



received: 1 May 2019  
accepted: 15 September 2019

pages: 60-68

# INTERNET-BASED CONSUMER CO-CREATION EXPERIENCE OF THE NEW PRODUCT DEVELOPMENT PROCESS

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## ABSTRACT

The paper aims to explore consumer co-creation experience of new product development processes. Specifically, it is an attempt to determine the level of consumer engagement in an online co-creation process, identifying motives and reasons for the participation in new product development as well as understanding the types of Internet-based co-creation that are mostly preferred by consumers. The study used an online questionnaire and the CAWI method. The results of the research showed that consumers were interested in being involved in the co-creation of new product development. However, some consumers clearly expressed their reservations regarding participation because they felt lacking required knowledge.

## KEY WORDS

**consumer co-creation, new product development, open innovation, Internet-based co-creation, co-creation experience**

DOI: 10.2478/emj-2019-0021

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## INTRODUCTION

These days, nearly all organisations face challenges posed by the rapidly changing and dynamic environment, which requires them to cope and adapt. The evolvement of the Internet and the transformation of trends external to companies, such as globalisation or increased competition, have altered innovation processes that were traditionally used in

organisations to achieve the open innovation approach, which puts some influence regarding the development of innovations in the hands of internal employees. Nevertheless, the concept of open innovation also implies a more active contribution of consumers to the new product development (NPD) processes (Chesbrough, 2003). Therefore, companies with an open innovation strategy view consumers as

a valuable resource for new product ideas (Geise, 2017), and the inclusion of consumers in NPD, which is becoming a trend for many organisations, is referred to as “consumer co-creation” (Hoyer et al., 2010). Consumer co-creation defines an active, creative and social collaboration process between producers and consumers, facilitated by the company (Piller et al., 2010). This concept has received increasing attention in the past few years, and nowadays, organisations are forced to find new ways to attract, gain and sustain loyal customers to remain competitive.

This paper aims to explore consumer co-creation experience of NPD processes in a company. Specifically, it is an attempt to determine the level of consumer engagement in an online co-creation process, identifying motives and reasons for participation in NPD as well as understanding the types of Internet-based co-creation that are mostly preferred by consumers.

Even though the questionnaire (CAWI) was conducted online, the research had a qualitative approach as the authors focused on the exploration of reasons, motives and expectations for the co-creation from the consumer perspective. The research provides an insight into the consumer experience in co-creation situations. Specifically, it focuses on determinants and motives in the cases where the co-creation experience depends on consumer characteristics, such as expected co-creation benefits (i.e., expectations of a consumer regarding benefits from co-creation situations; Fuller, 2010), consumer attitudes towards co-creation (considering the earlier mentioned benefits) and consumer reflection (how the attitudes are translated into actions) (Katz et al., 1974).

The theory presented in the article and the research findings can be used by managers and marketing specialists for insights into the key elements of co-creation and the most important consumer motivators to engage in co-creation activities.

The paper is organised as follows: first, the literature review presents the influence of open innovation on new product development, and the relation between the NPD process and consumer co-creation. The literature review also characterises the concept of consumer co-creation from the company’s and consumer’s perspectives, which reveals different motives of co-creation. The research findings present reasons, motives and expectations of co-creation from the consumer perspective. Finally, conclusions propose some practical implications based on the literature review and research results.

## 1. LITERATURE REVIEW

The literature review was based on search key words, such as consumer co-creation, consumer motivation, new product development, and open innovation. The search was constrained to information regarding co-creation in the B2C sector only.

A constantly changing business environment, which is especially relevant nowadays, requires companies to compete by implementing new strategies while considering that product innovation development is used to satisfy consumer needs and wants. This is especially important in building customer loyalty (Siemieniako, 2011; Siemieniako and Urban, 2006). Therefore, open innovation has become a new paradigm and an integral part of innovation strategies (Inauen and Schenker-Wicki, 2011) in companies, including the involvement of consumers and producers simultaneously as co-producers. Zatwarnicka et al. (2019) describe the involvement of women in co-production in the handcraft industry of a developing country. A recent report showed that 61% of firms were growing or expanding their open innovation efforts with the focus on partner networks, ideation programmes, problem/solver networks and co-creation programmes (Griffin et al., 2014). The integration of open innovation in companies leads to the development of new products for the competitive marketplace. New product development is an important component in an organisation’s enlargement and an increment of its future success (Durmaz et al., 2017). Regular development of new products can potentially ensure customer satisfaction, meet relentlessly changing needs and market requirements (Owens, 2004). Consequently, NPD is an important driver of corporate growth and profitability (O’Hern and Rindfleisch, 2010), with an emphasis on systems, which simultaneously provide quality, variety, frequency, speed of response and customisation (Bessant and Francis, 1994). This can be achieved using the NPD process and its stages. NPD processes involve a series of phases called the Stage-Gate process (Cooper, 2011) aimed at delivering a functional commercial benefit to consumers (Harmancioglu et al., 2007) and improving and controlling NPD (Sethi et al., 2012).

