# Co-Innovation: motivators and inhibitors for customers to participate in online co-creation processes

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## ABSTRACT

This study is concerned with identifying the motivators and deterrents of consumers to participate in co-creation processes. Co-creation processes are activities by firms to include consumers in the product development process in order to achieve a higher value through a better fit between need and product. Based on a literature review a model is developed, which is tested through an online questionnaire. The main motivators are oriented to U&G, uses and gratification, Antecedents found in existing research were used. U&G theory is a functionalist perspective on mass media communication which identifies several motivational factors. The survey results show that there are two clusters of co-creators, "motivated co-creators" and "not motivated co-creators". These show four factors as main motivators, which are implications with the product, enjoyment, network with community and satisfaction and enrichment. However, it was also found that most respondents never participated in co-creation activities. This implies possibilities for management to advertise such activities in order to benefit from the customers' knowledge, which needs further research in this area first, identifying more motivators with which the firms can gain the trust of costumers. The advertisement needs two strategies considering the two different groups of co-creators existing. "Motivated co-creators" put learning from the co-creation activities as their primary motivation. In contrast, "non-motivated co-creators" firstly seek the enjoyment out of such a participation.

## Keywords
Co-creation, motivators, inhibitors, Social media, Co-innovation, user innovation

## 1. INTRODUCTION
The market place is increasingly growing to be an integral part of new product development. It is acting as a platform for discussion and interaction between consumers and firms. This interaction during product development enhances value creation. (Prahalad & Ramaswamy, 2004)

The development of social media led to even more opportunities for interaction, creating the possibility of virtual consumer involvement (Füller, Faullant, & Matzler, 2010; Sawhney, Verona, & Prandelli, 2005). In addition, it seems that consumers are willing to contribute their time and energy to co-create with companies. This co-creation means sharing ideas, comments and knowledge. (Prahalad & Ramaswamy, 2004) Due to these developments, the role of costumers has changed from unaware, isolated and passive individuals to informed, connected and active participating consumers. (Zwartjes, 2011) Co-creation is an upcoming topic and still requires research in order to be fully grasped, therefore this paper will examine the concept and identify factors which lead to the willingness of consumers to participate in such activities. Co-creation is also referred to as crowdsourcing or co-innovation. Co-creation is the process of involving consumers in new product development whereas crowdsourcing specifically implies posting a problem in an online environment in order to collect a vast number of solutions by consumers. Those solutions are then evaluated and the best idea is awarded. (Brabham, 2008)

Co-creation can have several benefits for companies. First, it leads to a cost reduction, since there is less input required from employees and suppliers, consumers contribute ideas also without remuneration. Furthermore effectiveness of the products or services is increased because they are more fitting to consumer needs as well as the perceived quality is higher and the product or service is better differentiated. Another benefit is that close relationships can be developed leading to possible long-term benefits. (Brabham, 2008; Fuchs & Schreier, 2011; Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010) To enable a co-creation process, the social media can be used because they allow for real-time, media-rich and highly interactive collaboration. (Füller et al., 2010; Kohler, Fueller, Matzler, & Stieger, 2011)

## 2. PROBLEM IDENTIFICATION
However, making use of the process of co-creation requires a shift of focus to create a total experience environment for the consumer. Therefore, in order to use the advantages of co-creation, add more value to products and services and ideally derive at a competitive advantage, it is important to know the motivators and deterrents of the willingness to participate in a co-creation process via social media. Knowing what exactly motivates consumers to share their knowledge is vital to constructing a strategy involving co-creation for new product development. Therefore the main problem for this research is:

What are the motivators and inhibitors for (European) customers to participate in a co-creation process via social media?

The main empirical goal here is to compare findings in the existing literature with findings from the survey constructed. Thereafter, the survey will act as a point of reference in optimizing the model and launch a nationwide research project on the topic of co-creation.

The first step is a literature review in order to construct a research model and therewith a survey. Therefore, the next part of this thesis is concerned with the literature review.

