.

Vargo and Lusch (2004) mention two ways of thinking in relation to value creation. They make the distinction between two views, the traditional goods-centered dominant logic (Goods-Dominant, G-D) and the emerging service-centered dominant logic (Service-Dominant, S-D). These two views can to a certain extent be compared with the company-centric and customer-centric perspective towards value creation. Resources play a central role in both the G-D and S-D logic, as they are seen as the primary unit of exchange between a firm and the customer.

2.2.1 Company-centric perspective

In a company-centric perspective towards value-creation, roles between the firm and the customer are separated from each other. Where firms solely manufacture and provide services, the customer is only related to consuming or receiving the good or service. Firms try to search and gather for customer needs and base their products and services on that information, while customers make a selection in the offerings that firms have. As a result of this, there is no collaboration between the firm and the corresponding consumer. In terms of the company-centric perspective, the interaction between the firm and the consumer is therefore not an act and source of value creation in a collaborative manner (Normann & Ramirez, 1993), while the communication is one-sides as well, i.e. from the firm towards the customer. The creation of value is rather realized via processes that are managed by the firm.

Prahalad and Ramaswamy (2004) have studied this interaction between firms and consumers and found that the interaction between the firm and the consumer is the locus of economic value extraction by the firm (and the consumer) and that the interaction is the basis of consumer experience. The locus of economic value extraction for the firm is concerned with fulfilling the exchange of a transaction with a consumer and as such capturing value for the firm while on the other hand the customer may as well extract value from this exchange due to consumer-to-consumer communications and dialogues that inform and give a certain perspective for consumers in product and service selection (Prahalad & Ramaswamy, 2004). The basis of the consumer experience in the interaction focuses on the creation of an experience that firms perceive to be of value for customers. While customer may be involved in this experience within the company-centric perspective, it is of importance to understand that it is the firm that constructs this experience and manages it to be primarily company-centric as it facilitates in connecting the customer towards the firms' offerings (Prahalad & Ramaswamy, 2004.)

2.2.2 Customer-centric perspective

Within the customer-centric perspective, the role of the customer is more intensively utilized. A customer is actively involved in the value creation processes of the firm. Prahalad and Ramaswamy (2002) consider the customer to be an integral part of that system. In that system, a customer has the power to be of influence in the process of value creation. Moreover, customers' needs can reach beyond established industry standards and in doing so the customer has the opportunity to choose for other companies to share their thoughts and information with and as such be of a competitive threat to other companies. In addition to this, interactions between the customer and the firm are likely to occur at multiple points in time in the process of value co-creation (Prahalad & Ramaswamy, 2002) rather than having only a focus on a transactional exchange in comparison to the company-centric perspective. Within this experience of the customer, interactions may for instance involve responses to feedback and other forms of input.

2.2.3 Goods-Dominant logic (G-D)

With regard to the G-D logic, it are operand resources which are the key primary unit of exchange. Vargo and Lusch (2004) describe operand resources as ¨resources on which an operation or act is performed to produce an effect¨. People exchange for goods, so the goods serve as an operand resource (Vargo & Lusch, 2004). The G-D logic, as described by Vargo and Lusch (2004) sees goods as end products that are ready for exchange to

be commercialized towards the receiver, i.e. the customer that selects the offering. As such, the customer is seen as an operand resource as well, as customers are marketed by business to select their offering and thus to facilitate in the transactional exchange of the good. Interactions between the firm and the customer are thus concerned with successfully completing the transaction. The firm wants to capture a profit by exchanging the good with embedded operand resources, while the customer is keen to fulfill in his or her need. The source of economic growth is therefore realized through covering the value of the resources and a surplus in order to make a profit and maintain the sustainability of the business (Vargo & Lusch, 2004).

2.2.4 Service-Dominant logic (S-D)

In the S-D logic, operant resources are the key primary unit of exchange. These resources are described ¨as resources that are employed to act on operand resources¨ (Vargo & Lusch, 2004). For example, an operant resource is the knowledge someone possesses.

Goods in the S-D logic view are not seen as end products, but as what Vargo and Lusch (2004) describe as ¨transmitters of operant resources¨. They are utilized by other operant resources to function as appliances in value-creation processes (Vargo & Lusch, 2004). Interesting in relation to co-creation is the role of the customer within the S-D logic. Whereas the firm manages the creation of value in the G-D logic, the customer is seen as a co-creator in the S-D logic (Vargo & Lusch, 2004). For example, if a customer provides feedback on the design of a certain product, that feedback may be used in the design process in the research and development department of a firm. The customer is then used as an operant resource that is employed to act on an operand resource, i.e. the physical good. Since the customer is a co-creator of value, value is also determined by the customer and the perception of the customer depends on the value-in-use of the product or service (Vargo & Lusch, 2004). In this light, Vargo and Lusch (2004) argue that firms are only able to make a value proposition for a customer. Interactions between the firm and the customer are in turn focused on the relationship between them and the participation of the customer in co-creation activities with the firm (Vargo & Lusch, 2004). The source of economic growth in the S-D logic is one of obtaining wealth through the application and exchange of specialized knowledge and skills (Vargo & Lusch, 2004). These competences subsequently represent the right to the future use of the operant resources (Vargo & Lusch, 2004).

2.3 Role of social media in co-creation

As Section 1 illustrates, the development of new technologies and in particular the development of social media have led to opportunities for firms to involve their customers interactively and on a more frequent basis to make use of user-generated content and in turn to co-create with each other. According to Piller, Vossen and Ihl (2012) social media may lead to improvements in the fields of the effectiveness and the efficiency of co-creation by lowering the cost of interaction among participants and by allowing a larger number of participants to contribute to a co-creation initiative. As such, the heterogeneity of individuals and differences across the knowledge they poses increases (Piller et al., 2012). This is seen as an important factor of success in innovation management (Laursen & Salter, 2006). Advancements that have been made recently in the fields of three-dimensional graphics, bandwidth volumes and network connectivity led to the advent of virtual worlds (Kohler, Füller, Matzler & Stieger, 2011).

In addition to this, social media have changed the role of the customer. Due to the public nature of the Web, the sharing possibilities that users have on social media networks and the little amount of control that firms have about what users post on the Internet, the consumer has increasingly obtained power and as a result more influence. This influence can be exercised on various levels, from the initial buying process to after sales. Prahalad and Ramaswamy (2002) identify five different powers, because of the consumer becoming more connected via the Web: information access, a global view, networking, experimentation and activism. These powers enable the consumer to gather more information about a product, service or a company in a global context and for the gathering of individuals in order to form groups and potentially exercise even more influence. A recent example of this (August 2013) is the case with Neckermann and the Xbox One (Emerce, 2013). Neckermann, traditionally offering products through a mail order catalogue, had accidentally placed the Xbox One product on its webshop with a price error (349 euros instead of 499 euros). Initially Neckermann relied on a so-called manifest error in which the firm communicated that the price difference was so large that it should be clear that the offer was not right. However, because of consumer dissatisfaction about Neckermann's actions to resolve the issue, consumers gathered through social media networks and in particular a topic on the Tweakers.net forum. As a result of this, the Consumentenbond (the Dutch Consumers' Association) came into action. The Consumentenbond argued that he price difference is not so large that it should have been clear that the offer was not right, partly based on price history of the former Xbox 360. Neckermann has responded to this decision, communicating that it will try to deliver the product at the price of 349 euros. To date, it is still unknown how the situation ends.

Social media impact the relationships between customers and firms, but as the above example illustrates also among the customers themselves, something that is as well identified by Piller et al. (2012). Social media has the capability of changing market structures and relations between market actors to a large extent and social networking allows the integration of a peer into the actual co-design process (Piller et al, 2012).

While social media technologies enable different opportunities that firms can exploit at their best interest, social media can also have a negative impact on the firm. Piller et al. (2012) discuss that a customer may become increasingly entrepreneurial the lower the market entry barriers are. Traditionally, high market entry barriers are a reason for customers to provide ideas to firms (Lettl/Gemünden, 2005). Those customers that use social media in an effective way can more easily take on tasks like marketing and distribution, allowing them to possible avoid co-creation activities with certain companies (lower entry barriers) and to become entrepreneurs themselves (Piller et al, 2012).

2.4 New product development and the position of co-creation

The new product development process is a process that is commonly described as a process for the creation of new products or services that is concerned with four different stages: ideation, the actual product development, commercialization and post-launch.

2.4.1 Shift from closed to open innovation

Traditionally, new product development is seen as an internal activity of a firm (O'Hern and Rindfleisch, 2010). However, the shift from businesses using closed innovation systems towards open innovation systems (Chesbrough, 2003; Chiaroni, Chiesa & Frattini, 2010) enable new product development processes to deploy outside (as well as in-house) pathways to the market (Chesbrough, 2006). In a closed innovation system firms come up with creative ideas, develop new products and commercialize internal ideas via purely internal R&D activities (Enkel, Gassmann and Chesbrough, 2009). On the other hand, in an open

innovation system firms adapt the view that they have to work with smart people inside and outside the firm, commonly being expressed as "not all the smart people work for us" (Chesbrough, 2003). In open innovation systems, the R&D activities cross the boundaries of the firm (Chesbrough & Vanhaverbeke, 2008). The role of the customer in an open innovation system is one of a participant in the R&D activities and corresponding new product development processes of a firm (O'Hern & Rindfleisch, 2010).

2.4.2 Co-creation and new product development

While some may tend to think that co-creation is mainly of use in the product development or ideation stages, co-creation can as well be of value in the other stages. Hoyer et al. (2010) state that co-creation is valuable for all the stages of the new product development process. In relation to the post-launch stage, experienced customers may for instance help other customers on forums to discuss products/services or solve problems and issues rather than only being a provider of ideas in the ideation stage.

Nambisan (2002) identifies three different customer roles that are linked to the stages in the new product development process. In the ideation phase, the customers' role is that of a resource (1). The customer is mainly used then to gather ideas and information from. Lengnick-Hall (1996) also sees the customer a supplier of wealth to firms. In the design and development stage, the customer is seen as a co-creator (2). Subsequently, in the commercialization and post-launch stage (by Nambisan (2002) referred to as the product testing and the product support phase), the customer is seen as a user (3). What can be concluded from this is that this view is somewhat contrary to the view of Hoyer et al. (2010) as they see the customer as a co-creator in each of the stages.

Despite the potential of co-creation for firms, Nambisan (2002) also refers to the challenges it may bring for firms. Firms may run into management challenges, as new mechanisms may be needed to monitor and control for development of quality and efficiency (Lengnick-Hall, 1996) and to get co-creators integrated with internal NPD teams (Nambisan, 2002). As interactions take place from time to time and tend to increase with the degree of co-creation, these management mechanisms tend to be intense and frequent during co-creation (Sawhney & Prandelli, 2000). Customers that act as co-creators could also choose to abruptly stop with co-creating with the firm which tends to negatively influence the development processes of new products and services (Nambisan, 2002).

2.5 Motivations for co-creation

In order to trigger an individual to participate in co-creation, that individual needs to be motivated for co-creation. With regard to motivational theories, often a distinction is made between intrinsic and extrinsic motivations. Difficulties in motivating humans often lie in the differences that exist among individuals. Where one may be motivated specifically by intrinsic motivation, someone else may need a reward from his or her external environment and is as such triggered by an extrinsic motivation.

The next subsections will discuss the concepts of intrinsic and extrinsic motivation. Subsequently, the motivational factors that are commonly found across the literature will be used in an integrated research model which will be more elaborated on in Section 3. Factors found across the literature on motivation factors for co-creation are described below in Table 1. The general thoughts of these papers are used in the description of each factor in the upcoming sections.

Table 1. Relevant factors of motivation on co-creation.

Factors	Literature
Financial	Füller, (2006); Hoyer et al., (2010)
Learning	Füller, (2006); Hoyer et al., (2010); Katz et al. (named cognitive), (1974); Nambisan and Baron (named cognitive), (2009)
Hedonic	Katz et al., (1974); Nambisan and Baron (2009)
Personal	Katz et al., (1974); Nambisan and Baron (2009)
Social	Füller (2006); Hoyer et al., (2010); Katz, Blumler and Gurevitch, (1974); Nambisan and Baron (2009)
Psychological	Füller, (2006); Hoyer et al., (2010); Katz et al. (named cognitive), (1974); Nambisan and Baron (named cognitive), (2009).

2.5.1 Intrinsic motivation

Intrinsic motivation can be described as an inner feeling an individual has in relation to be motivated for a certain action or activity. Ryan and Deci (2000, p. 56) describe intrinsic motivation "as the doing of an activity for its inherent satisfactions rather than for some separable consequence. When intrinsically motivated a person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards."

What flows from this, is that intrinsic motivation exists in an individual. However, a motivation one has for a certain activity might not be a motivation for another activity. In addition to this, Ryan and Deci (2000) argue that next to existing in an individual, an intrinsic motivation also exists as a relation between the individual and the activity. In the context of co-creation, this can be related to whether someone finds a task interesting or not. A person that is interested in a certain task through his psychological needs is intrinsically motivated for that activity. What can be derived from this is, that in such situations, firms need to foster that intrinsic motivation of their customers where possible. For instance, by means of enabling and facilitating co-creation for those who are intrinsically motivated for it.

2.5.2 Extrinsic motivation

Extrinsic motivation is the opposite of intrinsic motivation. The definition by Ryan and Deci (2000, p. 60) on extrinsic motivation is about extrinsic motivation being "a construct that pertains whenever an activity is done in order to attain some separable outcome. Extrinsic motivation thus contrasts with intrinsic motivation, which refers to doing an activity simply for the enjoyment of the activity itself, rather than its instrumental value."

In some situations, it is not always evident whether one is intrinsically or extrinsically motivated. Ryan and Deci (2000) relate this to the degree of autonomy of an extrinsic motivation. This is illustrated by means of an example in the context of education.: "a student who does the work because she personally believes it is valuable for her chosen career is also extrinsically motivated because she too is doing it for its instrumental value (i.e. earning a higher income and well-being) rather than because she finds it interesting" (Ryan & Deci, 2000, p.60).

With regard to co-creation, a person can be extrinsically motivated when engaging in a successful co-creation activity leads to a financial reward, provided that he or she is not only driven by the interest in the task. In this situation an individual is motivated, because he or she attains a separable outcome as

described in the definition of Ryan and Deci (2000). That separable outcome is in this case a reward from the external environment, namely a financial reward.