Typical Stage-Gate process design breaks the traditional NPD process into a set of discrete and identifiable stages, with each stage consisting of a set of prescribed activities (Tzokas et al., 2004), such as: the generation of new product ideas, the development

of an initial product concept, an assessment of its business attractiveness, the actual development of the product, testing it within the market, and the actual launch of the product on the marketplace. Alongside each of these stages, an evaluation takes place, basically, to determine whether the new product should advance further or be terminated (Tzokas et al., 2004).

By launching new products, companies try to deliver new product characteristics, such as new benefits, higher quality, correspondence to user needs, decreased time-to-market, and reduced development costs (Cooper, 2013). The NPD process aims to provide solutions that would satisfy consumer needs and wants (von Hippel, 2005). Hence, to perform this for creating and launching successful new products, an understanding of consumer preferences has to be essential and taken into consideration (Joshi and Sharma, 2004). This shift of consumer role during the NPD process leads to “co-creation”. By relating the NPD and the co-creation process, O’Hern and Rindfleisch (2010, p. 83) discussed a definition of the co-creation as “a collaborative NPD activity in which customers actively contribute and/or select the content of a new product offering.” Beside this, co-creation involves exchanging ideas, sharing knowledge, and working together (Akhilesh, 2017). Piller et al. (2010, p. 8) defined co-creation as “an active, creative, and social collaboration process linking producers and consumers, aided by the organization.” This idea of co-creation is different from some other terms, such as mass collaboration, crowdsourcing, and mass customisation, which sometimes get confused with co-creation. As co-creation creates value for an individual as well as a group, it is different from mass customisation. Co-creation is different from crowdsourcing of ideas because it implies active intellectual participation in a process; and it is different from mass collaboration because of the two-way flow between the organisation and the participant (Ind et al., 2013). In addition, consumer involvement in the NPD process can improve product quality, reduce risk, and improve market acceptance (Hoyer et al., 2010).

The ability of consumers to take a more active role in NPD has been significantly enhanced by recent technological advances, most notably, the development and expansion of the Internet (O’Hern and Rindfleisch, 2010). Mitreęa (2018) showed the value of online organisational routines for co-creation and their helpfulness in product innovation implementation on the market. The introduction of Web

2.0 and different social media platforms contributed to the development of a new era of consumer empowerment enabling consumers to interconnect worldwide and easily share and exchange personal, social and scientific knowledge with like-minded individuals (Lorenzo-Romeo et al., 2014) as well as share information, opinions and experiences as fast as never before (Smaliukiene et al., 2014). Thus, the web and social media enable companies to interact and share knowledge with consumers, and to co-create new products with them.

According to Hoyer (2010), the collaboration with consumers in all stages of the product development process concerns the scope of co-creation. Co-creation implies consumer engagement in phases of NPD (Verleye, 2015), namely, the creation of offerings through ideation (e.g., consumers generating new ideas in virtual environments of companies), design (e.g., consumers designing their own offerings using self-design tools provided by companies), and development (e.g., user communities testing offerings for defects). Some consumers only participate in the initial stages of the process; others partake in the final stages, and some cooperate continuously throughout the entire course of development (Largosen, 2005). However, consumer input at the early stages is more critical and useful than at the later stages (Kahn et al., 2005). For example: (i) the “Co-Creation Lab” of the BMW Group is a virtual meeting place for individuals interested in car-related topics and anxious to share their ideas and opinions on the automotive world of tomorrow; (ii) LEGO Ideas is an online community where members can discover cool creations by other fans and submit their own designs for new sets; (iii) Apache is open source web server software where consumers can test, provide feature enhancements, bug fixes, and support others in blogs and forums. Co-creation in NPD is an experience-oriented concept, which concentrates on the interaction between the company and the consumer. Therefore, co-creation has three important aspects, namely, the consumer, the company and the interaction between the consumer and the company. The co-creation process can be considered from different perspectives, i.e., the company perspective and the consumer perspective, highlighting benefits for both.