## 3. LITERATURE REVIEW
Co-creation is defined as “any act of collective creativity, i.e. creativity that is shared by two or more people.” (Sanders & Stappers, 2008, p.6) Co-creation is interchangeably used with user innovation or co-innovation, which comparably states that costumers are involved in new product development where they act as a source of innovation in order to increase the value of the new product or service. (Bogers, Afuah, & Bastian, 2010)

In the beginnings of the era of co-creation, companies started to use a user-centered approach where users are used as subjects that are studied while performing specified tasks and giving feedback. The next step was a participatory approach where users are seen as partners. Users contribute to the development process by providing their expertise and participate already in early design phases (Sanders & Stappers, 2008). During co-creation processes, consumers, and not only research and development departments create value. (Zwass, 2010)

The web plays a significant role in the development of the concept of co-creation. This is because the web opens up the opportunities to involve consumers in product development processes, as it acts as a means of coordination as well as a mean of distribution being widely spread and accessible for many. (Zwass, 2010)

Co-creation via the web is an upcoming trend. It can also be defined as crowdsourcing, since firms use their consumers (i.e. crowd) to find new solutions or improve existing products or services. An example of that is iStockphoto, which is a picture sharing platform and marketplace for amateur photographers. Another example is InnoCentive.com which provides a platform for companies to post, mainly scientific, problems and getting different solutions from other community members. (Howe, 2006)

The factor of costs is important to consider and should be weighed against the benefits from the user involvement in innovation processes. Innovation is more likely to need user involvement when it is costly to transfer the information of user needs, called "sticky information" by the authors. (Bogers et al., 2010, p.860) Furthermore there are costs resulting out of the agency relationship of the user and the producer. On the other hand there are several benefits for the user identified. Firstly, the user benefits from the innovation because he is able to use the product that is developed in collaboration with the company. Furthermore the user can profit from selling his/her ideas, however, an IP (Intellectual Property) protection is required in this case. (Bogers et al., 2010)

Other authors focus on identifying the motivations of users to participate in co-creation activities, which is also the focus of this thesis. Hoyer, Chandy, Dorotic, Krafft, and Singh (2010) offer a conceptual framework of consumer co-creation with a focus of scope and intensity of the co-creation process. They identify three sets of antecedents, namely consumer-level motivators, firm-level impediments, and firm-level stimulators.

The consumer-level motivators give a first insight into the further topic of this paper. They are classified into financial, social, technical, and psychological factors. Uses and Gratifications Theory provides another approach to the identification of motivators. It is a functionalist perspective on mass media communication, in order to explain members' motivations and associated behaviors. (Luo, 2002)

Starting from this Uses and Gratifications Theory are Nambisan and Baron (2009). Thereby they identify four main categories that act as motivating factors to the participation in co-creation processes, cognitive, social integrative, personal integrative and hedonic factors (Nambisan & Baron, 2009). The two classifications have a lot of similarities.

Financial factors can be on the one hand directly, thus monetary prizes or profit sharing. Next to direct monetary prizes, companies may give out vouchers or gift cards in order to reward participation (Brabham, 2008; Franke & Shah, 2011; Hoyer et al., 2010). On the other hand indirectly, i.e. through recognition gained from participation in the co-creation process. This recognition can be a positive or good reputation in the area of the co-creation and might therefore enable the user to find employment or gain new clients (Franke & Shah, 2011; Hoyer et al., 2010). Indirect financial incentives can also be price reduction on the end-market (Franke & Shah, 2011).

Social benefits can be in form of titles or in other forms of recognition that might be gained. Title gains can be a source of pride for the participating consumer because it portrays uniqueness in comparison to other users. Titles can be for example "best comments", "most read reviews" or "best idea" (Hoyer et al., 2010). Professional recognition is especially provided by communities with a scientific background, for example InnoCentive.com (Brabham, 2008; Howe, 2006). Another social benefit can be due to socializing through interaction and discussions between users and between users and the company (Kohler et al., 2011). Additionally, a form of recognition is the raising as an expert in the area, by getting questions asked by other community members (Hertel, Niedner, & Herrmann, 2003).

The third category includes technical factors, which derive from technological or product or service knowledge gained through the participation. This knowledge is created through the exchange of ideas with other users or the company's experts (Hoyer et al., 2010).

Furthermore, the interest in product or service improvement can motivate users to participate (Füller et al., 2010). This category can also be described as learning as incentive for participation. Learning through information and expertise acquisition as well as staying up-to-date with recent developments, trends, products and technology (McLure Wasko & Faraj, 2000).

The last category identified by Hoyer et al. (2010) are psychological factors for engaging in co-creation. These could be on the one hand altruistic resulting from believing in the objectives of a project or on the other hand out of utility. Motivation out of altruism often occurs in the area of medical supplies (Füller et al., 2010).