2.5.3 Financial factor

The financial factor is concerned with one's motives to engage into co-creation when the individual earns a financial reward for doing so. That financial reward may be directly or indirectly and in the form of cash or for example intellectual property ownership. The adopted description of the financial factor is the one by Hoyer et al. (2010, p. 289) stating that the Financial factor is about "financial rewards, either directly in the form of monetary prizes or profit sharing from the firm that engages in co-creation with them, or indirectly, through the intellectual property that they might receive, or through the visibility that they might receive from or engaging in (and especially winning) co-creation competitions".

In practice, the latter could for instance be related to a manufacturer of jeans setting up an activity on Facebook that asks for personalized customer designs, of which one design may actually be used for commercial purposes, and as such earn the winning customer a financial reward.

2.5.4 Learning factor

With regard to the technology (knowledge) factor (in this paper referred to as the Learning factor), an individual may engage into co-creation when he or she can learn from or about the technology that facilitates a certain product or service or acquire other knowledge that may be perceived as valuable. Hoyer et al. (2010, p. 288) describe this factor as "one's desire to gain technology (or product/service) knowledge by participating in forums and development groups run by the manufacturer. Co-creators might reap important cognitive benefits of information acquisition and learning".

A concrete example of this may be the interest of an individual to obtain knowledge in a forum about a certain technology, suppose PHP (an objective-oriented programming language), for use in own personal (hobby) projects or for use in open-source software.

2.5.5 Hedonic factor

Nambisan and Baron (2009) refer to the hedonic benefits as "sources of highly interesting and pleasurable as well as mentally stimulating experiences" (p. 391). This factor is concerned with the pleasure one can obtain from doing a certain activity or task. One may choose to do a certain activity, because it can be for pure enjoyment or changing a state of mind.

2.5.6 Personal factor

According to Katz et al. (1974) the personal integrative factor is concerned with "benefits related to gains in reputation or status and the achievement of a sense of self-efficacy". The personal integrative factor shows to a certain extent similarities with the social and psychological factor. In terms of the social and psychological factor, this paper focuses more on status, belongingness (social), inner beliefs and values (psychological) one has. The personal integrative factor is more concerned with materialistic forms of personal motivation, i.e. the construction of an identity or to do things that are beneficially for one's personal use, and motivations that are particularly unique for a certain individual.

2.5.7 Social factor

The social integrative factor is referred to by Nambisan and Baron (2009, p. 391) as "the benefits deriving from the social and relational ties that develop over time among the participating entities in the virtual customer environment". According to Kollock (1999), social integrative factors are related to several benefits for the customer such as an including enhancement of a sense of belongingness or for instance enhancing the social identity.

In practice, one might consider to participate in a co-creation activity in order to become part of a community. Relationships are created with the firm, but might be constructed with other customers participating as co-creators as well. Those involved may benefit from these relationships such as an increased social status.

2.5.8 Psychological factor

The psychological factor is related to inner beliefs and values one has. The corresponding motivations that flow from this can be considered as an intrinsic motivation. Hoyer et al. (2010) report that about the psychological factor insufficiently is known. The authors argue on the basis of other research that "creative pursuits of co-creation are likely to enhance intrinsic motivation and sense of self-expression and pride, that acting creatively enhances positive affect and that some consumers may participate purely from a sense of altruism". To understand this more thoroughly, one may for instance think of an individual that has a strong affection with a certain brand, firm, product or service and has an inner feeling that out of solidarity he or she should be of value to that firm.

3. RESEARCH MODEL

3.1 Description

The conceptual model in this thesis and upon which the survey will be based is derived from the work of respectively Füller (2006); Hoyer et al. (2010); Katz et al. (1974); Nambisan and Baron (2009). The integration of these existing works leads to the identification of motivators. The factors identified in the literature, and previously mentioned in Section 2.5, are respectively financial, learning, hedonic, personal, social and psychological.

The combination of these factors of motivation lead to a certain perception that an individual has in relation to co-creation. If one is motivated by one or more of the factors or is expected to be so, the more positive one or more of the factors are, the more positive the perception is towards co-creation (Hoyer et al., 2010); Nambisan & Baron, 2009). In turn, the perception and underlying motives of an individual likely tend to determine whether one will participate in co-creation or not. This is considered a positive relationship as well, in which the more positive the perception towards co-creation is, the more likely it will be that participation in co-creation activities is higher. The work of MacKenzie, Lutz and Belch (1986) underlines this, as the authors found that there exists a relationship between the attitude one has and which consequences the individual takes based on that attitude. Figure 1 illustrates the conceptual model as described above.

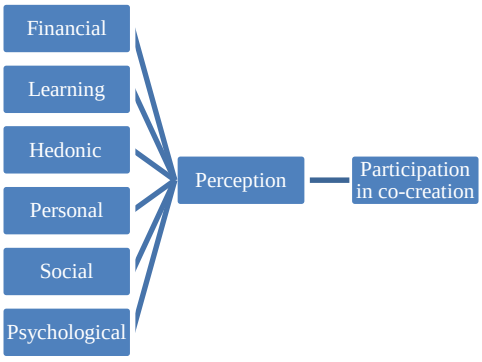

Figure 1. Conceptual research model for participation in co-creation.

One can observe from the research model that it consists out of various variables: motivations, perception and participation in co-creation. The motivations variable measures six different sub variables (each of the motivation factors), being financial, social integrative, technology (knowledge), psychological, hedonic and personal integrative motivations. These are independent variables. The perception and participation in co-creation are dependent variables.

Indicators for each of the factors have been based on several sources of literature. For the financial factor, the following indicators that will measure the financial motivation of an individual have been identified (Füller, 2006; Hoyer et al., 2010; Zwass, 2010): cash rewards, receiving product/services at no cost or at a discount, a job offer, compensation in equity and obtaining intellectual property ownership.

The Learning factor is measured in terms of one's possibility to learn through co-creation from and with others, to develop current/new skills, to acquire knowledge on product/services, to fulfill in a need for information and out of curiosity (Füller, 2006; Nambisan, 2002; Zwass, 2010).

The indicators used to measure the Hedonic integrative factor are concerned with one's ability to be entertained by the activity, to change the state of mind, to obtain satisfaction by improving a product or service and to enjoy and get relaxed by solving problems or coming up with ideas (Nambisan & Baron, 2009; Zwass, 2010).

The Personal integrative factor its indicators are identity construction, career advancement, having products/services that benefit personal use, signaling employers and investors and to compete with others (Füller, 2006; Zwass, 2010).

The Social factor indicators are concerned with forming new personal relationships, to enhance existing relationships, to be part of a community, to match with community norms, to get a certain social standing and recognition and to be of support (Füller, 2006; Hoyer et al., 2010; Zwass, 2010).

Psychological factor indicators are one's passion for a task, the inner need to return for something given or done, self-expression, self-esteem (and self-efficacy) and the challenge someone has in a co-creation activity (Füller, 2006; Zwass, 2010).

3.2 Hypotheses

As mentioned before in Section 3.1, the perception towards co-creation is expected to be positively influenced when the motivational factors are positively rated. Given these expectations, the following hypotheses are tested to determine whether there exist relationships between the factors and the perception and whether they are positively associated or not. For each of the factors, a hypothesis has been constructed. The hypotheses are constructed as follows:

Financial
H1: Financial motivations are positively related towards the perception to participate in co-creation.

Learning
H2: Learning motivations are positively related towards the perception to participate in co-creation.

Hedonic
H3: Hedonic motivations are positively related towards the perception to participate in co-creation.

Personal
H4: Personal motivations are positively related towards the perception to participate in co-creation.

Social
H5: Social motivations are positively related towards the perception to participate in co-creation.

Psychological
H6: Psychological motivations are positively related towards the perception to participate in co-creation.

Perception and Participation
H7: Perception is positively related towards the willingness of an individual to participate in co-creation.

4. METHODOLOGY

The methodology of the paper, used to answer the research question: "*"What are the motives for customers to engage in co-creation activities?",* is concerned with a literature review (including the construction of a conceptual research model) and empirical research, i.e. a questionnaire. This questionnaire is focused on measuring one's demographic characteristics, whether one recently participated in co-creation activities, which motives play a role, the perception one has towards co-creation and the participation in co-creation activities. The results of the questionnaire are analyzed to explore factors and examine relationships between the variables in the research model in Section 3. In addition to this, it is investigated whether the results correspond with what has been found in existing literature.

4.1 Sample

The questionnaire has been distributed among individuals that are mostly related to the private sphere of the author. As a result, most respondents are related to the University of Twente and Saxion Hogescholen Enschede. Other respondents are friends, family or acquaintances. This results into the sample being a convenience sample. The questionnaire was open for approximately one week during mid-October. The latter is related to the limited timeframe.

The total number of respondents have led to a sample size of 104. Among these respondents, 76 respondents are male and 28 are female, reflecting percentages of respectively 73,1% and 26,9%.

The sample consists out of 8 different nationalities, i.e. respondents originate from the Netherlands, Germany, China, Italy, France, Indonesia, Ecuador and the United Kingdom. 75 of the respondents are Dutch, whereas 23 are German. The rest of the nationalities each have counts of 1. The respondents are between 16 and 62 years old, while the mean age is approximately 23,4 years with a standard deviation of 7,005 years.

The type of education/occupation that the respondents attend or have attended is concerned with a Bachelor degree (WO) at a Research University (49%), a degree (Bachelor/Master) at University of Applied Sciences (HBO) (23,1%) or a Master degree (WO) at a Research University (13,5%). Other respondents attend or have attended a Ph.D. program (WO), Community College (MBO), high school (secondary education) or have a job.

Most of the respondents access the Internet through mobile devices, i.e. laptops, smartphones and tablets. The desktop is relatively less often used, although frequencies between tablet and desktop use are fairly negligible. On these devices, most respondents tend to be online for 1 to 3 hours (38,5%), followed by 4 to 6 hours (36,5%), and above 6 hours (20,2%) on average per day. Only five respondents are less than 1 hour online on average per day.

In terms of social media/social networking site use, Facebook is the most prominent social media channel that the respondents use. A total of 84 respondents, reflecting a percentage of 80,8%, have an account on Facebook and use it regularly. Other social

media channels that are respectively sometimes or regularly used by respondents are YouTube and LinkedIn. Most respondents use social media for entertainment purposes, to get informed about news and to stay in touch with friends and acquaintances. The amount of contacts/friends/followers that users commonly have on these social media range between 101 and 500 (63,5%).

4.2 Procedure

For the literature review, papers have been searched for on search engines such as Google Scholar and Scopus. On these search engines core keywords such as co-creation, customer motives, new product development, social media and value creation have solely and interchangeably been used. In turn, papers were selected on the basis of their title, the number of citations and their source. Additionally, based on that selection, abstracts and introductions have been scanned for its relevancy towards the research question and the sub questions central in this paper.

The questionnaire has been created via Google Form and has been publicized on Facebook, Twitter and sent via e-mail. Respondents were able to voluntarily decide whether they would participate in the questionnaire or not and no reward of any type was provided to any of the respondents. The questionnaire is set up as a test questionnaire. It primarily focuses on exploratory research that prepares for research at a larger scale, i.e. nationwide.

The structure of the questionnaire was as follows. At first, respondents were being asked questions concerning demographics, their use of the internet and whether they recently participated in co-creation activities. If the latter was answered with "No", respondents were send to a final page and were asked why they do not participate in co-creation activities and whether they would like to do so in the future and why. Those respondents that answered "Yes" were presented with questions concerning their motivations to why they engage in co-creation activities, which key aspect of a factor positively influences their perception towards co-creation and whether they tend participate in co-creation on one key aspect for each of the factors. For each of the factors identified in the literature several elements relevant to the literature have been tested (see Section 3.1) via Likert response scale questions with a 5-point format (1: Strongly Disagree, 5: Strongly agree and 1: Not at all, 5: Very Likely). Other questions relevant to demographics and activities have been answered through multiple choice questions and multi-select questions. The data obtained from the questionnaire have been recoded in Excel for use in statistical software and are in turn analyzed via Excel and SPSS. Each of the Likert scale items for a certain factor have been computed into new target variables combining the mean of all items per factor.

5. RESULTS

The Results section addresses the results based on the analyses that have been performed. Descriptive statistics about the results will be given and attention will be paid to those indicators that are important for a factor, the perception and participation. Subsequently, associations among variables will be tested, as proposed in the hypotheses in Section 3.2. In order to check the hypotheses, data has been analyzed via SPSS. The rationale behind using a certain test or way of working are based on histograms and scatter plots that can be found in the Appendix.

5.1 Descriptive statistics

In order to determine the reliability of the factors as described in the conceptual research model in Section 3, the Results section will first address the Cronbach Alpha values for each of the factors. The Cronbach Alpha is concerned with whether the measurement is accurate and thus the reliability of the measurement. It measures the internal consistency among the items in the questionnaire. Field (2009) reports that the Cronbach Alpha value is in terms of scale reliability the most common instrument measure.

Using statistical software in the form of SPSS, Cronbach Alpha values have been measured for each of the independent variable factors and the dependent variables of Perception and Participation. As Appendix A summarizes, the Cronbach Alpha's for the independent factors range from 0.700 to 0.870. The Cronbach Alpha's for respectively the constructs of Perception and Participation are 0.838 and 0.842. In social science research, a Cronbach Alpha of 0.7 or higher is commonly believed to be acceptable for the reliability of the measurement (Fornell and Larcker, 1981). Since all Cronbach Alpha's equal this value or are higher, one could say that the consistency among the measured items is relatively high.

While using descriptive statistics to determine the mean (arithmetic) and standard deviation of each of the factors, one can observe from Table 2 that the mean is the highest for the factors Learning and Hedonic (respectively approx.. 3.69 and 3.33 with corresponding standard deviations of approx. 0.793 and 0.821). The Social factor has the lowest mean around 2.93 with a standard deviation of about 0.85.