From the perspective of a company, the facilitation of the co-creation experience with consumers requires to create environments that promote co-creation. Firms need to create specific environments for employees to interact with consumers, provide information infrastructure and resources (Ter-

blanche, 2014). These capabilities and infrastructures that allow consumers to perform activities have to fulfil five basic requirements: provide user-friendly operation, offer module libraries, provide “trial and error” functionality, define a possible solution space and transfer user design (Gaubinger et al., 2015). Furthermore, these resources and infrastructures have to be built on the basis of three characteristics: “degrees of freedom” (the consumer’s autonomy in the task), “degrees of collaboration” among consumers (the interaction between the firm and the consumer vs. communities) and the “stage of the innovation process” (front-end vs. back-end) (Piller et al., 2010). According to these three dimensions, eight ideal types of co-creation with consumers emerge: idea contests, idea screening, product-related discussion forums, communities of creation at front-end co-creation; and toolkits for user innovation, toolkits for customer co-design, communities of creation for problem-solving and virtual concept testing at back-end co-creation. All these methods of consumer co-creation follow a common principle, but despite this common ground, companies intending to profit from co-creation need to know which of the different methods are most suited for them and how to use these tools best (Piller et al., 2010). More detailed research is required to answer these questions.

From the consumer perspective, co-creation has been addressed in terms of stages experienced by consumers during participation, analysing their motives to participate, their roles in co-creation and their participation styles (Terblanche, 2014). The level of consumer participation in co-creation depends on the technical ability of consumers, the information they possess and the costs of participation (Gurau, 2009). According to Fuchs and Schreier (2011), four levels of consumer involvement exist and relate to consumer empowerment in terms of two basic dimensions: creating ideas for new product designs (zero empowerment and empowerment to create) and selecting the product designs to be produced (empowerment to select and full empowerment). As a result, different levels of involvement will have different effects on the outcomes of co-creation. The higher the involvement of consumers in co-creation, the more positive the outcomes will be.

But the concept of co-creation is based on a voluntary basis, which implies that consumers have to be motivated to participate. Therefore, a key constraint of the concept is the consumer’s willingness to exchange ideas and knowledge with organisations. It

is vital for businesses to determine what enables consumers to actively share their ideas and what might inhibit their decision to cooperate.

Fuller (2010) analysed motives for co-creation. Multiple reasons drive consumers to engage in open innovation projects ranging from purely intrinsic motives (such as fun, kinship, and altruism) and internalised extrinsic motives (e.g., learning, reputation, and own use) to purely extrinsic motives (such as payment and career prospects) (von Krogh et al., 2008). As a result, ten categories of motives were identified: intrinsic playful task, curiosity, self-efficacy, skill development, information seeking, recognition (visibility), community support, friendships, personal need (dissatisfaction), and compensation (monetary reward) (Gaubinger et al., 2015). This motive structure served as the basis for the distinction of four consumer types: reward-oriented, intrinsically interested, curiosity-driven and need-driven consumers (Fuller, 2010). Reward-oriented customers are driven by monetary reward. Intrinsically interested customers are highly motivated by their interest in innovation activities, as they are very skilled novelty seekers, who like problem-solving. For them, monetary reward is not the first priority. Curiosity-driven customers are highly involved in co-creation, as they are curious about the process and its result. Need-driven customers participate in co-creation because they are not satisfied with the current products/services available on the market. They are highly demanding and very interested in adapting the existing offer to their own needs (Orcik et al., 2013). Ideally, a company should target all types of consumers with its Internet-based co-creation activities and meet their expectations.

In terms of customer motivation to participate in online co-creation, Katz et al. (1974) proposed uses and gratification (U&G) theory. This theory can be supplemented with Fuller’s (2010) classification of benefits (which are economic, cognitive, hedonic, personal, social and pragmatic) and O’Hern’s and Rindfleisch’s (2010) co-creation typology classification, which includes co-designing, tinkering, collaborating and submitting.

## 2. RESEARCH METHOD

The study was based on an online questionnaire and the CAWI method. Even though the tool was quantitative, the used approach was qualitative. The statistical analysis was not made as the research was

considered explorative and aimed at revealing consumer motives to participate in co-creation processes via Internet-based resources. Google Forms were chosen as an appropriate tool for the new era of consumer empowerment, enabling consumers to interconnect worldwide and helping them to gather data from various geographical locations.