Furthermore, motivation can come from experiencing something unique or from actually contributing to product or service development. Creating a unique experience for the costumer to enhance the exchange. The building blocks for that are dialogue, access, risk-benefits and transparency (Prahalad & Ramaswamy, 2004). In addition, the achievement of the perfect fit between product or service and consumer needs can be satisfying and thus motivating, as well as getting completely personalized products (Prahalad & Ramaswamy, 2004). Another psychological factor can be the sense of self-expression and pride gained through participation and creative pursuit (Etgar, 2008). In addition, hedonic factors, as defined by Nambisan and Baron (2009), include participation out of pleasure. Co-creating with firms can be a form of enjoyment and entertainment (Luo, 2002; McLure Wasko & Faraj, 2000). Nambisan and Baron (2009) add another category to the motivational factors, namely the personal integrative. This category includes factors such as

credibility, status and confidence (Nambisan & Baron, 2009). These factors can also be described as pragmatic motives to participate in co-creation processes (Hertel et al., 2003).

On the other side, there are also factors discouraging the participation in co-creation activities. First of all, consumers might not want to share knowledge because the intellectual property is taken to make profit without sharing these profits with the consumer (Brabham, 2008; Hoyer et al., 2010). Furthermore, barriers can arise due to too much bureaucracy of the process. This bureaucracy can lead to the perception that the process is too complicated and not worth the effort (Colombo, Lucking, & Mcinnes, 2011). Furthermore, transparency is an issue. The danger is that the company is not sharing enough knowledge with the consumer (Prahalad & Ramaswamy, 2004). The last point identified is irritation through a messy process and no clear defined challenges (Luo, 2002).

In conclusion, the main factors found in literature, influencing the attitude towards participation in co-creation processes are learning, social integrative, personal integrative, hedonic factors as well as financial and material incentives. Combined, these factors can be put in the conceptual model (Figure 1). The consequences of the attitude towards co-creation are actual participation in the process and the satisfaction of this participation.

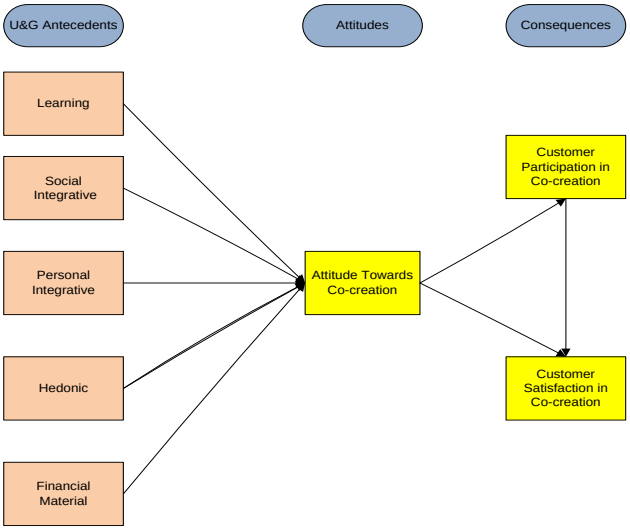


**Figure 1. Research model**

From the model it is possible to derive several hypotheses about the attitude towards co-creation processes.

First of all, it is assumed that participants want to enhance their knowledge and acquire new information and expertise when participating in co-creation processes. Therefore, when there is the expectation that one learns something out of the participation, then the attitude towards co-creation is more positive (Hoyer et al., 2010; McLure Wasko & Faraj, 2000; Nambisan & Baron, 2009).

**H1**: Learning has a positive influence on the attitude towards co-creation.

Furthermore, regarding the literature, the assumption can be made that social factors, like recognition, influence the attitude towards co-creation positively (Hertel et al., 2003; McLure Wasko & Faraj, 2000; Nambisan & Baron, 2009). Therefore the following hypothesis can be stated:

**H2**: Social integrative has a positive influence on the attitude towards co-creation.

The personal benefits from the participation in co-creation processes are mainly concerned with status, confidence and credibility (Nambisan & Baron, 2009). Those are assumed to positively influence the professional career as well as providing a satisfactory feeling for the participants (Hertel et al., 2003). The following hypothesis represents this thought:

**H3**: Personal integrative has a positive influence on the attitude towards co-creation.

The hedonic factors relate to the entertainment and pleasure that participants gain in co-creation processes. (Luo, 2002; Nambisan & Baron, 2009) When costumers enjoy being creative and contributing ideas to a product, which they afterwards can use, then they are more likely to participate in such processes enabling this idea contribution and creativity.

**H4**: Hedonic factors have a positive influence on the attitude towards co-creation.

Financial or material incentives are also seen as a motivator according to reviewed literature (Franke & Shah, 2011; Hoyer et al., 2010). They can either influence the financial position of the participant directly or indirectly as well as being representing by a decreased price on the market. Another material rewards could be non-financially, in form of samples or beta-products. It is assumed that if such incentives are present, the user is more likely to participate in co-creation processes (Franke & Shah, 2011; Hoyer et al., 2010).