Table 2. Descriptive Statistics for each factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Financial	34	1,00	4,60	2,9765	1,03017
Learning	34	1,00	5,00	3,6941	,79275
Hedonic	34	1,00	5,00	3,3309	,85218
Personal	34	1,00	4,40	2,9706	,82113
Social	34	1,00	5,00	2,9314	,85489
Psychological	34	1,00	5,00	3,0588	,80983
Valid N (listwise)	34				

Looking more closely at the items that have been measured for each of the factors in Appendix B, one can observe that with regard to the *Financial* factor that participating in co-creation because of receiving a discount on a product or service is the highest rated item with a mean of 3.50 and SD of 1.187 (5-point Likert scale). For the *Learning* factor, several items are highly rated and lie close to each other, but participating to acquisite knowledge on product/services (mean 3.85, SD 1.077) is seen by respondents as the most important. Participating for entertainment purposes is the highest rated item for the *Hedonic* factor (mean 3.65, SD 1.041), but participating to enjoy solving problems or generating new ideas is as well highly rated with a mean of 3.53 and a SD of 1.187. In terms of the *Personal* factor, having products or services that are beneficially for personal use is seen as an important motivation (mean 3.62 and SD 0.985). Participating in co-creation to be of support out of solidarity is the highest rated item among the respondents for the *Social* factor. Finally, with regard to the Psychological factor respondents underline the importance of having a challenge (mean 3.35 and SD of 1.125).

In relation to whether one of the key aspects for each of the factors positively influences the perception someone has in terms of co-creation, then the key aspect concerning the Financial factor (earning a financial reward) is the highest rated item with a mean of 4.09 and a SD of 0.965. In addition to this, for the variable Participation the key aspect concerning the Financial factor is once again rated the highest with a mean of 3.85 and a SD of 1.158.

Being involved with a product, service or organization is of importance in one's willingness to co-create. 30 out of the 34 respondents indicate that they are more involved in co-creation

if they are familiar with the product. Respectively 26, 29, 26 19 and 24 respondents indicate this for being familiar with the brand, user of a product, customer of a brand, satisfied with existing products and being enthusiastic about the brand.

5.2 Association between the factors and perception

In order to determine whether there is an association among the factors and perception, correlation and an alternative association measurement can be used.

Pearson Correlation allows one to measure the strength of an association that is assumed to be linear between two quantitative variables. In order to allow for such a measurement, conditions have to be met. The variables have to be quantitative, the straight enough condition (linearity) has to be met and no extreme outliers should be present.

A nonparametric association in the form of Spearman's Rho allows one to determine an association between variables if the straight enough condition is not met or when extreme outliers are present. While using Spearman's Rho, the original data values get replaced with their ranks.

Provided by this, for each of the factors a scatter plot and histogram are created in order to identify whether the aforementioned conditions are met. Furthermore, a Shapiro-Wilk test has been performed (Appendix E). None of the variables have been found to be significant ($p < 0.05$) in this test. Hence, there is evidence to believe that in general the variables are normally distributed.

5.2.1 Financial

Based on Appendix C, one can see that the histogram of the Financial factor is unimodal, but skewed to the left and that an outlier is present at 1 with a frequency of 4. The scatter plot (Appendix D) shows this outlier and other outliers as well. Next to this, the linearity of the Financial factor can be questioned as well. Investigating this outlier more intensively shows that 1 of the 34 respondents rated the financial factor high (4 to 5 points on a 5-point Likert scale) and rated the other factors with 1 and subsequently answered the same for the Perception variable.

Given the above, Pearson Correlation is likely not the correct measurement to use for the Financial factor, as it is a nonresistant measure which implies that it is sensible for a lack of linearity and outliers. Provided by this, Spearman's rho will be used to measure the association between Financial and Perception.

5.2.2 Learning

What flows from Appendix C, is that the histogram for the Learning factor shows a fairly bimodal distribution. Besides, the histogram is skewed to the left and an outlier is present. The scatter plot (Appendix D) shows outliers as well and the linearity is assumed not to be present, as the scatter plot shows to a certain extent a curve.

Provided by this, Pearson Correlation is once again not the correct measurement to use for the Learning factor. Hence, Spearman's rho will be used to measure the association between Learning and Perception.

5.2.3 Hedonic

The histogram in Appendix C shows that the histogram for the Hedonic factor is reasonably symmetric and unimodal. The scatter plot in Appendix D shows linearity with no extreme outliers.

Pearson Correlation seems to be an appropriate instrument to measure the association between Hedonic and Perception.

5.2.4 Personal

The histogram for the factor Personal in Appendix C can be considered as reasonably symmetric and unimodal The scatter plot in Appendix D shows linearity with no extreme outliers.

Pearson Correlation seems to be an appropriate instrument to measure the association between Personal and Perception.

5.2.5 Social

The histogram for the factor Social in Appendix C can be considered as reasonably symmetric and unimodal The scatter plot in Appendix D shows linearity with no extreme outliers.

Pearson Correlation seems to be an appropriate instrument to measure the association between Social and Perception.

5.2.6 Psychological

The histogram for the factor Psychological in Appendix C can be considered as reasonably symmetric and unimodal The scatter plot in Appendix D shows linearity with no extreme outliers.

Pearson Correlation seems to be an appropriate instrument to measure the association between Psychological and Perception.

5.2.7 Perception and Participation

The histograms for the variables Perception and Participation in Appendix C can be considered as reasonably symmetric and unimodal, the scatter plots in Appendix D for both variables show linearity with no extreme outliers.

Pearson Correlation seems to be an appropriate instrument to measure the association between Perception and Participation.

5.3 Measurement results of association

5.3.1 Financial and Learning

As Table 3 shows, while using Spearman's rho, the relationship between Financial and Perception seems at first a positive relationship. The strength of the relationship is however quite low as the result for Financial is: (Spearman's rho (Financial) = 0.254, n = 34, p < 0.074). The result for Learning is somewhat higher: (Spearman's rho (Learning) = 0.408, n = 34, p < 0.008).

Table 3. Spearman's rho for Financial and Learning on Perception.

Correlations

			Perception
Spearman's rho	Financial	Correlation Coefficient	,254
		Sig. (1-tailed)	,074
		N	34
	Learning	Correlation Coefficient	,408**
		Sig. (1-tailed)	,008
		N	34

**. Correlation is significant at the 0.01 level (1-tailed).

Table 3 shows that the Financial factor its correlation coefficient results in a relatively weak positive relationship, based on Evans' (1996) guide on the absolute value of "r". In addition to this, the correlation coefficient is not significant (1-tailed).. The relationship of Learning on Perception is moderately positive (Evans, 1996) and in addition to this significant at the 0.01 level.

The hypothesis **H1,** stating that there is a positive association between the financial factor and one's perception towards co-creation, is rejected. There is not enough evidence to belief that there is a positive association between the Financial factor and Perception.

Hypothesis **H2**, which is concerned with whether there is a positive association between the Learning factor and one's Perception towards co-creation, fails to reject. There is enough

evidence to belief that there is a positive association between Learning and Perception at the 0.01 level.

Since no significant positive association is found for hypothesis **H1**, it is of interest to examine the financial factor indicators in relation to the item of the Perception variable that is related to the Financial factor, i.e. the key aspect of earning a financial reward. While doing so, Table 4 illustrates that direct financial rewards have a positive correlation at the 0.01 and 0.05 level for respectively earning a cash reward and receiving a discount on a product/service. Indirect financial rewards, i.e. a job offer, equity offering and intellectual property ownership are not significant, while earning equity has a negative correlation on the Perception of a financial reward.

Table 4. Spearman's rho for Financial items on Financial Perception

Correlations

			Perception financial reward
Spearman's rho	Participate Earn cash reward	Correlation Coefficient	,558**
		Sig. (1-tailed)	,000
		N	34
	Participate receive discount on product/service	Correlation Coefficient	,366*
		Sig. (1-tailed)	,017
		N	34
	Participate earn possible job offer	Correlation Coefficient	,139
		Sig. (1-tailed)	,217
		N	34
	Participate earn equity	Correlation Coefficient	-,001
		Sig. (1-tailed)	,499
		N	34
	Participate obtain intellectual propertyownership	Correlation Coefficient	,179
		Sig. (1-tailed)	,156
		N	34

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

5.3.2 Hedonic, Personal, Social and Psychological

With regard to the correlations, it is of importance to note that in Section 5.2.1 one outlier has been detected that differs strongly from other respondents. While using correlation, it is therefore useful to examine the correlation with and without this respondent to investigate whether this influences whether the hypotheses are rejected or not. Table 5 illustrates the Pearson Correlation including the respondent (N = 34) and Table 6 illustrates the Pearson Correlation excluding the respondent (N = 33).

Table 5. Pearson Correlation for Hedonic, Personal, Social and Psychological on Perception (N = 34)

Correlations

		Perception
Hedonic	Pearson Correlation	,581**
	Sig. (1-tailed)	,000
	N	34
Personal	Pearson Correlation	,688**
	Sig. (1-tailed)	,000
	N	34
Social	Pearson Correlation	,497**
	Sig. (1-tailed)	,001
	N	34
Psychological	Pearson Correlation	,498**
	Sig. (1-tailed)	,001
	N	34

**. Correlation is significant at the 0.01 level (1-tailed).

The following results can be derived from Table 5: (Pearson (Hedonic) = 0.581, n = 34, $p < 0.001$), (Pearson (Personal) = 0.688, n = 34, $p < 0.001$), (Pearson (Social) = 0.497, n = 34, p = 0.001), (Pearson (Psychological) = 0.498, n = 34, p = 0.001).

Table 5 shows that for Hedonic, Personal, Social and Psychological on Perception the correlations range from 0.497 to 0.688. All of these correlations are significant at the 0.01 level (1-tailed). This means that a significant moderate positive relationship (Evans, 1996) has been found for Hedonic, Social and Psychological factors on Perception. The Personal factor on Perception can be described as a significant strong positive correlation (Evans, 1996).

Table 6. Pearson Correlation for Hedonic, Personal, Social and Psychological on Perception (N = 33)

Correlations

		Perception
Hedonic	Pearson Correlation	,492**
	Sig. (1-tailed)	,002
	N	33
Personal	Pearson Correlation	,629**
	Sig. (1-tailed)	,000
	N	33
Social	Pearson Correlation	,408**
	Sig. (1-tailed)	,009
	N	33
Psychological	Pearson Correlation	,397*
	Sig. (1-tailed)	,011
	N	33

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

The following results can be derived from Table 6: (Pearson (Hedonic) = 0.492, n = 33, $p < 0.002$), (Pearson (Personal) = 0.629, n = 33, p = 0.000), (Pearson (Social) = 0.408, n = 33, $p < 0.009$), (Pearson (Psychological) = 0.397, n = 33, p = 0.011).

Table 6 shows that for Hedonic, Personal, Social and Psychological on Perception the correlations range from 0.397 to 0.629. The Hedonic factors is still a moderately positive correlation, while the same goes for the Social factor. The Personal factor maintains its strong positive correlation while the Psychological factor decreased from a moderate to a weak positive correlation (Evans, 1996). Hedonic, Personal and Socials are significant at the 0.01 level (1-tailed), while the factor Psychological is significant at the 0.05 level (1-tailed). This means that again a significant positive relationship has been found between these factors on Perception. By leaving out the outlier the correlation values in turn decrease. However, while the positive relationship is slightly weakened for each of the factors, the positive relationships remains significant.

For both of the situations with N = 33 and N = 34, hypotheses **H3**, **H4**, **H5** and **H6** fail to reject. There is enough evidence to belief that Hedonic, Personal, Social and Psychological are positively associated with Perception. While N = 34, all correlations are significant on the 0.01 level. If N = 33, the Psychological factor is significant at the 0.05 level while the other factors remain significant at the 0.01 level.

5.3.3 Perception and Participation

Table 7 and Table 8 show that the Pearson Correlation between Perception and Participation is: (Pearson = 0.934, n = 34, p = 0.000) and (Pearson = 0.924, n = 33, p = 0.000). According to

Evans (1996), these can be considered as very strong positive correlations. For both of the situations, the hypothesis **H6** fails to reject. There is enough evidence to belief that Perception and Participation are positively associated with each other as the correlations are found to be significant at the 0.01 level.

Table 7. Pearson Correlation for Hedonic, Personal, Social and Psychological on Perception (N = 34)

Correlations

		Participation
Perception	Pearson Correlation	,934**
	Sig. (1-tailed)	,000
	N	34

**. Correlation is significant at the 0.01 level (1-tailed).

Table 8. Pearson Correlation for Hedonic, Personal, Social and Psychological on Perception (N = 33)

Correlations

		Participation
Perception	Pearson Correlation	,924**
	Sig. (1-tailed)	,000
	N	33

**. Correlation is significant at the 0.01 level (1-tailed).

5.4 Deterrents for co-creation

While the research question is concerned with what motivates customers to co-create in the context of social media, most of the respondents indicated that they had not recently participated in co-creation (N = 70). It is therefore interesting to investigate why these non-motivated co-creators did not recently participate in co-creation.

The non-motivated co-creators were asked what their reasons are to not participate in co-creation. About 30 respondents stated that they have a lack of time, which is the most prominent reason not to participate in co-creation. Besides having a lack of time, the second most important reason for respondents not to participate in co-creation is that they are satisfied enough with alternative products and services. These respondents feel no need to co-create with a firm to create product or services that match more with their needs. Another reason that commonly returns is that most respondents simply do not react to news or interactions of firms with regard to products and services.

The respondents were asked if they would be willing to engage in co-creation activities in the near future. 31 of the 70 respondents are interested to participate in co-creation in the near future against 39 of the respondents that are not interested. Respondents could address in a comment field whether they would do so or not.

Respondents who were interested to participate in co-creation in the near future mostly mentioned that they would be willing to improve products and services in order to enhance the use of it in their personal context. Other reasons are enjoyment, experiencing a co-creation process with a firm and to obtain rewards from it.

The respondents who were not interested to participate in co-creation and who are also not interested to participate in co-creation in the near future once again mentioned a lack of time and having no interest in it. Other respondents see the ratio between effort and gain as not being in their favor. Some simply do not believe in co-creation and stress that companies are not capable of running co-creation processes effectively on a large scale. One of the respondents was concerned with intellectual property rights and corresponding rewards, by mentioning that: *"If I was guaranteed that I would receive a fair reward for my contribution, I would participate. But I think that if I had a really good and unique product idea, I wouldn't share it with some big company because these are going to exploit the full potential of this idea and leave me with some ridiculously low amount of money as compensation."*

6. CONCLUSION AND DISCUSSION

The content of this paper first introduced the reader to the emergence of the concept of co-creation and the lack of understanding in current research in terms of what motives customers have to engage in co-creation with firms. The research question was therefore formulated as: *"What are the motives for customers to engage in co-creation activities?"* Next to this, sub questions were concerned with: What is co-creation? What are systems of value creation? What is the role of social media in co-creation? How is co-creation positioned within new product development? Which factors are motivators for co-creation activities? Are these factors associated with perception towards co-creation and how? Is there a link between perception and participation?