Different types of questions were used in the questionnaire, including dichotomous, multiple-choice and ranking scale questions. Facebook was used as a social media platform for the distribution of the survey to reach respondents worldwide. The questionnaire was divided into two parts, with the first part capturing the motives and perception of involvement in the co-creation process, and the second part targeting demographic characteristics of respondents.

The research sample comprised of 126 respondents. The purposive method was used to gather respondents. The intent was to have male and female respondents of different age groups, specifically: 16–25 year-olds as the first group, 26–35 year-olds as the second group and those over 35 as the third group. It was also assumed that the respondents would represent a wide range of levels of education, occupations, different employment statuses and social groups, such as students and older adults.

Participation in this survey was voluntary, participants did not receive any financial/non-financial remuneration.

### 3. FINDINGS

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The group of respondents comprised of 38 (30%) males and 88 (70%) females. Respondents were distributed across three age categories, with 43% in the first group (16–25 y.o.), comprising between – 24% in the second group (26–35 y.o.) and 33% in the third group (over 35).

In terms of the level of education and the type of occupation, more than half of respondents were employed (52%), one-fifth were students (21%), 15% were self-employed, some were unemployed (10%) and retired (3%).

Most respondents (47%) spent 1 to 3 hours online on average per day, some (20%) spent 4 to 6 hours, and several people (11%) spent more than 6 hours. Only 10% of respondents had only 10–30 minutes to spend online on average per day, while 13% of respondents spent 30–60 minutes.

According to the results of the research, three-quarters of respondents had never participated in co-creation activities. Some reasons became apparent, with the majority (42%) of respondents indicating having had no knowledge of a possibility to take part. Despite the fact that consumer co-creation is not a new phenomenon, most people are still unfamiliar with this concept and the type of activities it entails. Consequently, aiming to attract more people, companies must provide more information about co-creation activities at their locations but also at more popular sites used by consumers, such as Facebook, Instagram and Twitter. The second most popular reason, which was indicated by a third of respondents, was the lack of knowledge of how to participate. This reason is interconnected with the first as without the awareness of the activity taking place, it is impossible to know how to participate. It is also an important factor as the lack of knowledge decreases customer motivation. To avoid this as well as to interest and motivate people to participate, companies must provide consumers with clear instructions and detailed explanation of the process. Yet another reason is the lack of thought about the possibility to take part in online co-creation activities, which was indicated by almost 13% of respondents. This reason can also be explained by the lack of motivation and understanding the purpose of the activity.

However, 81% of all respondents indicated their interest to participate in co-creation activities related to NPD processes in the future. The most popular reasons for such interest were enhanced knowledge of product trends, related products and technology (47% — strongly agree; 23% — agree), improved satisfaction of customer needs (57% — strongly agree; 29% — agree) and a possibility to spend some enjoyable and relaxing time (23% — strongly agree; 33% — agree; Fig. 1).

These reasons were related to cognitive, pragmatic and hedonic expected benefits, respectively. It should be noted that financial compensation or another type of reward was not a priority. Consequently, according to the expected benefits, the respondents can be attributed to the group of intrinsically interested, curiosity-driven and need-driven customers. Respondents who were uninterested in participating in co-creation in the near future once again mentioned the lack of time and interest.

To understand the respondent's intention to participate in future online co-creation activities, cluster analyses were used. The results showed that