**H5**: Financial and material incentives have a positive influence on the attitude towards co-creation.

When all the factors described above lead to a positive attitude towards co-creation, then the consumers are more likely to actually participate in co-creation processes. If they actually gained benefits from the participation, then they are more likely to be satisfied with the project.

The next step is the empirical research. The survey results are analyzed to be able to draw conclusions concerning the motivators for co-creators as well as an improvement of the survey.

# 4. METHODOLOGY

After the literature review and the construction of a conceptual model, the next step, was the creation of a survey. Therefore, the existing literature on the topic was synthesized. The survey was seen as a test questionnaire, i.e. a first step in the process of a nationwide research. Therefore, after the analysis of the results, there was a comparison to existing literature in order to arrive at improvement ideas of the survey. The survey was distributed through social media (mainly Facebook and E-Mail). It was therefore a convenience sample, since there were no respondents directly chosen, but the survey was distributed via social media and therefore the respondents chosen by chance. The results from this survey were summarized, analyzed and discussed in part 5 and 6 of this paper. Then conclusions were drawn about the factors influencing the attitude towards co-creation activities. In the end, the results were discussed in comparison to findings in the literature in order to optimize the survey for a nationwide launch.

The questions were constructed from existing literature on the topic of co-creation and co-innovation. Scales were set according to this literature. Therefore different kinds of scales are used for different questions. So that there are multiple answers questions as well as rankings and LIKERT-Scales.

The survey was then analyzed using the SPSS software and Latent Gold Software. Furthermore statistical test like KMO, and Bartlett are used.

The first step in the analysis were frequencies analyses with SPSS. This made it possible to draw general conclusions on the respondents.

Afterwards, a factorial analysis was done to obtain four motives of participation in co-creation. Due to the small sample (68 participants that participated in co-creation activities before) the use EQS software was inappropriate. However, the validity of the exploratory factorial model could be justified with KMO and Bartlett, and the validity of scales was proven with Alpha Cronbach. In the next step the pondered, thus carefully weighed, mean of factors as indicator variables within the Latent Gold Software was included. Age, gender, nationality and the use of social media tools was used as covariates. With this, two clusters could be obtained.

Specifically, a latent segmentation methodology is used to define the segmentation and the profiling of co-creators based on different motives of participation in online co-creation activities by sample analyzed. This type of procedure allows the assignment of individuals to a segments based on their probability of belonging to the clusters, breaking with the restrictions of deterministic assignment inherent to the non-hierarchic cluster analysis (Dillon & Kumar, 1994). Thus, individuals are assigned to different segments under the assumption that the data stems from a mixture of distribution probabilities or, in other words, from various groups or homogenous segments that are mixed in unknown proportions (McLachlan & Basford, 1988). The advantage of latent class models is that they allow the incorporation of variables with different measurement scales (continual, ordinal or nominal) (Vermunt & Magidson, 2005). Based on the positioning of the different individuals, with regard to the variables, different grouping patterns can be obtained that fulfill the principles of maximum internal coherence and maximum external differentiation. To carry out the latent segmentation, Latent Gold 4.5 statistical software was used. Finally, based on the clusters obtained, we have analyzed the relationship between each activity of co-creation and the correspondence cluster through across-tables and chi-square statistic in order to analyze the significant differences of each co-creation activity and its position in each obtained cluster.

In the next chapter the results of the statistical analysis of the survey is done. Afterwards, the conclusions will be drawn in order to finally discuss the literature findings and survey results.

# 5. RESULTS

## 5.1 General introduction

The first questions of the survey were concerned with the demographics and a general introduction of the respondents. This introduction gives insight into the group of consumers that is represented by the respondents. There were in total 239 respondents. The first part of the survey shows that the respondents were mainly between 20 and 25 years old (72.4%). The gender distribution was relatively equal with 57.3% females and 42.7% males. The nationality of most respondents was German (55.2%) or Dutch (21.3%). As to the occupation, most respondents (62%) were bachelor students. They spend between one and three hours online daily. 16.3% spend more than 6 hours online a day. Our respondents had mostly between 101 and 500 contacts (friends/followers) on the social media platform mainly used. The respondents use social media platforms mainly to stay in touch with friends, obtain news and for entertainment. Only 24% use social media for better buying decisions. Furthermore it is not common to ask for help online. 28.5% of respondents participated in co-creation activities in the past three years. The 69.9% of people that never participated did so because they were not aware of the possibility. The group that did co-create in the past is further used to create profiles of co-creators.

## 5.2 Profiling the co-creators: an analysis of latent segmentation

The main empirical goal was aimed at observing the existence of similarity of factors between previous studies and our data. For that, the first step consisted in applying an exploratory factor analysis (EFA). For this purpose, a principal components analysis (PCA) was run. Rotated factor scores were created during the EFA process and were used as variables to develop a latent cluster analysis (Díaz de Rada, 1998; Frías-Navarro & Pascual-Soler, 2012).