As a result of these questions, a literature review has given an overview of co-creation, value creation systems, the role of social media in co-creation, new product development (and the position of co-creation) and motivations for co-creation. Based on the literature review, a conceptual research model has been constructed that is based on the work of different authors. Empirical research has been carried out with this research model in mind, by using an online survey to identify motivations and measure associations between the variables in the model. Finally, the paper presents the results of the survey.

The literature review shows that co-creation is in its essence concerned with the collaborative creation of value between a customer and the firm. Different perspectives exist with regard to value creation systems. While traditionally perspectives on the value creation were company-centric, nowadays an increasingly number of value creation systems in firms is customer-centric (Prahalad & Ramaswamy, 2002). Vargo and Lusch (2004) make the distinction between a Goods-Dominant Logic and a Service-Dominant Logic, two ways of thinking that can be compared to respectively the company-centric and customer-centric perspective. New technology developments and in particular developments in social media enable possible improvements in the fields of the effectiveness and the efficiency of co-creation by lowering the cost of interaction among participants and by allowing a larger number of participants to contribute to a particular co-creation initiative (Piller et al., 2012). With regard to new product development, co-creation is valuable for all the stages of the new product development process (Hoyer et al., 2010). The shift from closed to open innovation systems allows for co-creation with more connections and pathways to the external environment that are supported by social media. However, the use of co-creation in new product development can also pose challenges for managing the new product development process as it may stress management processes and mechanisms (Lengnick-Hall, 1996; Nambisan, 2002; Sawhney & Prandelli, 2000). In the light of motivations, a distinction can be made between intrinsic and extrinsic motivations (Ryan & Deci, 2000). Factors that are found to be of importance for one's motivation to engage in co-creation activities are: Financial, Learning, Hedonic, Personal, Social and Psychological (see Table 1 in Section 2.5).

The results show that among a total sample size of 104, 34 respondents recently participated in co-creation activities. The

motivations that have the highest arithmetic mean are Learning and Hedonic. A study of Luo (2002 has as well revealed that entertainment (1) and informativeness (2) have as well a positive relationship towards attitude and that this positive attitude leads to participative behavior. Respondents rate these factors as important for their participation in co-creation. The Learning factor may be explained by the nature of the sample. Since most respondents tend to be highly educated, it is likely that they attach value to developing their knowledge and learning capabilities. Looking more closely at the items upon which the factors are based, items that are highly rated among the respondents are earning a financial reward, acquisite knowledge on product/services, entertainment, having products or services that are beneficially for personal use, to be of support for firms (out of solidarity) and having a challenge. This partly equals the finding of Füller (2006) who found that consumers engage in virtual new product development, because of: curiosity, dissatisfaction with existing products, intrinsic interest in innovation, to gain knowledge, to show ideas or to get monetary rewards. Associations between the factors and Perception are in general found to be moderately positive. This implies that the higher someone rates an item or a factor on itself, the more positive the Perception is towards co-creation. The Personal factor has the highest correlation, something that is as well identified by Füller et al. (2010), as the authors found product improvement (i.e. improved products benefit personal use) as one of the three motives important for participation in co-creation. In the results of this paper, despite the Financial factor, all other factors are found to be positively associated with the Perception one has in relation to co-creation. The correlation between Perception and Participation is very strong. This seems obvious, as the more positive the Perception is the higher the Participation is. The Financial factor and Perception could be separate from the Perception of the other variables. The results may indicate that Perception has a distinct dimension for the Financial factor and that Perception should not be identified as one construct for all factors. This is also a possible sign of improvement for further research and questionnaire construction to identify this.

Interesting is the large percentage of customers that did not recently participate in co-creation (67%). Deterrents for co-creation are a lack of time, disinterest, a small ratio between effort and gain, customer doubts about the co-creation capabilities and competences of firms and concerns about the organization of intellectual property rights. However, 31 of the 70 non co-creators indicate that they would be filling to participate in the future, primarily for the sake of enjoyment, obtaining experiences and receiving rewards.

The sample size of the questionnaire is an important limitation in this research. Out of the 104 respondents, only 34 had recently participated in co-creation activities. Provided by this, the results may not be representative for larger populations. In addition to this, the sample is a convenience sample. Respondents are mostly related to the private sphere of the author and are relatively highly educated.

In addition to this, the survey could be improved in terms of its operationalization. For each of the factors, between 4 to 6 items have been measured on a 5-point Likert scale. Increasing the number of items may allow for a more detailed interpretation of the results and make it possible to increasingly nuance the conclusion, provided that Cronbach Alpha values remain sufficient.. Especially in terms of Participation, reasoning could be more thoroughly examined.

The results provides firms and other organizations with information on what motivates customers to engage in co-creation activities. Policies, procedures and approaches with regard to co-creation can be matched with the results in this paper to allow for a more effective and efficient use of customers' input in the co-creation process. In order to do so, a firm should be aware that all six factors are relevant. To influence the perception of an individual with regard to co-creation, specific attention could be paid to the Personal factor, as it is found in this sample to be the factor that is the most positively correlated to Perception. Using this together with Learning and Hedonic motivations may trigger the interest of consumers and customers. Although not appropriate for a situation with a sample size of 34, it is worth to mention that the Personal factor also remains the only significant factor in a multiple regression analysis. If firms are able to let an increasingly number of customers participate in co-creation, that is likely to improve the diversification and hence the quality and value of co-creation for the firm. In order to effectively co-create, Kambil et al. (1999) suggest that firms should define objectives, select the right co-creators, be clear about rights and expectations, control the channels, outsource co-creation (to avoid risks and de-stress management mechanisms), provide customers with capabilities for co-creation and managing incentives.

Given the small sample size, future research should mainly be addressed with investigating the motives of customers, but at a larger scale. By doing so, results are more representative and therefore of increased value for both science and practice.

In addition to this, it is of value to examine other variables that may influence the motivations, perceptions and participation of individuals. Education is likely to be a lurking variable with regard to the conceptual research model and may lead to different motivations for different parts of society. The questionnaire as included in this paper should therefore be seen as a test questionnaire of which its goal is to be explorative. Another point of interest may be to research whether motivations differ based on the type of customer. Hoyer et al. (2010) have identified innovators, lead users, emergent customers and market mavens as customer types willing to be engaged in co-creation. For firms, each type of customer may require a different approach in terms of co-creation.

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8. APPENDIX

8.1 Appendix A: Cronbach Alpha

8.1.1 Financial factor

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,870	,869	5

Inter-Item Correlation Matrix

	Participate Earn cash reward	Participate receive discount on product/service	Participate earn possible job offer	Participate earn equity	Participate obtain intellectual propertyownership
Participate Earn cash reward	1,000	,642	,651	,443	,461
Participate receive discount on product/service	,642	1,000	,522	,449	,424
Participate earn possible job offer	,651	,522	1,000	,762	,652
Participate earn equity	,443	,449	,762	1,000	,705
Participate obtain intellectual propertyownership	,461	,424	,652	,705	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Participate Earn cash reward	11,65	18,114	,658	,565	,852
Participate receive discount on product/service	11,38	18,910	,602	,447	,864
Participate earn possible job offer	12,00	16,182	,810	,709	,813
Participate earn equity	12,26	17,170	,728	,669	,835
Participate obtain intellectual propertyownership	12,24	17,276	,682	,537	,846

8.1.2 Learning factor

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,792	,793	5

Inter-Item Correlation Matrix

	Participate learn through co-creation	Participate develop current/new skills	Participate acquisite knowledge product/services	Participate fulfill need information	Participate out of curiosity
Participate learn through co-creation	1,000	,649	,489	,166	,243
Participate develop current/new skills	,649	1,000	,533	,265	,340
Participate acquisite knowledge product/services	,489	,533	1,000	,593	,390
Participate fulfill need information	,166	,265	,593	1,000	,672
Participate out of curiosity	,243	,340	,390	,672	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Participate learn through co-creation	14,85	10,493	,519	,469	,771
Participate develop current/new skills	14,88	9,925	,609	,501	,739
Participate acquisite knowledge product/services	14,62	9,940	,679	,553	,716
Participate fulfill need information	14,85	11,341	,538	,614	,763
Participate out of curiosity	14,68	11,195	,519	,495	,768

8.1.3 Hedonic factor

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,779	,777	4

Inter-Item Correlation Matrix

	Participate entertain myself	Participate change my state of mind	Participate offer satisfaction improving product service	Participate enjoy
Participate entertain myself	1,000	,454	,262	,377
Participate change my state of mind	,454	1,000	,556	,524
Participate offer satisfaction improving product service	,262	,556	1,000	,619
Participate enjoy	,377	,524	,619	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Participate entertain myself	9,68	7,983	,434	,238	,795
Participate change my state of mind	10,47	6,681	,651	,432	,688
Participate offer satisfaction improving product service	10,03	7,060	,610	,461	,711
Participate enjoy	9,79	6,350	,646	,453	,691

8.1.4 Personal factor

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,700	,680	5

Inter-Item Correlation Matrix

	Participate construct identity	Participate advance career	Participate benefit personal use	Participate signal/earn employers/investors	Participate compete with others
Participate construct identity	1,000	,448	,105	,291	,267
Participate advance career	,448	1,000	,372	,641	,198
Participate benefit personal use	,105	,372	1,000	,155	-,072
Participate signal/earn employers/investors	,291	,641	,155	1,000	,579
Participate compete with others	,267	,198	-,072	,579	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Participate construct identity	12,56	12,436	,404	,253	,671
Participate advance career	11,88	9,925	,648	,592	,560
Participate benefit personal use	11,24	14,428	,195	,163	,737
Participate signal/earn employers/investors	11,82	8,877	,667	,633	,542
Participate compete with others	11,91	12,325	,379	,431	,681

8.1.5 Social factor

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,846	,847	6

Inter-Item Correlation Matrix

	Participate personal relationships	Participate enhance existing relationships	Participate part of a community	Participate match norms	Participate get certain social standing/recognition]	Participate ToSupport/Solidarity
Participate personal relationships	1,000	,763	,485	,403	,520	,334
Participate enhance existing relationships	,763	1,000	,423	,304	,377	,369
Participate part of a community	,485	,423	1,000	,768	,726	,405
Participate match norms	,403	,304	,768	1,000	,640	,349
Participate get certain social standing/recognition]	,520	,377	,726	,640	1,000	,318
Participate ToSupport/Solidarity	,334	,369	,405	,349	,318	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Participate personal relationships	14,85	18,493	,668	,647	,812
Participate enhance existing relationships	14,50	18,742	,579	,608	,830
Participate part of a community	14,65	18,235	,757	,704	,796
Participate match norms	14,79	18,290	,641	,609	,817
Participate get certain social standing/recognition]	14,85	18,553	,683	,583	,809
Participate ToSupport/Solidarity	14,29	20,699	,447	,217	,852

8.1.6 Psychological factor

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,790	,801	5

Inter-Item Correlation Matrix

	Participate Passionate	Participate Innerneedtoreturn	Participate express myself	Participate enhance my self-esteem/self-efficacy	Participate have a challenge
Participate Passionate	1,000	,468	,603	,505	,497
Participate Innerneedtoreturn	,468	1,000	,300	,190	,246
Participate express myself	,603	,300	1,000	,598	,535
Participate enhance my self-esteem/self-efficacy	,505	,190	,598	1,000	,512
Participate have a challenge	,497	,246	,535	,512	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Participate Passionate	12,12	10,955	,702	,503	,713
Participate Innerneedtoreturn	12,41	11,704	,366	,225	,824
Participate express myself	12,24	10,549	,675	,507	,716
Participate enhance my self-esteem/self-efficacy	12,47	11,166	,581	,429	,747
Participate have a challenge	11,94	10,845	,578	,373	,747

8.1.7 Perception

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,838	,827	6

Inter-Item Correlation Matrix

	Perception financial reward	Perception learn develop new skills]	Perception entertain myself	Perception advance career	Perception benefit in social status]	Perception enhance self-esteem
Perception financial reward	1,000	,159	,068	,288	,094	,167
Perception learn develop new skills]	,159	1,000	,623	,756	,652	,592
Perception entertain myself	,068	,623	1,000	,430	,355	,257
Perception advance career	,288	,756	,430	1,000	,727	,665
Perception benefit in social status]	,094	,652	,355	,727	1,000	,829
Perception enhance self-esteem	,167	,592	,257	,665	,829	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Perception financial reward	16,65	22,599	,192	,126	,880
Perception learn develop new skills]	17,18	17,362	,780	,702	,780
Perception entertain myself	17,12	20,349	,447	,410	,841
Perception advance career	17,18	15,786	,813	,699	,767
Perception benefit in social status]	17,68	15,922	,759	,759	,779
Perception enhance self-esteem	17,88	16,774	,712	,709	,791

8.1.8 Participation

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,842	,836	6

Inter-Item Correlation Matrix

	Tend to participate financial reward	Tend to participate Learn from it and develop Skills	Tend to participate Entertain	Tend to participate Advance in career	Tend to participate Benefit social status	Tend to participate Self-Esteem
Tend to participate financial reward	1,000	,187	-,059	,338	,252	,134
Tend to participate Learn from it and develop Skills	,187	1,000	,603	,676	,659	,585
Tend to participate Entertain	-,059	,603	1,000	,439	,417	,401
Tend to participate Advance in career	,338	,676	,439	1,000	,747	,695
Tend to participate Benefit social status	,252	,659	,417	,747	1,000	,809
Tend to participate Self-Esteem	,134	,585	,401	,695	,809	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Tend to participate financial reward	16,91	25,356	,216	,197	,886
Tend to participate Learn from it and develop Skills	17,06	19,936	,736	,608	,793
Tend to participate Entertain	17,03	23,545	,465	,404	,843
Tend to participate Advance in career	17,18	18,998	,808	,664	,777
Tend to participate Benefit social status	17,76	18,125	,808	,740	,774
Tend to participate Self-Esteem	17,88	19,622	,726	,685	,794