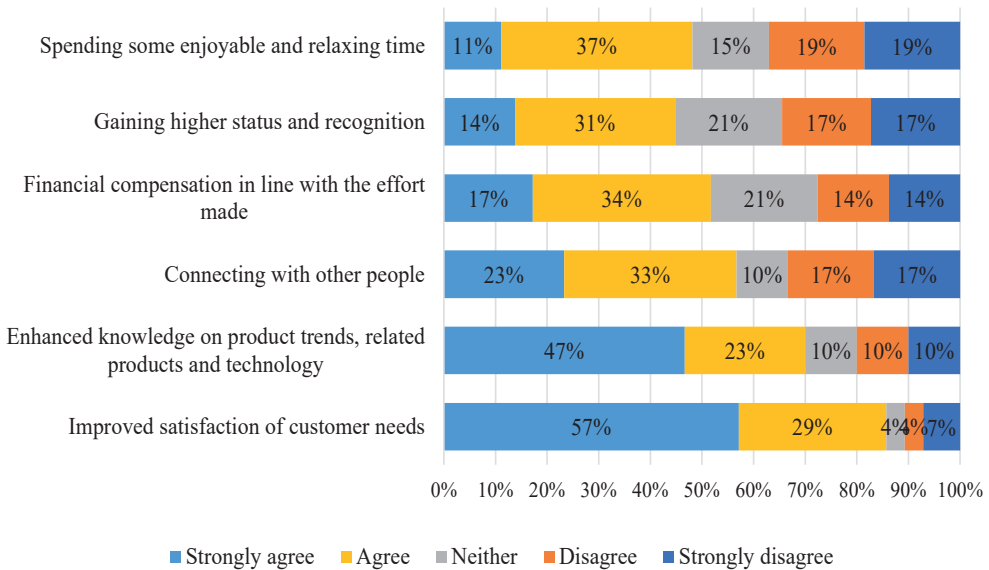


Fig. 1. Reasons of participating in online co-creation activities

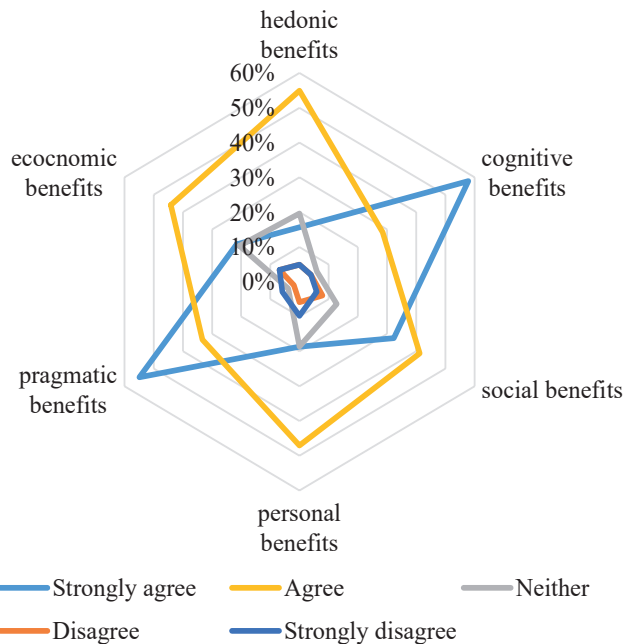


Fig. 2. Benefits expected from the participation in an online co-creation process

consumers engaged in online co-creation for several reasons, such as curiosity, dissatisfaction with existing products, intrinsic interest in innovation, enhanced knowledge, the chance to share ideas or to get monetary rewards. This analysis revealed the difference among consumers by their motive structure that drives them to participate in online co-creation and, therefore, expect different benefits (Fig. 2).

The most prevailing types of expected benefits among respondents were cognitive, which were related to acquiring new knowledge or skills, and

pragmatic, which concerned better solutions for personal needs. This suggests that relationships exist between benefits and reasons for participation in online co-creation activities. As for the reasons related to benefits, enhanced knowledge of the products and their use as well as better solutions for personal needs were the most popular among respondents. However, respondents also indicated they would anticipate hedonic benefits in terms of spending some enjoyable and relaxing time, fun and pleasure, entertainment and stimulation of the mind,

enjoyment of problem-solving, idea generation etc. However, economic benefits were not important as they could be expected compared to other benefits. As it was mentioned above, all respondents indicated the importance of being rewarded and this reward did not automatically have to be money.

Considering the consumer attitude towards the co-creation process, it was observed that 57% of respondents strongly agreed with the fact that involvement of consumers in the online co-creation process would result in better products or services and co-creation activities could positively affect the relationship between customers and companies. However, 45% of respondents strongly agreed that users must be involved in the online co-creation process. Usually consumers want to be intrinsically motivated. Furthermore, consumers are more aware, more conscious about their needs and have a distinct conception of which products or services they are searching for. Consequently, they want to be engaged in co-creation process and actively participate in the creation of new products.

At the same time, however, the most preferred types of Internet-based co-creation activities were co-designing (helping to select the product design by voting), tinkering (adding additional features to the product) and collaborating (developing and improving core components and the underlying structure of a new product), which scored 31%, 27% and 26%, respectively. These results can be explained by the fact that submitting represents the lowest level of consumer empowerment, compared to other types of co-creation (as the company dictates the format that contributions must follow and also has full power to select which consumer contributions to adopt), while more consumers are seeking to receive a more active role in the creation of the products they consume. The almost equal distribution of opinions among these three types of co-creation can be explained by the fact that all these types provide customers with considerable autonomy in terms of the selection process in varying degrees, and co-designing involves a level of customer autonomy over content selection that falls somewhere between collaborating and tinkering.

## CONCLUSIONS

Based on the literature review, it can be concluded that co-creation in the NPD process is an important aspect of the highly competitive market of today.