### *5.2.1 Factorial analysis: Motives of participation in online co-creation activities*

As a first result in the Exploratory Factorial Analysis (EFA), we noticed that the Kaiser-Meyer-Olkin (KMO) is meritorious, i.e. higher than 0.8 (Guttman, 1954), and Bartlett's test was highly significant (0.0000), indicating thus that the null hypothesis (i.e. correlation matrix is an identity matrix) is rejected. It shows the validity of the factorial analysis model (Bartlett, 1954; Kaiser, 1970). On the other hand, Cronbach's alpha (Cronbach, 1951) values are higher than 0.7 which indicates the reliability of the extracted factors.

In sum, the model's acceptability allows the proceeding of running a factor analysis. After factor extraction, an orthogonal varimax rotation was performed on factors with eigenvalues ≥1.0, thus allowing minimizing the number of variables having high loadings on a particular factor. Four factors resulted from this analysis, accounting for 72.25% of the symptomatic variance. The factor structure is consistent because all the variables have a factor loading >0.5 for the factor that they allowed (Hair, Anderson, Tatham, & Black, 1999). The factors are as follows:

Factor 1, **Satisfaction and Enrichment**, includes items on the satisfaction received from influencing product design and development, satisfaction received from influencing product usage by other customers, and from helping design better products, the possibility of earning money directly thanks to the co-creation, contribute in creating cheaper products, enhance the financial position indirectly for people (by buying products offering higher value), and deliver non-financial rewards (such as receiving product for free, beta products, and so on).

Factor 2, **Enjoyment**, incorporates items related to the contribution of co-creation in spending some enjoyable and relaxing time, contribution in fun and pleasure, entertainment and stimulating the mind of people, as well as offering enjoyment deriving from problem solving, ideas generation, etc.

Factor 3, **Network with Community**, includes variables related to expand the personal network by people, releasing the status/reputation as product expert in the personal network, enhancing the strength of the people affiliation with the customer community, and positive affect their professional career.

Factor 4, **Implications with the Product**, is composed by items on enhancing the knowledge about the products and their usage, improving the knowledge on product trends, related products and technology, and helping people make better product decisions as consumers.

### *5.2.2 Latent segmentation: A typology of co-creators based on motives of participation in online co-creation activities*

Based on pondered average of each factor (calculated through the division between weighting of each item with its standardized load and the sums of the full loadings per factorial construct), we have obtained the indicator variables which are analyzed with the Latent Gold Software. In order to refine the resulting segments, we have analyzed different descriptive variables or covariates that could have an influence on the motives of the analyzed sample to participating in co-creation activities: gender, age, nationality, and use of social networking sites.

Based on the positioning of the different individuals, with regard to these variables, we have tried to obtain some groupings that fulfill the principles of maximum internal coherence and maximum external differentiation. In applying the latent segmentation approach, the first step consists of selecting the optimum number of segments. The model used estimated from one (no heterogeneity existed) up to eight (i.e. eight segments or heterogeneity existed).

The model fit was evaluated according to the Bayesian Information Criterion (BIC) that allows the identification of the model with the least number of classes that best fits to the data. The lowest BIC value was considered as the best model indicator (Vermunt & Magidson, 2005). In this case, **two different** co-creator groups represented the best alternative, as the BIC is minimized in these cases. The statistic values indicate that the model has a good fit ($E_s$ and $R^2$ near 1).

The Wald statistic was analyzed in order to evaluate the statistical significance within a group of estimated parameters. For all the indicators a significant p-value associated with the Wald statistics was obtained, confirming that each indicator discriminates between the clusters in a significant way (Vermunt & Magidson, 2005).

The profiles of the obtained clusters were divided in two parts. In the first part the cluster named "motivated co-creators" includes 50% of respondents surveyed; the "non-motivated co-creators" include the other 50%. All factors load in one cluster, which we have named as "motivated co-creators" because the mean values are higher in all factors (i.e. satisfaction and enrichment, enjoyment, network with community, and implication with the product). All values observed are higher than 2.5 (remember that the values go from 1, very unimportant, to 5, very important). It means that all motivated co-creators consider important and very important the participation in online co-creation activities. Specifically, they consider more important the enjoyment (3.63) and the implication with the product (3.80) when they participate in co-creation. Satisfaction and network with community as motives to co-create are considered with less value although also important (i.e. 2.66 and 2.79, respectively). To complement the composition of the two segments,

the profile of the resulting groups according to the information from other descriptive variables was analyzed.. Independence tests associated with statistic Wald conclude that significant differences exist between the segments (≥90% confidence level) regarding the gender, age, nationality, and use of different social media tools.