8.2 Appendix B: Descriptive Statistics per item for a factor

8.2.1 Financial factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Participate Earn cash reward	34	1	5	3,24	1,232
Participate receive discount on product/service	34	1	5	3,50	1,187
Participate earn possible job offer	34	1	5	2,88	1,320
Participate earn equity	34	1	5	2,62	1,280
Participate obtain intellectual propertyownership	34	1	5	2,65	1,323
Valid N (listwise)	34				

8.2.2 Learning factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Participate learn through co-creation	34	1	5	3,62	1,155
Participate develop current/new skills	34	1	5	3,59	1,158
Participate acquisite knowledge product/services	34	1	5	3,85	1,077
Participate fulfill need information	34	1	5	3,62	,954
Participate out of curiosity	34	1	5	3,79	1,008
Valid N (listwise)	34				

8.2.3 Hedonic factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Participate entertain myself	34	1	5	3,65	1,041
Participate change my state of mind	34	1	5	2,85	1,105
Participate offer satisfaction improving product service	34	1	5	3,29	1,060
Participate enjoy	34	1	5	3,53	1,187
Valid N (listwise)	34				

8.2.4 Personal factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Participate construct identity	34	1	4	2,29	1,115
Participate advance career	34	1	5	2,97	1,291
Participate benefit personal use	34	1	5	3,62	,985
Participate signal/earn employers/investors	34	1	5	3,03	1,467
Participate compete with others	34	1	5	2,94	1,179
Valid N (listwise)	34				

8.2.5 Social factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Participate personal relationships	34	1	5	2,74	1,136
Participate enhance existing relationships	34	1	5	3,09	1,215
Participate part of a community	34	1	5	2,94	1,071
Participate match norms	34	1	5	2,79	1,200
Participate get certain social standing/recognition]	34	1	5	2,74	1,109
Participate ToSupport/Solidarity	34	1	5	3,29	1,088
Valid N (listwise)	34				

8.2.6 Psychological factor

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Participate Passionate	34	1	5	3,18	,968
Participate Innerneedtoreturn	34	1	5	2,88	1,250
Participate express myself	34	1	5	3,06	1,071
Participate enhance my self-esteem/self-efficacy	34	1	5	2,82	1,058
Participate have a challenge	34	1	5	3,35	1,125
Valid N (listwise)	34				

8.2.7 Perception

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Perception financial reward	34	2	5	4,09	,965
Perception learn develop new skills]	34	1	5	3,56	1,050
Perception entertain myself	34	1	5	3,62	,985
Perception advance career	34	1	5	3,56	1,236
Perception benefit in social status]	34	1	5	3,06	1,278
Perception enhance self-esteem	34	1	5	2,85	1,209
Valid N (listwise)	34				

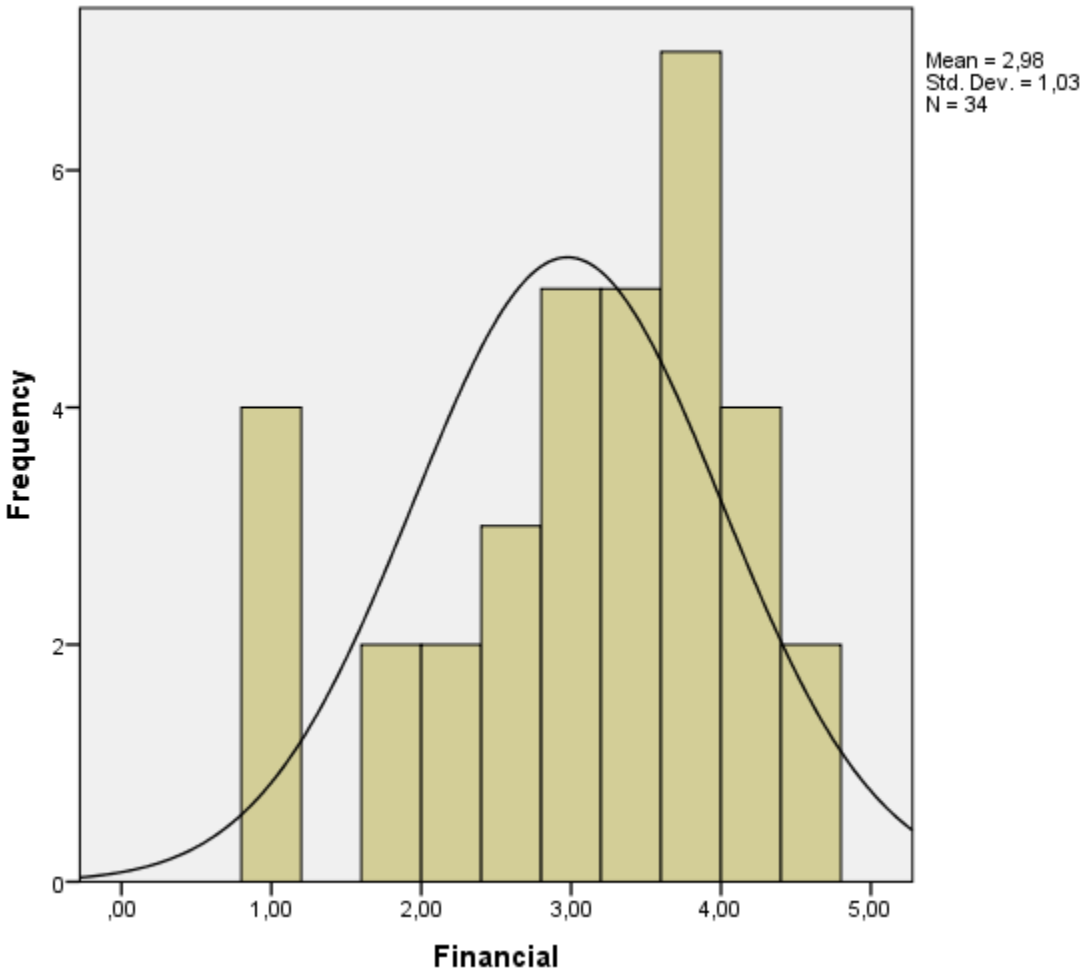
8.2.8 Participation

Descriptive Statistics

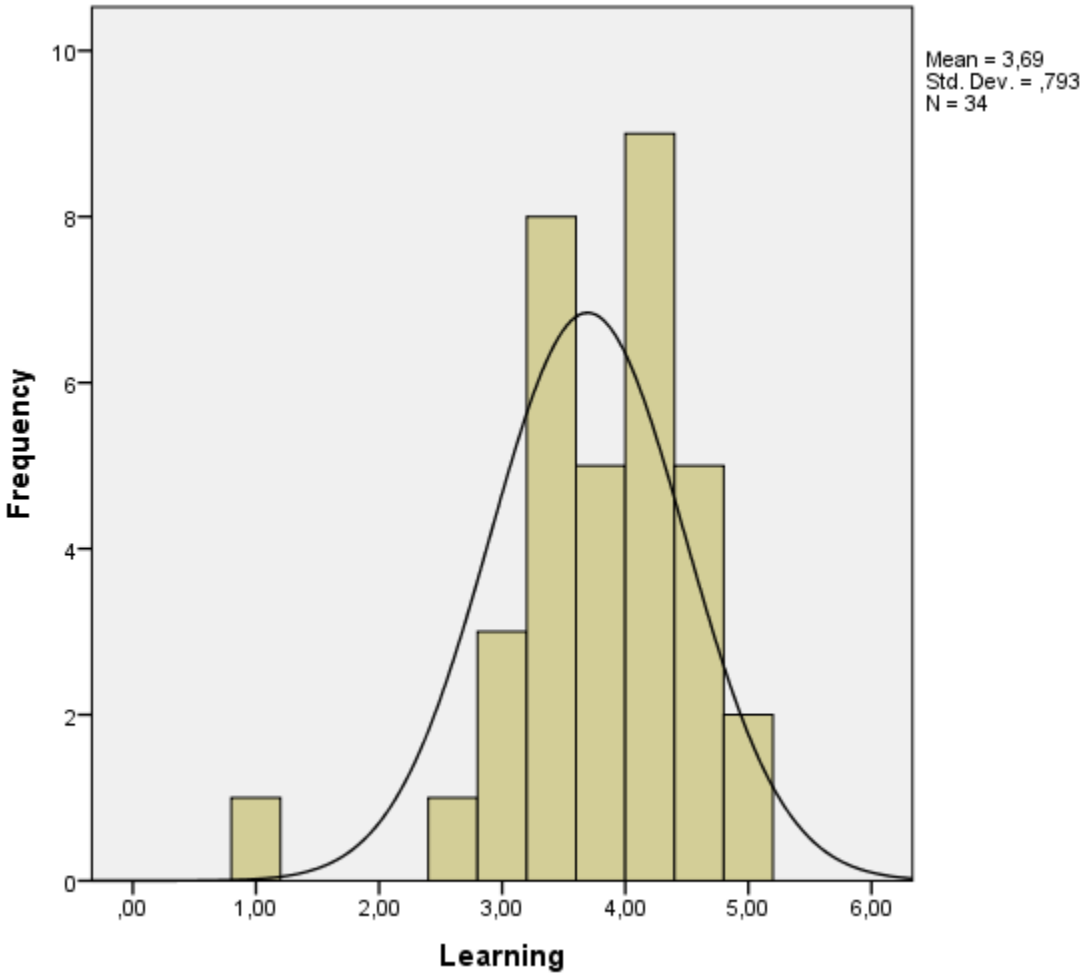
	N	Minimum	Maximum	Mean	Std. Deviation
Tend to participate financial reward	34	1	5	3,85	1,158
Tend to participate Learn from it and develop Skills	34	1	5	3,71	1,194
Tend to participate Entertain	34	1	5	3,74	1,024
Tend to participate Advance in career	34	1	5	3,59	1,234
Tend to participate Benefit social status	34	1	5	3,00	1,348
Tend to participate Self-Esteem	34	1	5	2,88	1,250
Valid N (listwise)	34				