With the advent of Internet and mobile technologies, consumer opinions and information can be easily obtained and cost less than ever before. Thus, co-creation with consumers is not only a means of gaining insight into the wants of consumers but also a marketing tool to show that the company invites its consumers to participate in the development of new products and company-wide innovation. Internet ensures effectiveness and efficiency of co-creation activities used for the NPD process by lowering the cost of interaction among participants, allowing a larger number of participants to contribute to a particular co-creation initiative as well as decreasing time-to-market and financial cost. In addition, consumer co-creation has substantial implications both for firms and consumers, where firm related outcomes of co-creation are efficiency, effectiveness and increased complexity, and the consumer-related outcomes fit consumer needs, build relationships, bring engagement and satisfaction.

The findings of this research showed that contemporary consumers, although not yet participating in co-creation activities within the NPD process, are very willing to be engaged in the future. The main reasons for participation in co-creation activities are enhanced knowledge on product trends, related products and technology, improved satisfaction of customer needs and spending some enjoyable and relaxing time. In the opinion of the respondents, the most important types of expected benefits from the participation in the co-creation of a company's NPD process are cognitive and pragmatic. Also, hedonic benefits were emphasised as important.

Based on the literature review and the results of the explorative research, the conceptual model (Fig. 3) was offered, which can be empirically tested using a quantitative survey in the future.

The proposed model consists of three variables, namely "antecedents", "attitudes", and "consequences". The first variable of the U&G theory (Katz et al., 1974), "antecedents", explains the motivations a customer could have to co-create on a voluntary basis. These motivations are based on Fuller's (2010) classification of benefits and, respectively, are economic, cognitive, hedonic, personal, social and pragmatic. These antecedents influence the attitudes of a user towards participants in co-creation and the subsequent actions. The variable "attitudes" describes what attitudes the customer has towards co-creation, considering previously mentioned benefits. The final variable "consequences" interprets how the attitudes are transferred into actions. These "consequences"

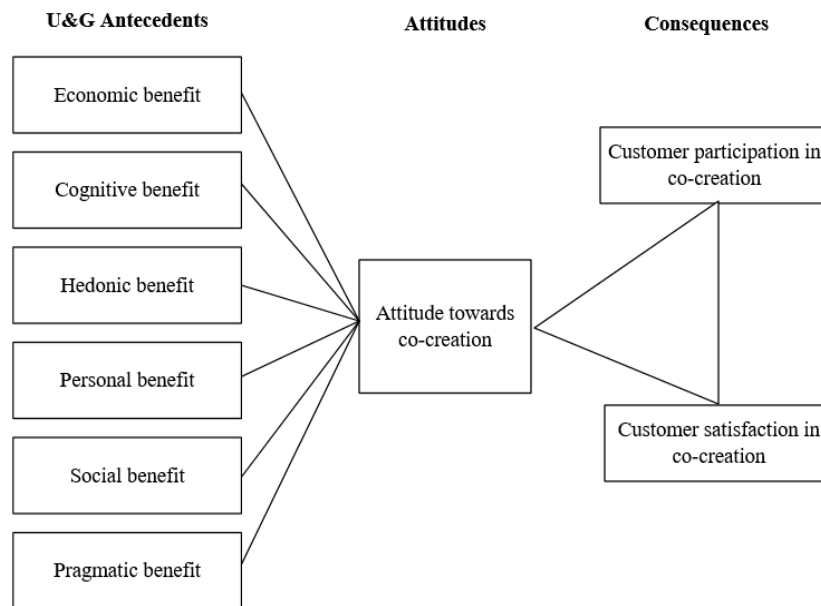


Fig. 3. Conceptual model

include “customer participation in co-creation”, whether users have participated in any kind of customer involvement, which is based on typology of customer co-creation developed by O’Hern and Rindfleisch (2010) and includes codesigning, tinkering, collaborating and submitting; and “customer satisfaction in co-creation” which explains the benefits expected by the users to satisfy them sufficiently during co-creation.

The practical implications of these findings inform companies about a motivated co-creator and keys to the success of the co-creating activity. Motivation can be achieved by supporting and promoting the six perceived benefits, particularly those related to the social aspect, such as enjoyment and stimulation of the mind as well as benefits related to the pragmatic aspect, such as enhancing the knowledge of the product, technology or brands. Clearly, consumers would be willing participate more if the process offered enjoyment and entertainment as well as provided insights and knowledge of products and technologies.

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