In sum we distinguish between two different profiles of co-creators according to our research topic:

The "motivated co-creators" cluster presents a higher mean in F4-Implication with the product (3.8020) and F2-Enjoyment (3.6382). Moreover, this cluster shows relevant mean in F3-Network with community (2.7959) and F1-Satisfaction and enrichment (2.6676). This segment is mainly made up by males (80%) and by people that are older than 25 years (32%). This segment is composed specially by Dutch co-creators (40%). In respect to the use of social media tools by this group, it is important to point out that these co-creators have a LinkedIn account and also use it regularly (24%); they do not have an account on Blogger and merely do not know it (52%); the most of people of this group do not have an account on Wordpress but know it (40%); a high percentage has an account on YouTube or Vimeo, Social Bookmarking Sites, and Twitter, and are used seldom by them (36%, 32%, and 36%, respectively); they do not have an account on Instagram but merely know it (48%).

In contrast, the "non-motivated co-creators" segment presents a slower mean in four factors analyzed in comparison to the cluster previously presented. This segment is composed mainly by females (80%), which are between 20 and 25 years old (76%). In this segment, the percentage of Germans (48%), the rest of Europe and the rest of world are higher than in the other cluster. 32% of this group do not have an account on LinkedIn but know it. This group has an account on Blogger, but uses it seldom (32%). They do not have an account on Wordpress and merely do not know it (36%), but on YouTube or Vimeo they have an account and use it regularly (48%). A high percentage of this group does not have an account on Social Bookmarking sites (48%). In respect to the other group, this cluster has a higher percentage of people with an account on Facebook which is also used it regularly (96% versus 92%). Nearly half of this group does not have an account on Twitter but the platform is known (48%). Compared with the previous group, this segment has an account in Instagram, and uses it regularly (32% versus 12%).

## 6. CONCLUSION

After conducting the literature review and the empirical research, several conclusions concerning the motivators for costumers to participate in co-creation processes via social media can be drawn. The hypotheses constructed after the literature review are discussed in the context of the results of literature and survey results. This is done in order to arrive at improvement points for the optimization of the survey before a further launch.

The literature review revealed that there are several factors that play a role in motivating consumers to participate in co-creation processes. The main results were that generally learning, personal and social integrative, hedonic as well as financial and material antecedents motivate costumers to a positive attitude towards co-creation. These factors positively influence the attitude towards co-creation activities which in turn lead to participation and satisfaction from co-creation activities. The survey was constructed on basis of these factors.

Analyzing the survey it was found that implications with the product, enjoyment, satisfaction and enrichment as well as network with community were the main motivators of co-creators. The 68 respondents that co-created before were divided into two cluster or segments in consequence of their heterogeneity. The two clusters of co-creators were "motivated co-creators", which were mainly male, over 25 and Dutch and the "non-motivated co-creators", which are mainly female, between 20 and 25 and German.

The factors found in literature and the motivators resulting from the survey were stating the same. However, there is a difference in the ranked importance of each factor when comparing the two clusters identified. For "motivated co-creators" the most influential factor is implication with the product, they are focused on gaining new knowledge and enhancing their knowledge about products and product trends during the co-creation experience. Moreover, they want enjoyment, as well as they are appreciating the network with the community. The least influential factor is satisfaction and enrichment. This means that motivated co-creators are generally more involved in activities of co-creation, they want to gain knowledge from participation and are willing to share their own knowledge as well as they are willing to promote their participation. Also, "motivated co-creators" are found to mostly be active on LinkedIn, whereas "non-motivated co-creators" are mainly found on Facebook. This division gives an important implication for managers when planning co-creation activities. Depending on the group that wants to be reached, the network has to be chosen.

The "non-motivated co-creators" select enjoyment as most important factor for them to participate in co-creation activities. Secondly, implication with the product is important as well as the network with the community. Satisfaction and enrichment is the last factor for "non-motivated co-creators" like for "motivated co-creators". In conclusion, non-motivated co-creators participate merely out of the desire of wanting to spend a relaxing and fun time, being entertained, while exchanging knowledge and co-creating.

Looking at the second part of the model, it is assumed that a positive attitude leads to customer participation and satisfaction with co-creation. Therefore, different statements were compared with the two clusters identified. "Motivated co-creators" wrote complain letters or emails in the past three years. They also called customer service lines about problems with new products as well as taking part in online discussing, showing they are generally involved in

giving feedback about products, discussing products and services and therefore willing to contribute to the improvement of products. In contrast "non-motivator co-creators" were not taking part in these kind of activities. They did participate however in some kind of co-creation activity.