8.3 Appendix C: Histograms for each factor (computed variable including all items)

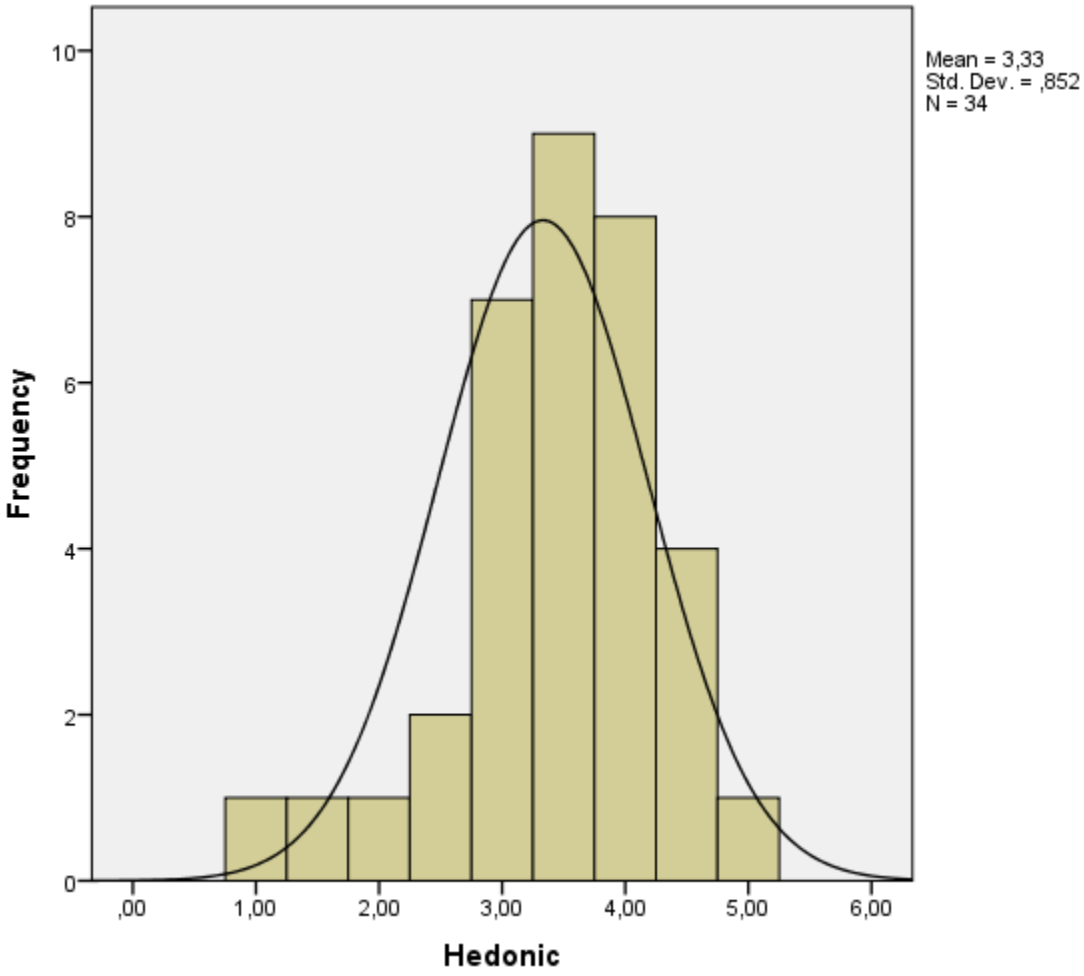
8.3.1 Financial factor



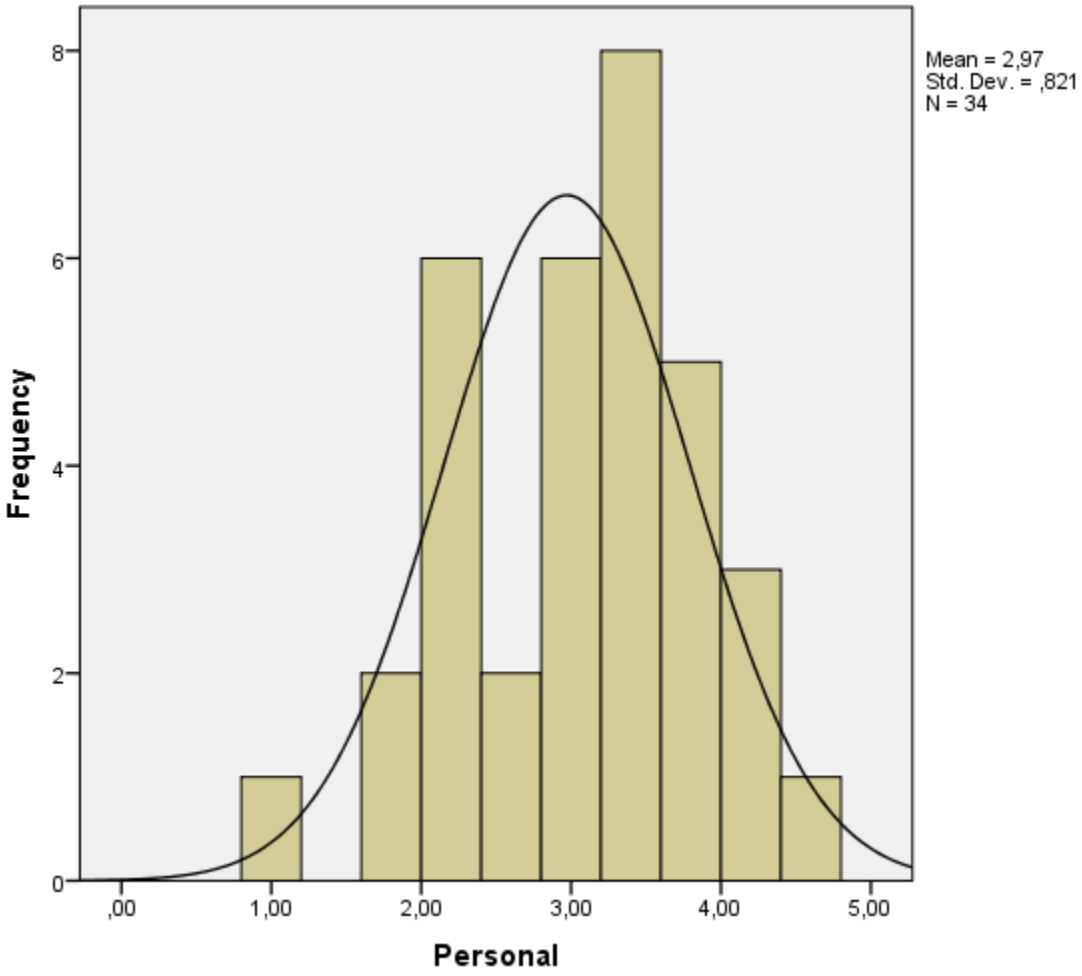
8.3.2 Learning factor



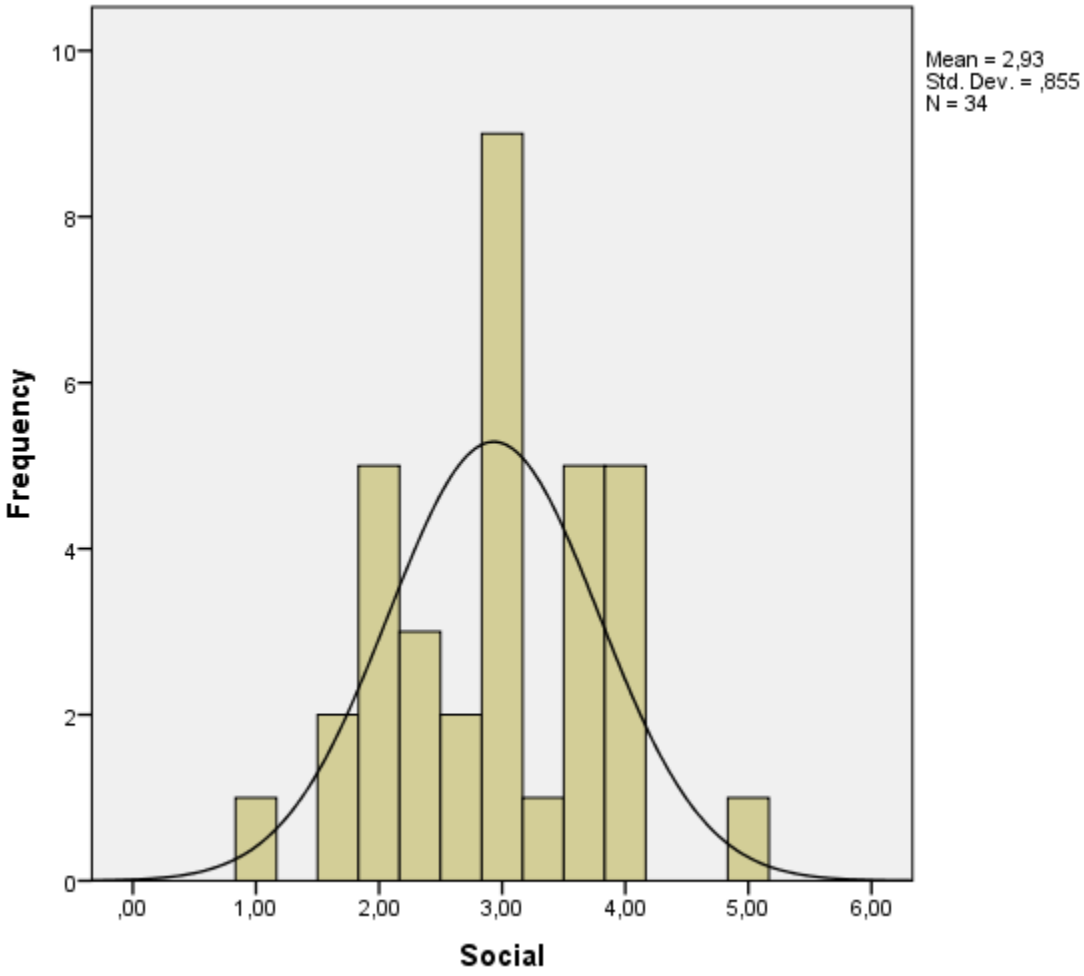
8.3.3 Hedonic factor



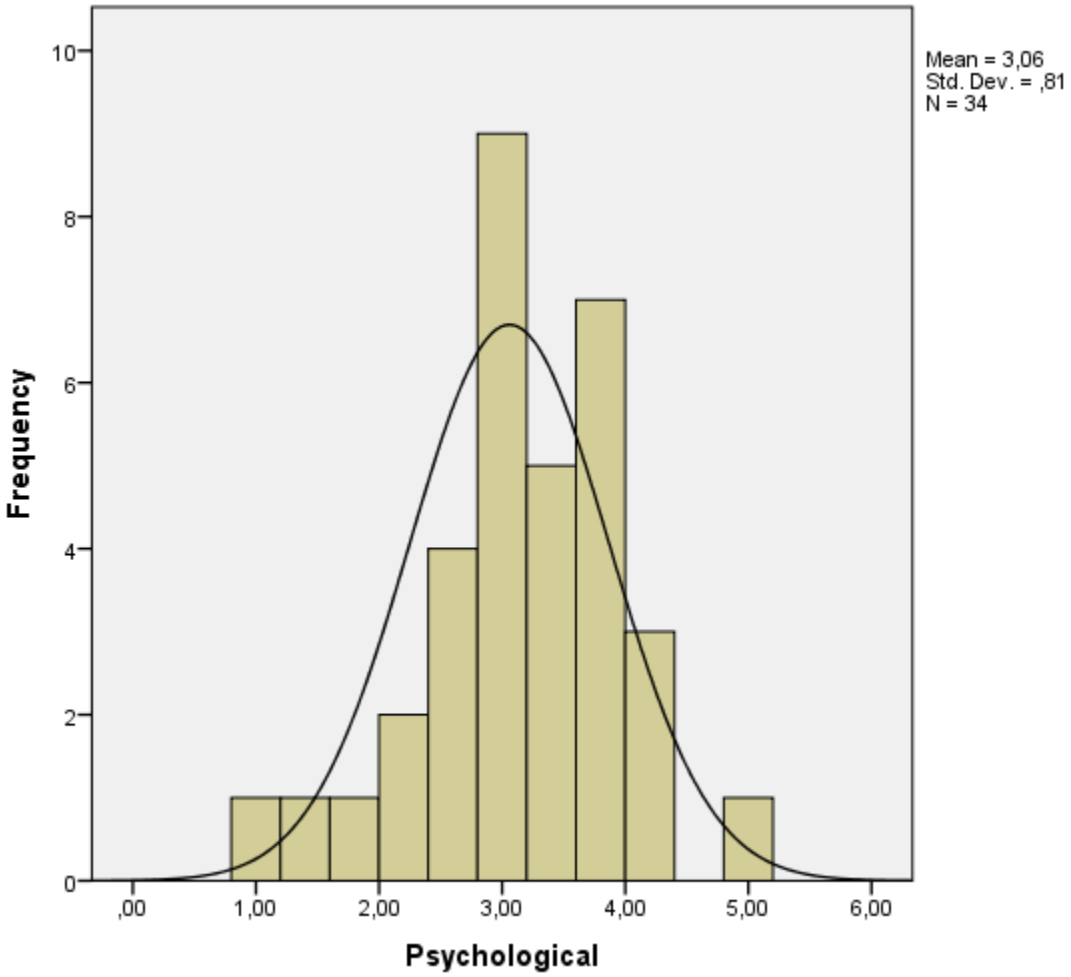
8.3.4 Personal factor



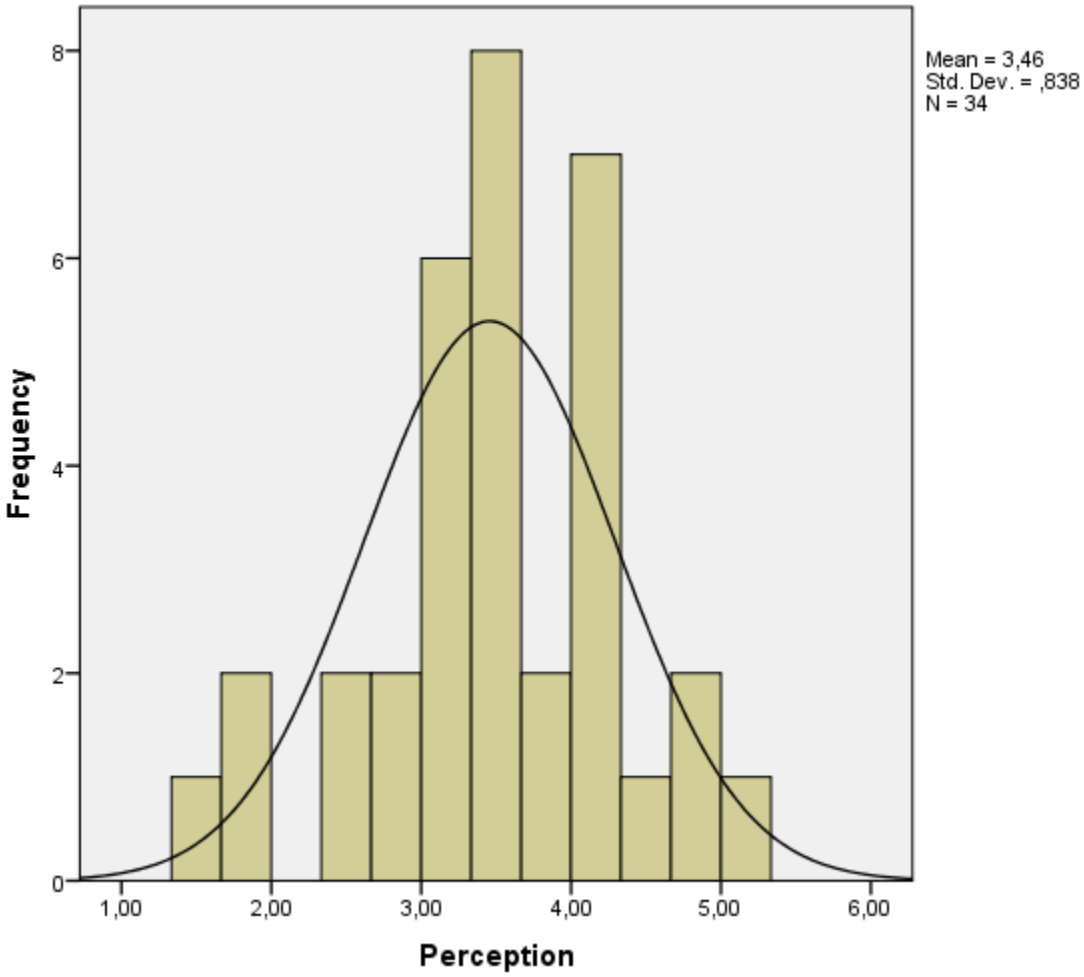