The two groups of co-creators mean for companies to adjust their co-creation strategies accordingly. Offering the experience with experts so that "motivated co-creators" enhance their knowledge through participation as well as making it a pleasurable and relaxing experience to get "non-motivate co-creators" enthusiastic.

# 7. DISCUSSION

In the next part I will further discuss the hypotheses from literature with the findings in the survey as well as looking at other literature in order to optimize the survey for a further launch.

Looking at the hypotheses and compare the findings of the literature with the findings of the survey in this context leads to several new insights. It leads to ideas about the improvement of the survey as well as some ideas for management to implement co-creation activities.

The factors identified with the literature were learning, social integrative, personal integrative, hedonic and financial and material antecedents, mainly based on U&G (Uses and Gratification) Theory (see Luo, 2002; Urista & Day, 2008). Comparing these to the survey shows that, implications with the product can be assigned to learning, enhancing the knowledge about products and their usage; network with community is represented by the social integrative about expanding the personal and professional network as well as raising ones status; enjoyment equals to the hedonic factors, representing fun, pleasure and entertainment during the co-creation activity; lastly, satisfaction and enrichment implies the personal integrative like satisfaction from design and better products as well as financial and material factors which are gained directly and indirectly.

Looking at the hypotheses created after the literature review, most factors seem to have an influence as predicted. The strength of the motivational power however varies, especially between the two different clusters identified.

**H1**: Learning has a positive influence on the attitude towards co-creation.

The first hypothesis can be accepted on the grounds of the findings described in the results. It was not directly found as learning, however it is implied in the factor of implications with the product. This factors is seen as important motivating factor especially for "motivated co-creators", but also for "non-motivated co-creators". Implications with the product include enhancing knowledge about the product and its usage as well as making better buying decisions by being more knowledgeable on the product in question.

**H2**: Social Integrative has a positive influence on the attitude towards co-creation.

The social integrative is also proven to be an motivating factor. Social factors are included in the factor of creating a network with the community and thereby expanding the personal network as well as raising the status. However, it is the third important factor after implication with the product and enjoyment for "motivated co-creators".

**H3**: Personal Integrative has a positive influence on the attitude towards co-creation.

Personal factors was also assigned to the factor of satisfaction and enrichment and is therefore to be adopted. The personal integrative covers the areas of positively influencing the career as well as gaining satisfaction from design and from influencing other consumers. Furthermore, it includes the point of designing better products. This could also be interesting to be added for the factor of implications with the product. It was found in literature that consumers are also interested in innovation itself and wanting a product to be improved and act out of this interest in participating in co-creation processes. (Füller et al., 2010)

**H4**: Hedonic factors have a positive influence on the attitude towards co-creation.

The fourth hypothesis can be accepted as well since hedonic factors, i.e. enjoyment are found to be a motivating factors for both clusters, "motivated" as well as "non-motivated co-creators". The analysis of the survey as well as literature found that consumers participate in online co-creation activities in order to spend an enjoyable and relaxing time, entertain themselves as well as having fun and pleasure in participating in new product development.

**H5**: Financial/material factors have a positive influence on the attitude towards co-creation.

This hypothesis, stating that financial and material factors have a positive influence on the attitude towards co-creations is partly rejected. In the frequencies it shows that there is more of a trend towards it being unimportant. In the further analysis it was shown to only be a moderating factor and not a primary one, which was also confirmed by the findings in literature. For both groups, money was not one of the main factors identified, this was also found in previous research. Monetary rewards should only be seen as an extrinsic additional motivator. (Zwartjes, 2011)

U&G Theory in general, as discussed previously in the literature review, was found to explain consumers' attitude towards the web. (Luo, 2002) This supports the findings of this research that consumers participate in co-creation activities online in order to be entertained and informed (i.e. H4: Hedonic factors and H1: Learning respectively).

In addition, literature (Urista & Day, 2008) confirms that users satisfy their need for personal and interpersonal desires with online activities. Hypothesis 2,3 and 4 state these assumptions. The personal integrative, social integrative as well as finding a connection to the community can be satisfied due to participation in co-creation activities.

A main point found during this research was that the main group of respondents never participated in co-creation processes. Reasons for that were mainly not being aware of the possibility. Here is room for improvement of companies, which should advertise co-creation activities more directly via social media like Facebook, where most respondents are active.

In the rest of this paper I will discuss options to improve the survey which was now launched as a test questionnaire in order to further refine and improve it for a nationwide launch.