8.3.5 Social factor



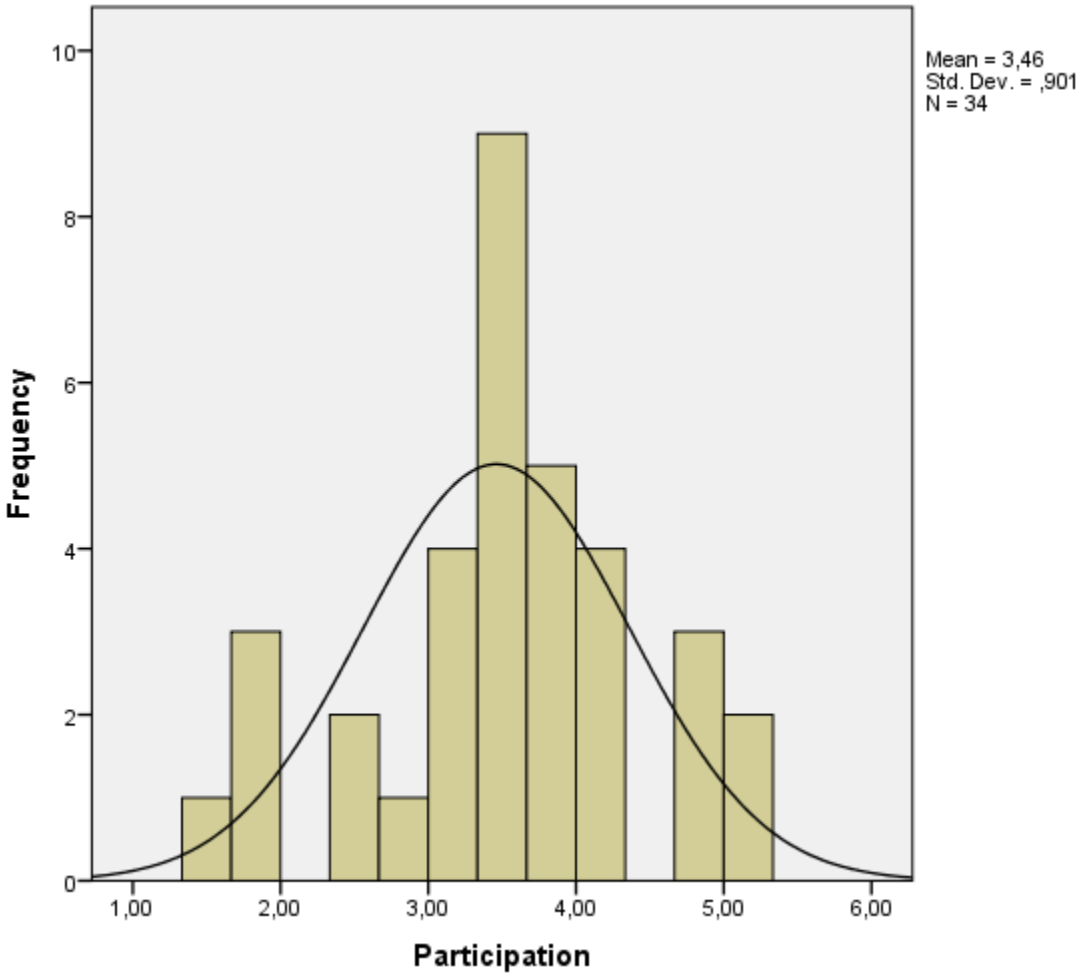
8.3.6 Psychological factor



8.3.7 Perception

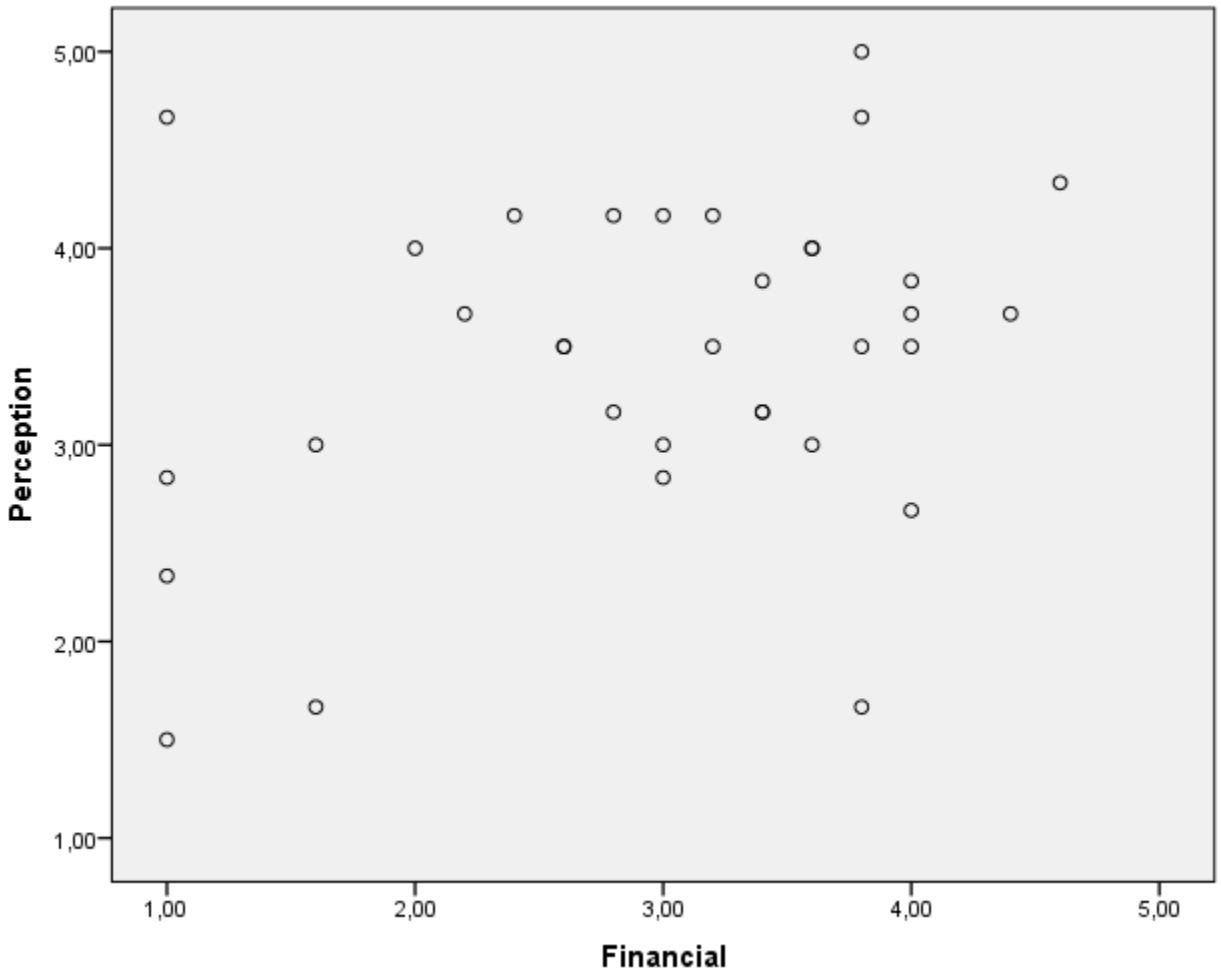


8.3.8 Participation

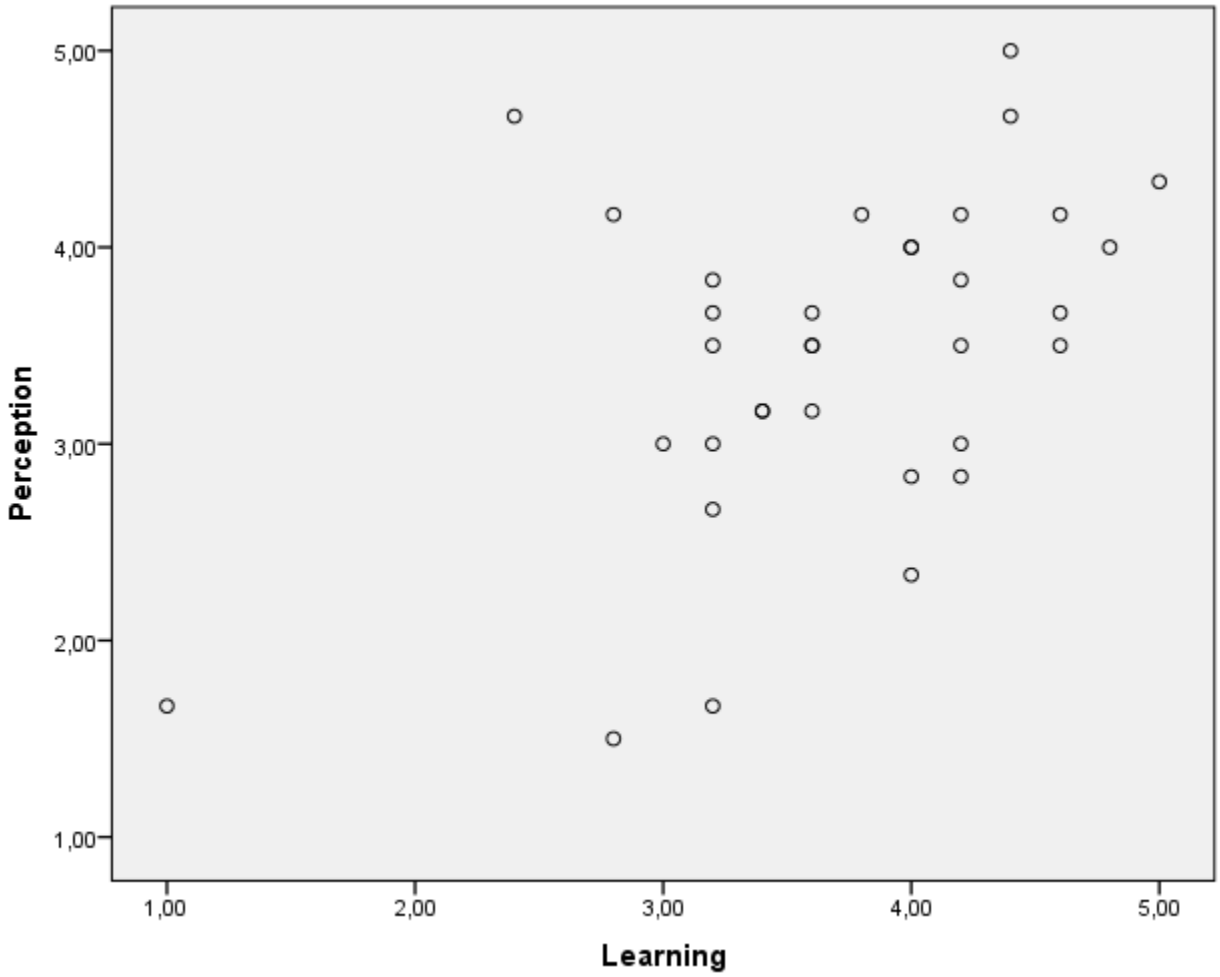


8.4 Appendix D: Scatter plots for each factor (computed variable including all items) on Perception (1) and Perception on Participation (2)