In order to improve the survey before a further, bigger launch there are several ideas that should be considered. Firstly, the diversity of respondents should be bigger, since most respondents here were between 20 and 25 years old, and bachelor students. Different age groups give different insights into the topic. Getting a more diverse respondent group could be achieved through different ways of distribution. In this research, the survey was distributed via Facebook. Therefore, distribution via E-mail, LinkedIn or different platforms might address different respondents.

Another general improvement point is a generic scale. In this survey there were different scales for most questions which made the analysis more complex. If the same scale is used for all questions, except the general introduction, the analysis is more coherent and would give more reliable answers, because the software analysis could be done more easily.

Furthermore, more questions should be added for non-co-creators. For this group, the survey was submitted after question 11, however it might give new insights when they are asked what would motivate them to participate in co-creation activities. As well as, whether the main problem was, like found in this survey, not being aware of the possibilities of co-creation or whether there are other factors as well.

Some questions could be clearer focused. Here, it is for example advised to more directly ask about the knowledge exchange with experts, since that shows to be an important factor for "motivated co-creators".

In the motivating factors, the category of altruism could be added as motivational factor. Especially in areas like medical supply it is common that people participate in co-creation in order to do a good deed for society. (Füller et al., 2010)

Other authors (see e.g. Prahalad & Ramaswamy, 2004) suggest that motivation can come from the whole experience of co-creation processes. This experience is based on high-quality knowledge exchange in order to create a product or service with added value for the costumer. The company needs to create an environment where the customer feels safe and opens up in order to exchange ideas. (Prahalad & Ramaswamy, 2004) This could be added to either the personal integrative or as a new antecedent to the model.

In addition, it should be added that the customer gets a product or service with a better fit to his/her needs. (Prahalad & Ramaswamy, 2004) This desire to achieve a perfect fit can be loosely related to hypothesis 3 about the personal integrative, where respondents were asked about the satisfaction from design and the want to design better products. However, it could be more clearly related to the fitting between the customers' need and the product or service offered.

Missing in the survey is the factor of trust which was found in literature as an inhibitor of co-creation. Other research showed that people are hesitant in sharing their knowledge with companies because these companies make profit out of the knowledge gain without sharing these profits (Brabham, 2008; Hoyer et al., 2010).

As well as the issue of trust, it was found that irritation is an inhibitor for the attitude towards the web (Luo, 2002). In order to get a more complete picture of the attitudes towards co-creation, to add irritation. Irritation is understood of the process being too messy for the user to being able to easily participate in any activity (Luo, 2002). Too much bureaucracy can be added to this inhibitor of participation, since that strengthens the feeling of irritation. That is because users require transparency in order to feel comfortable participating in co-creation processes where they are required to share their own knowledge and ideas (Colombo et al., 2011; Prahalad & Ramaswamy, 2004).

A part which was not taken into account in the analysis in this thesis were the moderators. The questions concerning the moderators were implemented in the survey, however did not give satisfying results. Answers were not possible to reliably analyze, this could be due to the different scales and types of questions used. This should be taken into consideration when the survey is optimized further.

When the survey is launched in a bigger scope, it could be interesting to diversify between different spaces of co-creation. Zwass (2010) hereby differentiates between "access commons", "collective intelligence", "virtual communities" and "open innovation". This differentiation could be done in the beginning of the survey (after the general introduction) when it is asked whether respondents participated in co-creation activities and then in what kind of activity they participated. However, this might be more feasible in interviews than in a survey distributed to all kinds of different internet users.

In conclusion, the survey already represents the U&G antecedents found in most literature on this topic, however there are single assumptions and factors found that might be interesting to consider in a revised version of this research.

Therefore it is suggested to include inhibitors like irritation and bureaucracy as well as the experience of co-creation activities itself.

## 8. LIMITATIONS

Limitations of this research are in the diversity of respondents. Outcomes might differ when different age groups are included. Furthermore, the focus of the research is on the European market, or even mostly on the German and Dutch market. Therefore, the results might not be generalizable to the global market, for example samples from the U.S. or Asian market may differ significantly. Another point is the distribution of the survey via Facebook. Different distribution channels might reach a different, more diverse group of respondents. Moreover, most respondents were bachelor students, therefore, when different educational levels are included, then the results possibly differ as well. It has to be kept in mind that the survey acts as a test questionnaire for a nationwide launch. It will be optimized according to the findings analyzed in this paper.

Another limitation is the number of respondents. Only 68 of the 239 respondents participated in co-creation activities, therefore the results might not be representative. A small, and non-representative sample could lead to a potential bias, because interpretation and achievement of statistical evidence is more difficult.

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