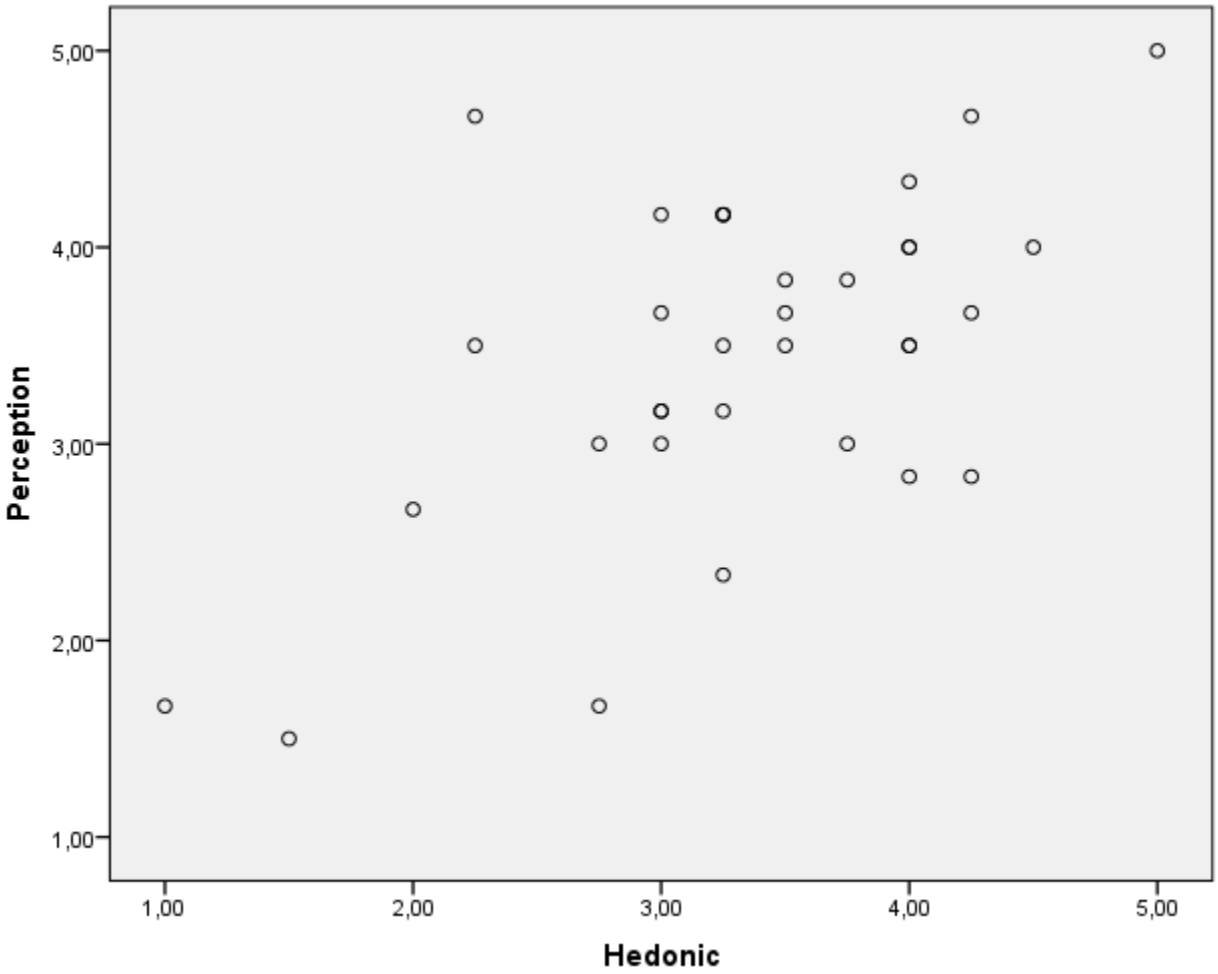
8.4.1 Financial factor



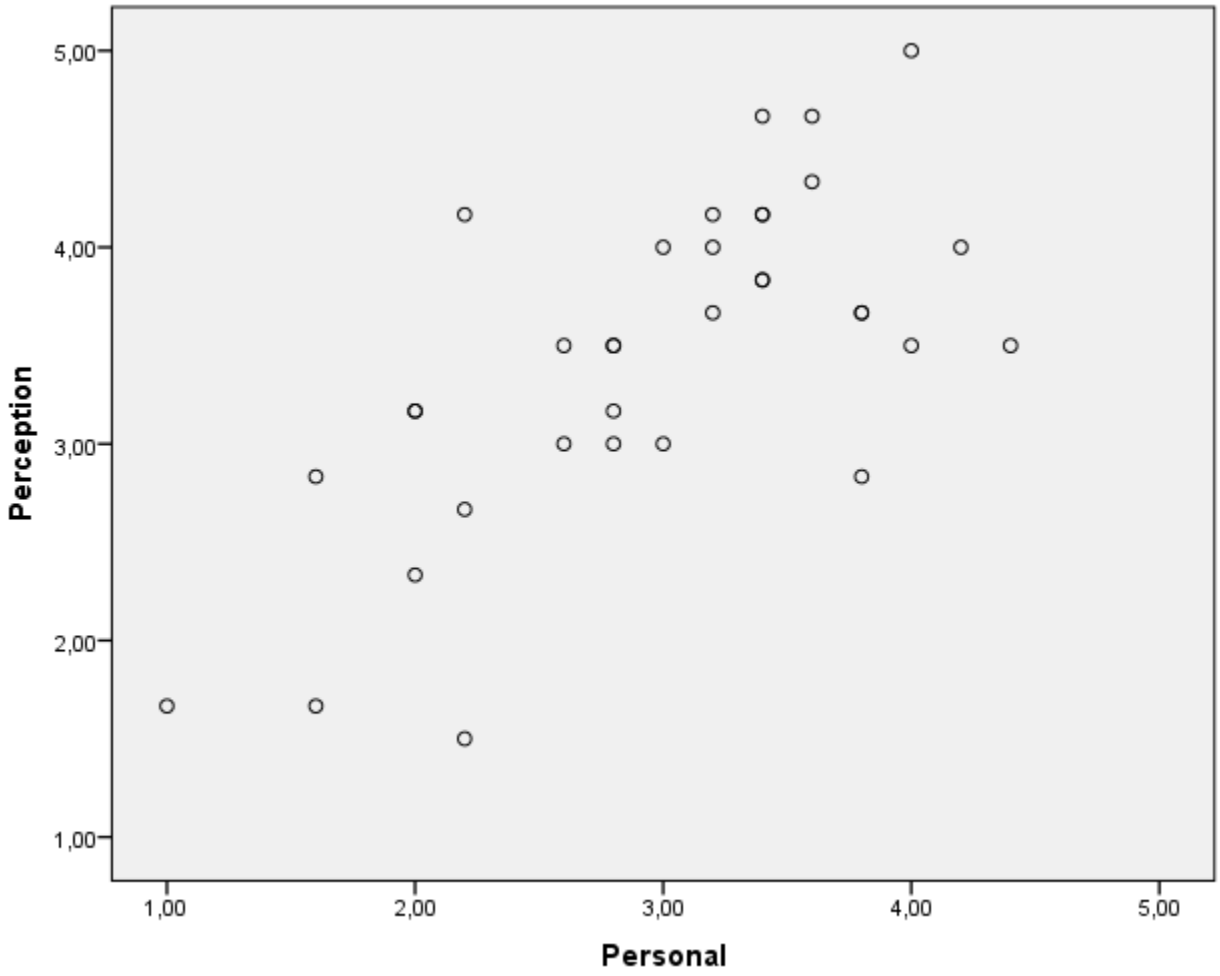
8.4.2 Learning factor



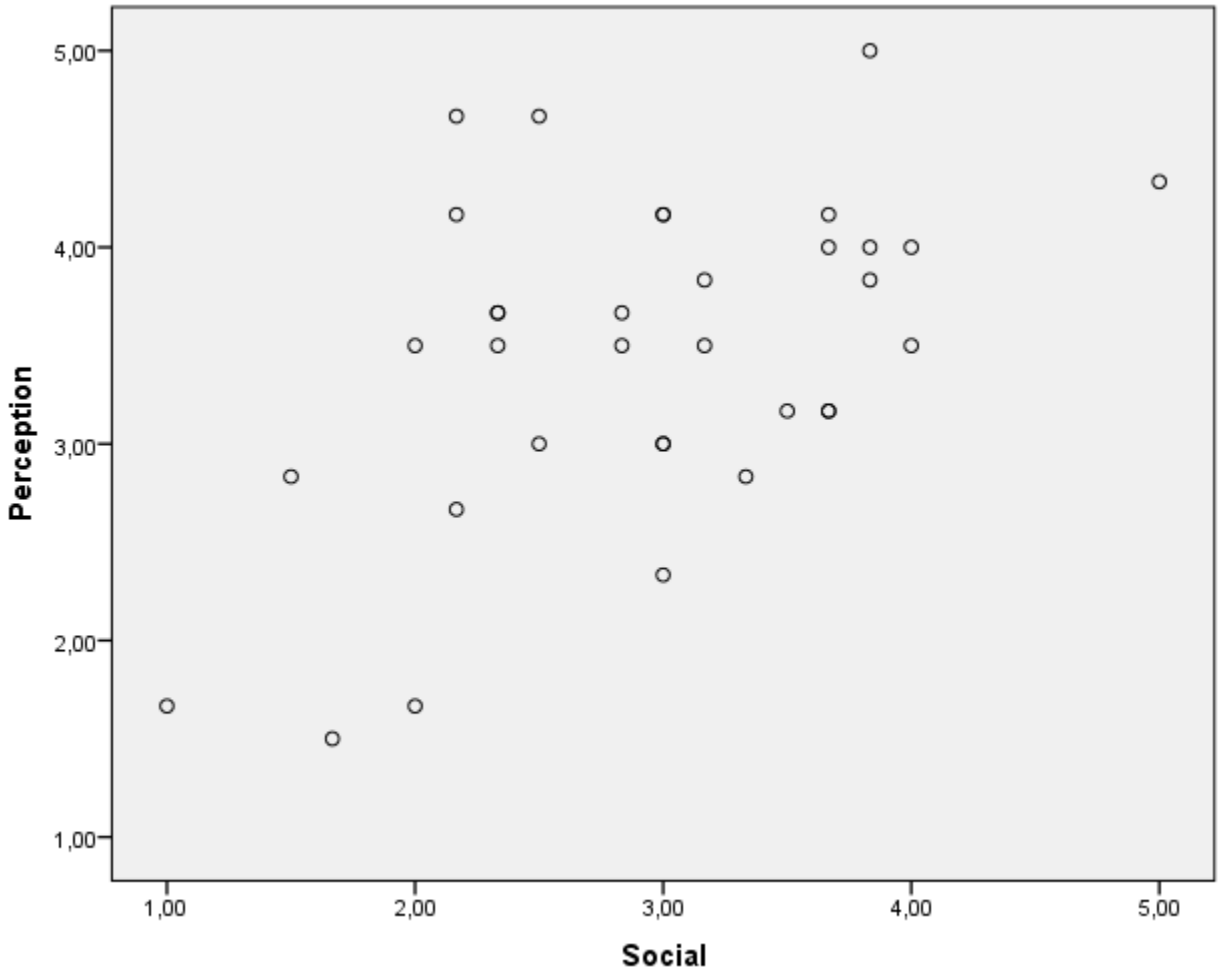
8.4.3 Hedonic factor



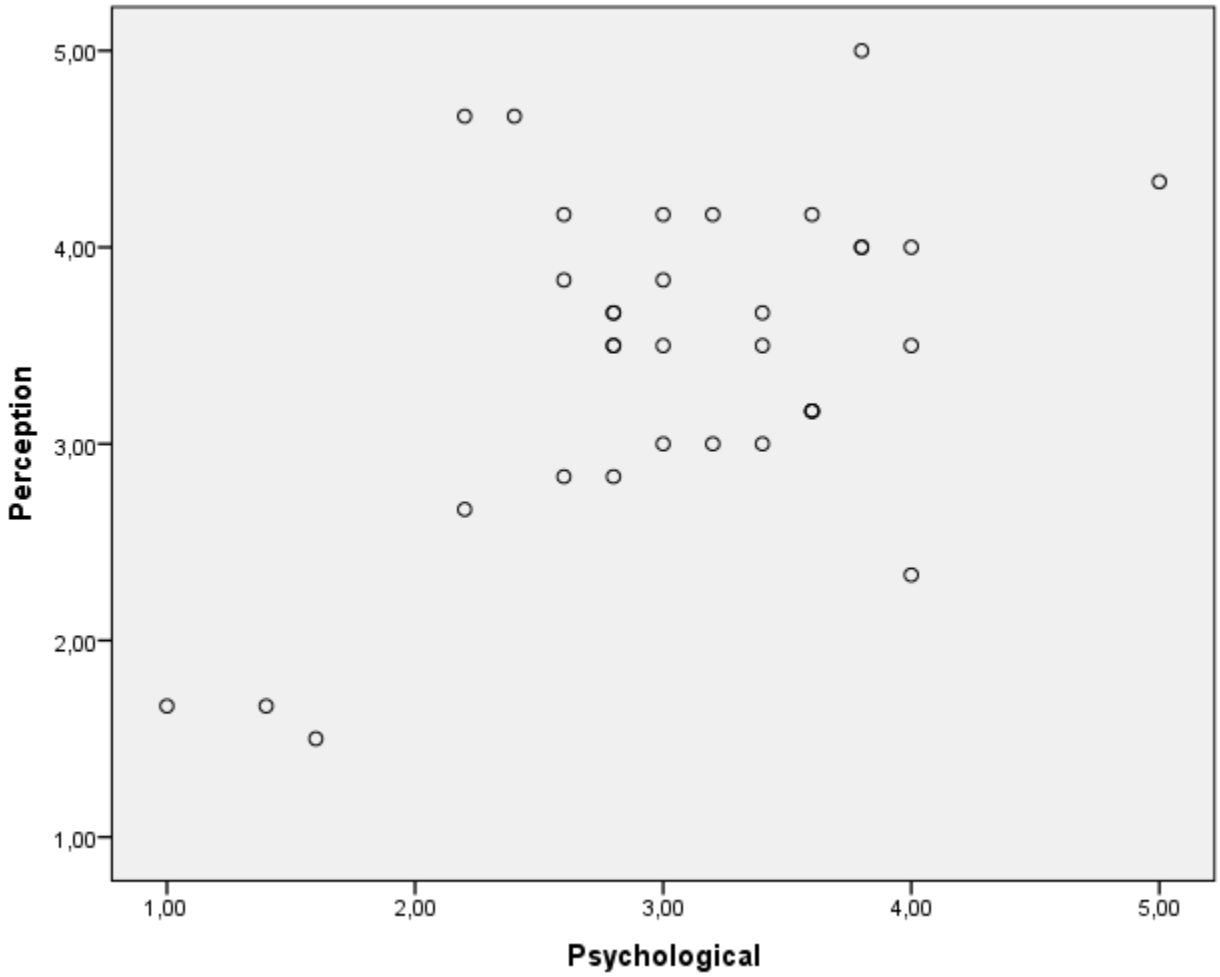
8.4.4 Personal factor



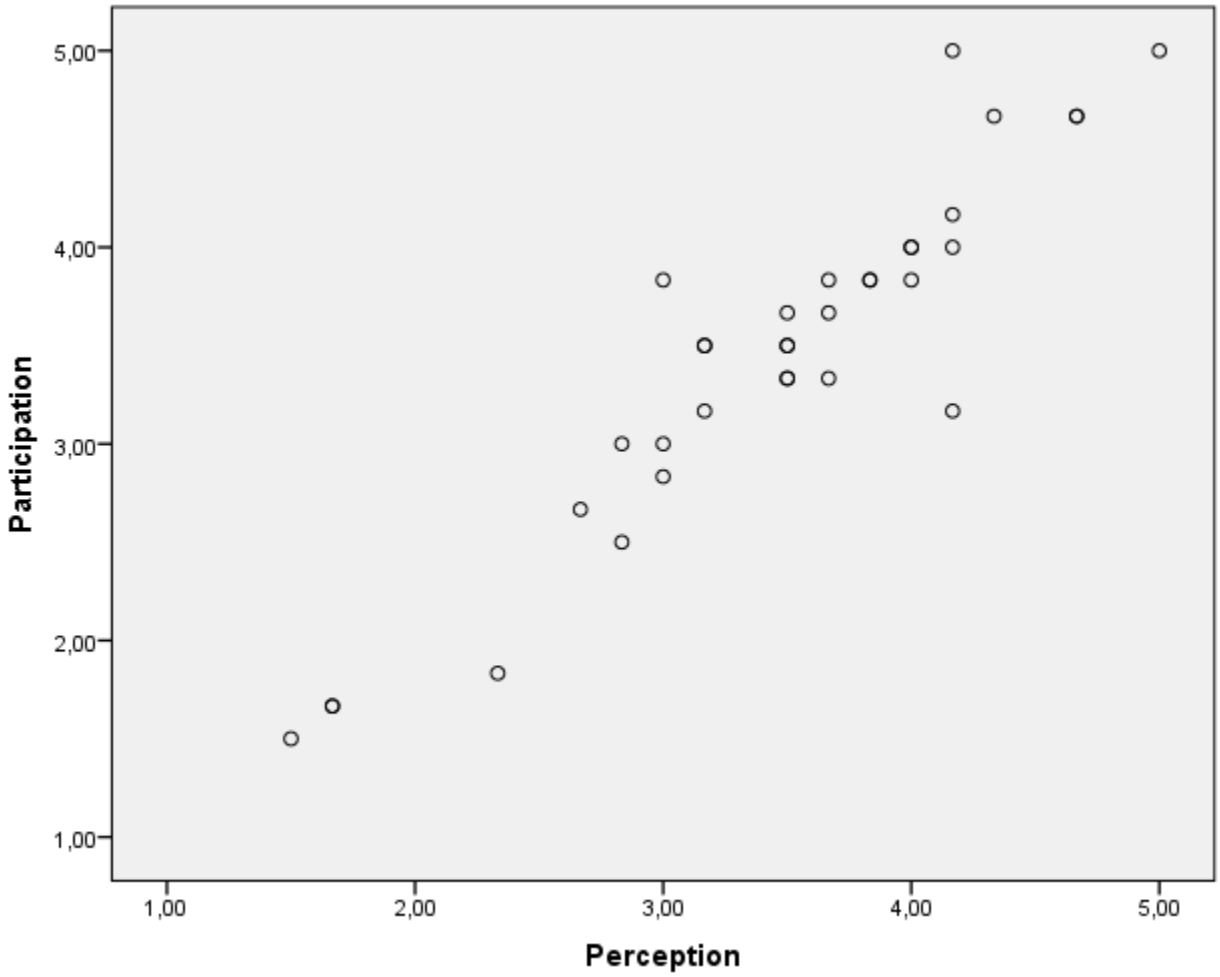
8.4.5 Social factor



8.4.6 Psychological factor



8.4.7 Perception on Participation



8.5 Appendix E: Shapiro-Wilk test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Financial	,130	34	,156	,919	34	,015
Learning	,121	34	,200*	,927	34	,026
Hedonic	,143	34	,076	,954	34	,165
Personal	,111	34	,200*	,971	34	,476
Social	,099	34	,200*	,980	34	,760
Psychological	,110	34	,200*	,966	34	,354
Perception	,139	34	,096	,954	34	,158
Participation	,120	34	,200*	,946	34	,093

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction