

T.R.
GEBZE TECHNICAL UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES

A BETTER UNDERSTANDING OF VALUE CO-CREATION

Mevlûdiye GÜZEL
A THESIS SUBMITTED FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
DEPARTMENT OF BUSINESS ADMINISTRATION

GEBZE
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Thesis Supervisor
Prof. Dr. Bülent SEZEN

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2020**

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ÖZET

Dijitalleşmenin hızlı ilerleyişi, pek çok sosyal, psikolojik ve ekonomik değişimi beraberinde getirdi. Tüketiciler dijitalleşmeden aldıkları bu güçle, firmanın yeni ürün geliştirme gibi içsel işleyişi üzerinde daha fazla söz sahibi olmuş, böylece ortak değer yaratma (value co-creation) kavramı ortaya çıkmıştır. Mevcut araştırmalarda bu kavramın genelde niyet düzeyinde incelendiği, davranış olarak yeterli bir şekilde açıklanmadığı görülmektedir. Benzer şekilde yeni ürün geliştirme süreçlerinde ortak değer yaratma konusu ise işletmeler düzeyinde kalmış, bireysel tüketici düzeyi ihmal edilmiştir. Bu tez çalışmasında yeni ürün geliştirme bağlamında bireysel tüketicinin ortak değer yaratma davranışına ışık tutulması amaçlanmıştır.

Bu bağlamda yeni bir kulaklık tasarımı geliştirmek üzere üç aşamalı bir deney tasarlanmıştır. Böylece ortak değer yaratma davranışı, nedenleri ve sonuçları ile birlikte bütünsel bir yaklaşımla ele alınmıştır. Altı aylık bir sürede gerçekleştirilen üç ardıl deney kapsamında 934 üniversite öğrencisi ile anket çalışması yapılmıştır. Elde edilen verinin analizi sonucunda şu sonuçlara ulaşılmıştır: ilk deneyin verilerine göre tüketicilerin kişilik özellikleri (dışa dönüklük, sorumluluk, duygusal denge ve deneyime açıklık) ortak değer yaratma davranışında bulunma niyetini artırmaktadır. Bu çalışmaya ünlü bir ismin dahil edilmesi ve tüketicinin ürün hakkındaki ilgilenimi de bu niyeti olumlu bir şekilde etkilemektedir. İkinci deneye gelindiğinde tüketicilerin ortak değer yaratma davranışının şu şekillerde gerçekleştiği görülmüştür: bilgi arama, geribildirim, korumacılık ve tolerans. Aynı zamanda bu tüketiciler, firmayla birlikte tasarladıkları yeni ürünü satın alma niyeti de göstermiştir. Son deneyle birlikte tüketiciler, ortak değer yaratma sürecine dahil oldukları ürünle karşılaşmıştır. Bu ürünün kendi fikirlerini yansıttığını gördüklerinde ve genel olarak süreçten memnun kaldıklarında ise ortaya çıkan ürünü satın alma niyetlerinin daha da arttığı görülmüştür.

Anahtar Kelimeler: Ortak değer yaratma, yeni ürün geliştirme, satın alma niyeti, ünlü kullanımı, kişilik özellikleri, algılanan katkı

SUMMARY

Digitalization's fast steps into our lives have brought about social, economic and psychological changes. Interactive way of life is one these novelties and influences both customers and companies at the same time. Being digitally empowered, customers have become more involved into companies' internal processes such as new product development. This new interactive relationship has paved the way to the concept of value co-creation in the last two decades. The research has been piling up with a growing interest. However, previous studies mainly focus on intentions, lacking a detailed analysis of actual value co-creation behavior. And literature on co-creation behavior in the context of new product development is mostly occupied by business-to-business (B2B) research.

This thesis study aims to shed light onto value co-creation behavior from consumer's perspective in the context of business-to-consumer (B2C) level new product development. Three consecutive studies are carried out to explore consumers' value co-creation behavior with its drivers and consequences. The experimental data have been collected from 934 university students within a time period of six months.

Findings suggest that extraversion, conscientiousness, emotional stability and openness to experience increase consumers' willingness to participate in value co-creation. Celebrity endorsers and product category involvement also positively affect this tendency. When consumers display co-creation behavior (in the forms of information seeking, feedback, advocacy and tolerance), they intend to purchase the product to be co-created. But they are especially keen to buy this co-created product, when they feel satisfied with this experience and their contributions are embodied in it.

Keywords: Value co-creation, new product development, purchase intention, celebrity-endorsement, personality traits, perceived contribution

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“What we call ‘life’ is a train with many carriages. Sometimes we’re in one, sometimes we’re in another, and sometimes we cross between them” writes Paulo Coelho in his book “Aleph”. A PhD study needs an inquirer who agrees to dedicate one whole carriage of his/her life to a scientific curiosity. I gladly gave all my passion, determination and perseverance to this thesis. But its completion would not have been possible without participation of several contributors.

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LIST OF ABBREVIATIONS

<u>Abbreviations</u>	<u>Description</u>
VCC	: Value Co-creation
NPD	: New Product Development
M	: Mean
SD	: Standard Deviation
DF	: Degrees of Freedom
EFA	: Exploratory Factor Analysis
CFA	: Confirmatory Factor Analysis
KMO	: Kaiser-Meyer-Olkin
PCA	: Principal Component Analysis
CR	: Composite Reliability
AVE	: Average Variance Extracted
RMSEA	: Root Mean Square Error of Approximation
CFI	: Comparative Fix Index
TLI	: Tucker Lewis Fit Index
IFI	: Incremental Fit Index
RFI	: Relative Fit Index
NFI	: Normed Fit Index
SEM	: Structural Equations Modelling
TL	: Turkish Lira
NA	: Not applicable

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1. INTRODUCTION

“Consumers are beginning in a very real sense to own our brands and participate in their creation. We need to learn to begin to let go.”

A.G. Lafley, CEO of Procter and Gamble Co.

After having spent decades to define, border and limit every concept in our lives, today we are experiencing an anti-limiting approach by opening up every single piece of our lives as an individual, an institution or a country. Now is the time to break down the walls either literally (just as Berlin Wall) or figuratively. We shall let knowledge flow in and out, which will bring us more value than our own preserved comfort zones. We shall cooperate, coordinate, co-create and even co-exist for the more and the better.

Sustainable and superior performance is hardly possible for companies in this open-source environment without improving their capacity to explore, acquire and internalize outer information as well as open up their reserves to consumers, suppliers and even competitors. Customers stand out as the richest competitive reserves. Therefore, in this competitive marketplace companies have a main task to deliver superior value to customers (Nasreen and Sharifah, 2011) so that customers will create value to companies in return. This can only be possible by tearing down company walls and the active inclusion of customers into production process as much as possible. A critical mass of individual customers can only constitute an audience through co-creation (Zwass, 2010).

Given that the precious source of knowledge is certainly customers in marketing theory, fmcg giant P&G launched a remarkable transformation by putting customers at the heart of everything, and consequently, tripled its profits to \$10billion, in a span of about seven years from 2000 till 2007 during the reins of its CEO; A.G. Lafley. This is when Prahalad and Ramaswamy (2000) introduced the concept of co-creation. Depending on their active role in shaping the future of brands, goods/services and even markets, customers are strongly suggested and generally accepted to be “co-creators of value” (Vargo and Lusch, 2008). As this approach has so much accepted by both companies and researchers that as offered by Payne and Frow (2014) the number of

articles about this promising research area raised more than twenty times between 1998-2010 (Seppä and Tanev, 2011).

Value co-creation is an opportunity for both customers and companies to work together in order to reach a mutual value. It is a perspective that can be reflected on several applications such as consumer feedbacks, sharing/inviting innovation ideas, idea competitions, co-production of services and products, social media comments and company workshops. Increasing interest in value co-creation has been observed both in market and in academy for the last two decades. Companies (e.g. Threadless.com) apply it as an innovation strategy, a marketing policy and an advertising method while researchers explore its theoretical implications and investigate successful cases like LEGO Ideas (Kurikko and Tuominen, 2012). Moreover, it happens by itself as in the case of Firefox, which emerged from a collaborative effort by open source developers.

It is a sustainable competitive advantage for companies to manage value co-creation process (Prahalad and Ramaswamy, 2004). Traditional sources of competitive advantage, such as capital and location are losing popularity (Seppä and Tanev, 2011) while companies' co-creative approach to connect business processes with individual customers and simultaneously manage their relationship has become a key competence. One promising research stream in value co-creation is new product development (Seppä and Tanev, 2011). This context is mainly studied at business-level cooperation because co-creation results in so much consumer input that it may sometimes become an overload (Hoyer et al., 2010). Despite its inconveniences, involving individual consumers into development of new offerings are important as co-creation increases effectiveness of products (Seppä and Tanev, 2011). Consumers' behavioral modes and co-creation dimensions are, on the other hand, listed among the unresolved issues by Kim et al. (2019). Palma et al. (2019) suggest that most research on value co-creation is rather conceptual.

Evaluating above considerations this thesis study explores value co-creation in the context of new product development from individual consumers' point of view. Three experimental studies are carried out to explain value co-creation behavior with its drivers and consequences. Following subsections presents problem statement,

purposes and contributions of this study in detail. After this introduction, value co-creation and its reflection on new product development is theoretically reviewed. Then the research design and methodology of the study are provided as well as the empirical results of the analyses. The discussions emerging from the results are presented together with the theoretical and managerial implications. The thesis finishes with conclusion and research limitations that will give further research implications.

1.1. Problem Statement

Value co-creation is vital in the process of new product development because active consumer inclusion into this process means higher product quality, new product ideas and higher new product success (Hoyer et al., 2010). For example, Muji, a Japanese consumer goods company, reported that their three-year sales from products developed through consumers' ideas were five times higher than those products developed by their professional designers' ideas (Chang and Taylor, 2016). On the customer's side, having hands on the co-creation of a new product results in better match with their needs, satisfaction, trust, empowerment, and long-term collaboration (Vega-Vazquez et al., 2013; Oyner & Korelina, 2016). Despite its importance for both company and consumer, the existing research of co-creation in new product development context mostly covers co-creation in the B2B context (Hoyer et al., 2010). This thesis, on the other hand, focuses on value co-creation with a customer perspective in line with Verleye's (2015) suggestion. Consumer behavior in terms of value co-creation has been scarcely studied in the context of new product development. Therefore, a comprehensive research in terms of consumer behavior of co-creation is needed in this manner that will guide the research agenda (Hoyer et al., 2010).

Despite its increasing importance, research on consumer's co-creation behavior is rather conceptual and unidimensional (Palma et al., 2019). Even if co-creation behavior literature has been recently piling up, the behavior is taken as either customers' willingness to co-create (Elsharnouby and Mahrous, 2015) or an evaluation of their recent co-creation experience (Füller and Bilgram, 2017). This approach is essentially a snapshot in time and cannot take us further from the moment it represents. There are just a few efforts that actually focus on behavior itself by using experimental design (Alarcón López et al., 2017), but both the number and the experimental

procedures are quite limited. Adapting Balsco-Arcas' (2014) explanation that value co-creation is an interactive and collaborative experience of consumers' active participation, this study addresses this gap by focusing on actual co-creation behavior in a full new product development context. The current literature also fails to offer a pragmatic approach that focuses on actual co-creation behavior together with its beginning (drivers), happening (behavior) and ending (results). A three-stage holistic approach is developed accordingly. And a comprehensive field study has been applied in these three stages: intention to co-create, actual co-creation behavior and post-behavior evaluations. This approach has been further enriched with different variables that are expected to impact each step and consequently all the process.

1.2. Research Purposes

This study covers three stages of consumer co-creation behavior in new product development with a broad perspective: intention-behavior-evaluation, and aims to answer three main questions:

- (intention) what drives customers to participate into value co-creation (VCC),
- (behavior) how customers behave and feel during a value co-creation activity,
- (post-behavior evaluation) how they react to the co-created product?

The proposed research questions in this study have emerged from these main motivational questions and developed around behavioral stages. The first stage, accordingly, focuses on effects of personality traits, involvement and celebrity endorsement upon intention to participate into co-creation. The second stage examines co-creation behavior and its effect on intention to buy the product to be co-created together with participants ideas. And the final stage explores participants' satisfaction and perceived contribution upon seeing the co-created product as well as whether their purchase intention changes or not.

1.3. Contributions

According to the research priorities suggested by Marketing Science Institute (MSI) between 2016-2018, how to adopt innovation to the company strategy is a key

marketing direction and research should significantly focus on this issue. Innovation is becoming a result of external knowledge sources such as competitors, suppliers, freelancers and consumers. Value co-creation is an outstanding concept as it is defined as “a collaborative new product development activity, in which consumers actively contribute and select various elements of a new product offering” (O’Hern and Rindfleisch, 2010). In short, value co-creation is a collaborative effort by customers and companies simultaneously to build up value on both sides.

This study contributes to the existing literature in three ways. First is integrating actual value co-creation behavior with before and after stages in order to holistically analyze a new product development process. In reply to Balsco-Arcas et al.’s (2014) recommendation that actual behavior of participants could be observed and post-purchase experience could be analyzed, this study will serve as a basis to elaborate co-creation theory by focusing on a value co-creation behavior (Prahalad and Ramaswamy, 2004) with its pre- and post- stages. Second is emerging from comprehensive nature of this three-stage study. Here it is aimed to explain consumers’ perception of contribution to a co-created output which also makes this study original in its field of study. And the last but not the least is the attempt to carry out such an individual consumer-centered field study in the context of new product development, which is already occupied with research on business level co-creation.

2. LITERATURE REVIEW

2.1. Theory of Value Co-creation

Just at the dawn of a new millennium, Prahalad and Ramaswamy (2000) introduced the concept of co-creation in their 2000 Harvard Business review article, "Co-Opting Customer Competence" with a theater scene example: customers are not anymore just sitting back on their seats and watch passively but changing and/or shaping the dynamics of the play proactively. Given the changing roles of consumers and companies, Prahalad and Ramaswamy (2000) developed their arguments further in their book, *The Future of Competition*, by defining four building blocks to create a value environment: dialogue, access, risk and transparency (aka DART model).

Dialogue refers to interactive communication as in brand communities like Cisco. All the parties (either producer or consumer) contribute to a two-way (or all the way) interaction among customers, companies and their community or networks. In order to follow this activity, access should be provided. As in dialogue, access starts with interactive information sharing and related tools. Resources of both consumer and company should be accessible. As idea sharing begins, for both sides emerges the risk of responsibility, earnings, etc. This risk can be decreased by mutual transparency because it supports trust between parties, which in turn enhances co-creation.

As an active "dialogue of equals" (Prahalad and Ramaswamy, 2000) between customers and company that results in a value on both sides, value co-creation is inherently observed in services because the final service offering is shaped with active participation of both salesperson and consumer. Customers are so much inside the process that Dujarier (2014) defines new generation customers as workers. Following Prahalad and Ramaswamy (2000), Vargo and Lusch (2008) has built service-dominant (S-D) logic that intertwines with value-creation unlike conventional configuration identified as goods-dominant logic. Their seminal work in service science generally argues that value co-creation is naturally service-oriented because service is created through interaction between customer and seller at the simultaneous point of production and consumption. In today's markets, products are also embedded in service and sold as an element of this service offering (Sawhney, 2016). In future,

companies are expected to need to pay more attention to this hybrid offerings (Shankar et al., 2009). As per S-D logic, customer is more than a passive responder; always a co-creator of value as given in Table 2.1 (Vargo and Lusch, 2008).

Table 2.1: Summary and Rationale of S-D Logic Foundational Premises

Foundational premise	Rationale
FP1.Service is the fundamental basis of exchange.	The application of operant resources (knowledge and skills), “service,” is the basis for all exchange. Service is exchanged for service.
FP2.Indirect exchange masks the fundamental basis of exchange.	Goods, money, and institutions mask the service-for-service nature of exchange.
FP3.Goods are distribution mechanisms for service provision.	Goods (both durable and non-durable) derive their value through use – the service they provide.
FP4.Operant resources are the fundamental source of competitive advantage.	The comparative ability to cause desired change drives competition.
FP5.All economies are service economies.	Service (singular) is only now becoming more apparent with increased specialization and outsourcing.
<i>FP6.The customer is always a co-creator of value</i>	Implies value creation is interactional.
FP7.The enterprise cannot deliver value, but only offer value propositions.	The firm can offer its applied resources and collaboratively (interactively) create value following acceptance but cannot create/deliver value alone.
FP8.A service-centered view is inherently customer oriented and relational.	Service is customer-determined and cocreated; thus, it is inherently customer oriented and relational.
FP9.All economic and social actors are resource integrators.	Implies the context of value creation is networks of networks (resource-integrators).
FP10.Value is always uniquely and phenomenological determined by the beneficiary.	Value is idiosyncratic, experiential, contextual, and meaning laden.

Although for almost two decades, value co-creation has grabbed attention of researchers, there is still more to explore. So far research has been done on antecedents such as attitude (Arora et al., 2019), trust (See-To and Ho, 2014; Bharti et al., 2014;

Sutarso et al., 2017), service quality (Polyakova and Mirza, 2016), personal relevance (Chan, 2019), e-WOM (See-To and Ho, 2014), experiential value (Ahn et al., 2019; Shamim and Ghazali, 2014), innovativeness (Kim et al., 2019) and celebrity (Arora et al., 2019) as well as consequences such as purchase intention (Kennedy, 2017), loyalty (Iglesias et al., 2018; Luk et al., 2018; Sutarso et al., 2017; Thiruvattal, 2017; Chen and Wang, 2016; Cossio-Silva et al., 2016) and satisfaction (Vega-Vazquez et al., 2013; Frio and Brasil, 2016). These studies mainly focus on either individual effects of variables or perceptual or theoretical evaluations rather than actual behavior with a partial point of view. Here stands out a need to develop a holistic approach that covers both variable effects and actual behavior.

2.2. Examples of Co-Creation

58% of businesses now prioritize value co-creation projects to boost innovation (Web 1, 2019). It supports new directions in branding, product or service production and revenue management. However, it is not a straightforward walk and has to be carefully managed. Even when it was defined by Prahalad and Ramaswamy in 2000, there were examples of co-creation successfully applied by companies. With the increasing importance and attention about co-creation, more and more companies display various ways of it. The successful applications of value co-creation are listed below from the world and Turkey;

Around the world open source software projects are important and successful examples of co-creation such as Apache, Firefox and Linux which have been voluntarily developed by self-organized programmer communities (O'Hern and Rindfleisch, 2010).

LEGO is a corporate example that has early adopted a participative platform by its online tool named LEGO Ideas where the customer (no matter young or old) can submit their designs, vote and interact with other customers to build a Lego Community and/or affect the company's production strategy if they get 1000 likes for their own design.

Made.com is following the same strategy as its business model in furniture sector. They have created an opensource platform named TalentLab where freelance designers upload their works, community members vote and the designs with the most votes are produced to the market.

Those designs receiving the best online design award are voted by customers to decide on the highest-ranked one to produce. This kind of design contests are quite popular co-creative examples; IKEA do also apply such contests to include customers into their new design/product development process.

The jewelry branch of Tata Group launched a contest which collects design ideas and the winner is included into the creation of the latest collection.

Turkey observes such examples as well. In 2016, TAÇ (pioneer home textile company) launched its traditional contest: “Bir de Sen Tasarla”. The company describes their bilateral aim as follows:

“TAÇ, uluslararası pazara sunulabilecek, ev tekstilinde moda yaratabilecek özgün tasarımları ortaya çıkarmayı ve ev tekstili sektöründe “tasarımcı” kimliğinin güçlenmesine yardımcı olmayı amaçlıyor.” TAÇ aims to find out original designs that have the potential to create an international trend (value to firm) as well as to support new designers and to enhance of “designer identity” in home textile sector (value to customer).

P&G created Ariel Beyaz Sabun Kokulu soap with inclusion of consumers to the product development process in Turkey.

Garanti Bank offers a co-creation opportunity with its FlexiCard. This card is visually created by customer themselves either with the given design elements or with customer’s own creations.

Daily News stands among the highest co-creative areas in Turkey with its application called İhbar Hattı (just like tipsters’ news in Reuters). Anyone can upload a video that is believed to be among the news content that night so that the service of

news reporting is prepared with customers (viewers are automatically consumers of this service). The trend in these videos shows the customers' interests and demands so that it leads to news agent's following content preparation perspective.

İzleyici Temsilcisi (Audience Representative) is also a good example of active inclusion of audience into content creation. Customers' feedback, concerns, even grammar or typing mistakes in TV shows are reported to the channel by this representative. CNNTurk describes this audience representation system as a "Quality Check by viewers for their own sake".

2.3. Value Co-creation Scale

Value co-creation is nowadays becoming an established concept (Lee and Kim, 2019; Bai, 2018). However, there seems no consensus in its conceptual explanation. Researchers accept several definitions of value co-creation such as citizenship behavior (Lee and Kim, 2019; Groth, 2005), recommendation (Lee, 2019), value-in-use (Ranjan and Read, 2016), and participation (Bettencourt, 1997). With an aim to "systematically explore the exact nature of dimensionality of customer value co-creation behavior", Yi and Gong (2013) develops and validates a comprehensive scale in an offline context. To current knowledge, the mostly-applied value co-creation behavior scale is this scale among other conceptualizations (Ranjan and Read, 2016).

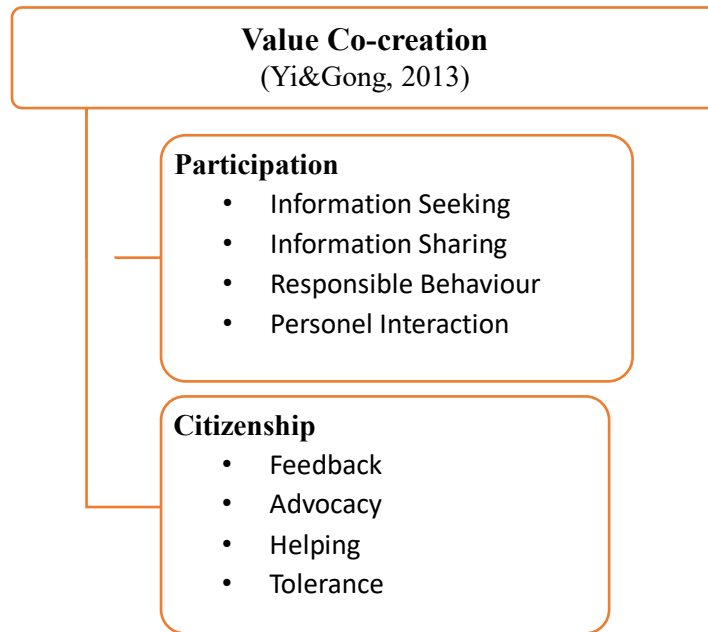


Figure 2.1. Value Co-creation Scale

Yi and Gong (2013) define value co-creation behavior in two dimensions: participation (in-role behavior) and citizenship (extra-role behavior) with their own sub-dimensions. On the one hand, as an in-role behavior, customer participation is a must for co-creation behavior. If customer is not included into product/service creation process, then co-creation cannot even occur. It consists of four sub-dimensions: information seeking, information sharing, responsible behavior and personal interaction. On the other hand, as an extra-role behavior, customer citizenship behavior is completely voluntary. Customer does not have to display this behavior in order for value co-creation to exist. However, citizenship supports and enhances the collectivity of value creation as it upgrades customer's role by providing them an equality with company. This factor covers four sub-dimensions: feedback, advocacy, helping and tolerance.

2.3.1. Customer Participation Behavior

Value co-creation starts with customer's need to receive information about the co-creation task (information seeking). Customers equipped with necessary information give reaction by providing fundamental information to co-create (information

sharing). This sharing requires conformity to company's guidelines and directives (responsible behavior), and a smooth communication and respectful interaction (personal interaction).

Information seeking: Customers should know what their status and role in co-creation as they need information about the process and how to perform the expected tasks (Kim, 2016). During information seeking, they engage in knowledge exchange. This may occur through acquiring information directly from the company or indirectly from friends, team members or social media (Kim, 2016).

Information sharing: Value co-creation is launched with sharing knowledge by customer. This is a reaction to fulfillment of information seeking as a preparation. Customers' accepting an invitation to a new product development process or giving a meal order by sharing what they would like to eat are examples of information sharing. Such basic starters will lead companies or restaurants to provide the product or service according to customer preferences or necessities (Kim, 2016).

Responsible behavior: Customers are workers from the point of value co-creation perspective. Therefore, they are expected to show this responsibility by following company or process guidelines. For example, if there are directives in co-creating a new product, they should comply with them. If there is a meeting, they cannot skip it but attend to it.

Personal interaction: Positive interactions between people is important for an effective value co-creation. Employees' interaction with customers is expected to include respect, friendliness and cooperation (Kim, 2016; Yi and Gong, 2013). Such a positive attitude will encourage customers to become involved and inclined to co-create more (Kim, 2016).

2.3.2. Customer Citizenship Behavior

Unlike passive nature of participation behavior, here consumers proactively involve in product or service development process. This involvement starts with sharing their suggestions or ideas (feedback) and continue with acting as an advocate of the

company and its product or service (advocacy). Being empowered with experience and knowledge of product or service, customer starts to help other customer in their experience (helping). And, feeling attached to the company, customer shows tendency to tolerate any problems or inconvenience from the company side (tolerance).

Feedback: With the proactive nature of citizenship behaviors, customers start sharing knowledge that is more guiding than just sharing basic information for participation. This feedback is not compulsory for provision of the product or service but necessary for a successful co-creation (Kim, 2016). Feedback refers to knowledge-based suggestions (Bettencourt, 1997) that will direct companies either to shape a new product or to develop a current offering.

Advocacy: It refers to recommendation of a company or employees to other customers such as friends, classmates, and relatives (Kim, 2016). It involves commitment and therefore, it is suggested to represent customer loyalty by Groth (2005). Advocacy can flow through word-of-mouth interactions both in online and offline contexts (Kim, 2016).

Helping: As it stands for, helping refers to giving assistance to other customers (Yi and Gong, 2013). Experienced customers can help other customers more than employees can because they have already gone through others' beginnings and have more empathy (Kim, 2016). The former may have found easier and more verified usage of a product than what company tells. Such a voluntary guidance is valuable in a value co-creation process.

Tolerance: It refers to patience shown by customers in case of a service or product failure (Kim, 2016). No matter how hard companies try, failures are sometimes inevitable. Customers who display citizenship behavior tend to put up with such failures and to be patient (Yi and Gong, 2013).

2.4. Value Co-creation in New Product Development

The contexts which attracts research on value co-creation range from hospitality (Sarmah et al., 2017) to healthcare (Pinho et al., 2014; Jing et al., 2015), banking

(Nysveen and Pedersen, 2014), IT (Chebiyyam et al. (2016), housing (Hansen (2017) and personal care (Vega-Vazquez et al., 2013; Cossio-Silva et al., 2016). One context where co-creation is frequently associated with is new product development (López et al., 2017; Füller et al., 2009; von Hippel, 1989). Seppä and Tanev (2011) predict that new product development stands out among research streams in value co-creation.

New product development is defined as a systematic process in which ideas are converted into commercial products (Costa and Coelho do Vale, 2018). There are five stages of this systematic process: ideation, concept development, product design, product testing and product introduction (Costa and Coelho do Vale, 2018). In ideation and concept development stages, company evaluates their needs and collect promising ideas of new product. In product design and testing stages, those ideas are refined through consumers' knowledge especially related to problem-solving and technical issues. In the final product introduction stage, a prototype is introduced to customer trials in order to pave the way to easy adoption of the new product by the market and successful launching process. This study focuses on the first three stages by collecting, refining and converting potential consumer ideas into a product design.

Traditionally, new product development is a closed process shaped with internal sources of a company (Cooper, 2008). With the rise of open innovations, companies have had to tear down their borders and let the know-how in and out (Chesbrough, 2003). Consequently, individual customers' era has been launched and increased importance of value co-creation. O'Hern and Rindfleish (2008) define value co-creation as a collaborative new value offering in terms of product development. Because it is still hard for companies to engage individual customers in their internal production processes, research in the field of new product development has been mainly circled around B2B settings (Hsu, 2015; Verleye, 2015; Komulainen, 2014; Watanabe, 2014; Payne et al., 2008).

As individual customers have become more informed, creative, proactive and knowledgeable, and this makes their active inclusion of new product development indispensable. Saarijärvi et al. (2013) suggest changing existing managerial mindsets accordingly. There is rare research on how to make this change and what will be the results of involving customers in co-creation of new products (Chang, 2019; Costa and

Coelho do Vale, 2018; Lin et al., 2018; Naletelich and Spears, 2020). They mainly focus on company outcomes such as strategy, benefits, use of participatory tools, etc. There is a need to explore consumer behaviors in new product development. Therefore, this study aims to explore consumers' co-creation behavior in the process of a headphones design as a joint collaboration between company and consumers.

2.5. Motivators and Deterrents of Value Co-creation Behavior

Integrating consumers into value co-creation processes is an important challenge for companies. Therefore, researchers work on the reasons (Wasko and Faraj, 2000), benefits (Nambisan and Baron, 2009) and motives (Constantinides, 2015) that drive customers to participate into co-creation. This related research stream is mainly accepted to have originally emerged from Uses and Gratifications (U&G) Framework developed by Katz et al. (1974) (Nambisan and Baron, 2009; Constantinides et al., 2015; Chepurna and Criado, 2018).

This framework defines four types of benefits derived by individuals from media usage (in this case, from participating into value co-creation): cognitive benefits, social integrative benefits, personal integrative benefits and hedonic or affective benefits. Nambisan and Baron (2009) work with customers of two particular brands, who are also members of these brands' online product support service to peer customers. They collect data through an online questionnaire to focus on the benefits perceived by customers in participating value co-creation in an online forum of these brands. Similarly, Constantinides et al. (2015) follow the same benefit categories by defining them as motives and benefits of participating in online co-creation activities. Following the above mentioned approach in motivators, Chepurna and Craido (2018) add one more motive, namely financial reason. Mainly, they have observed that customers' motivations positively affect their attitude to participate into online value co-creation. Reasons that motivate customers to participate into value co-creation are grouped into five categories in this study:

1) **cognitive benefits or learning** are valued by millennials who are eager to equip themselves with more information. In this context, participants may want to participate into value co-creation as it gives them the opportunity to learn about the development

of a new product. Gaining more understanding and knowledge on a new product, the development process and its usage may attract their attention (Nambisan and Baron, 2009).

2) **social integrative benefits** refer to social motivations. Participants, who are included into a collaborative NPD process as a social activity, feel attached, belongingness or a social identity. This may positively affect them to further continue to be a part of this community and value co-creation (Nambisan and Baron, 2009).

3) **personal integrative benefits** relate to reputation and status (Nambisan and Baron, 2009) of the participants both on their own, among their peers and towards the co-creation community. What they would contribute will give them an expertise-status which is satisfying and may encourage them to participate into co-creation and contribute as much as possible.

4) **hedonic benefits** are important motivators. People derive pleasure in being a member of brand communities, and keeping interactions therein (Nambisan and Baron, 2009). This attitude applies to value co-creation, as well. Participants who feel intrinsically motivated by this pleasure, do not need external factors to display a tendency to participate into new product development.

5) **financial benefits** refer to monetary awards. Born with the competition between companies, monetary rewards become a common marketing strategy. In this study, a financial reward has been offered in order to create a more realistic context and to drive those participants who are financially motivated. This motivator, therefore, is expected to attract those extrinsically-motivated participants to accept the invitation to participate into co-creation.

Having some research on motivators of co-creation, the literature about inhibiting factors to co-creation online is quite limited to a short number of studies (Chepurna and Criado, 2018). Chepurna and Craido (2018) mainly focus on inhibitors. They have made in-depth interviews in order to study U&G framework as well as to find out deterrents that discourage individuals to participate into value co-creation online. They extract nine factors that inhibit individuals in VCC participation. These

inhibitors are rated by two groups: one group of 20 customers and another group of 20 companies. According to the frequencies, top six are ranked which have been rated at least 10 (50%) or over by either one of the participant groups: 1) task layout, 2) skepticism, 3) personal availability, 4) technology anxiety, 5) inertia, and 6) lack of trust. The rest of the inhibitors have much fewer frequency, and there are even factors that receive no answer at all (e.g. no offline meeting).

This study applies the four of the inhibitors that have been proposed by Chepurna and Craido (2018). The first factor, task layout, has been omitted because it is totally related to workplace which is related to their research context but out of this study's. And technology anxiety which does naturally not apply to millennials of our study's sample. The barriers in online co-creation participation are accepted in four groups which are believed to negatively influence participants' intention to participate into co-creation:

1) **lack of trust** is a big barrier in front of value co-creation because willingness to share information is based on trust (Bharti et al., 2014). Trust means an expectancy of positive outcomes. If individuals do not have enough trust to companies, their attitude to participate into value co-creation is assumed to be negatively affected (Chepurna and Craido, 2018). As there is no previous relationship between this study's participants and neither the brand nor the non-celebrity endorser, they may feel lack of trust and prefer not to participate into the next stage.

2) **skepticism** may negatively affect customer' relationship with brands because consumers tend to keep themselves from deceptive marketing practices and communications (Chepurna and Craido, 2018). Although skepticism support critical thinking which is a vital competence in university education, this may discourage the participants here to accept co-creation invitation.

3) **inertia** is defined as a tendency to remain unchanged. When there is a group of same attitudes, an individual in this group most probably act similarly. This tendency is observed especially at high school and university years because youngsters give importance to their peers' attitudes and ideas. Therefore, this study's participants may

feel reluctance to accept the invitation of a new project and display a preference not to participate into the following stages.

4) **personal availability** refers to consumers' level of participation and may be an important deterrent in front of value co-creation behavior. According to Chepurna and Craido (2018), "I do not have time for this" is the most-frequently mentioned reason by the customers in their interviews. This no-time constraint may negatively affect participants in co-creating the new product in this context.

3. THEORETICAL BACKGROUND AND HYPOTHESES

3.1. Conceptual Framework

This study covers three stages of consumer co-creation behavior in new product development with a broad perspective: intention-behavior-evaluation, and aims to answer three main questions:

- (intention) what drives customers to participate into value co-creation,
- (behavior) how customers behave and feel during a value co-creation activity,
- (post-behavior evaluation) how they react to the co-created product?

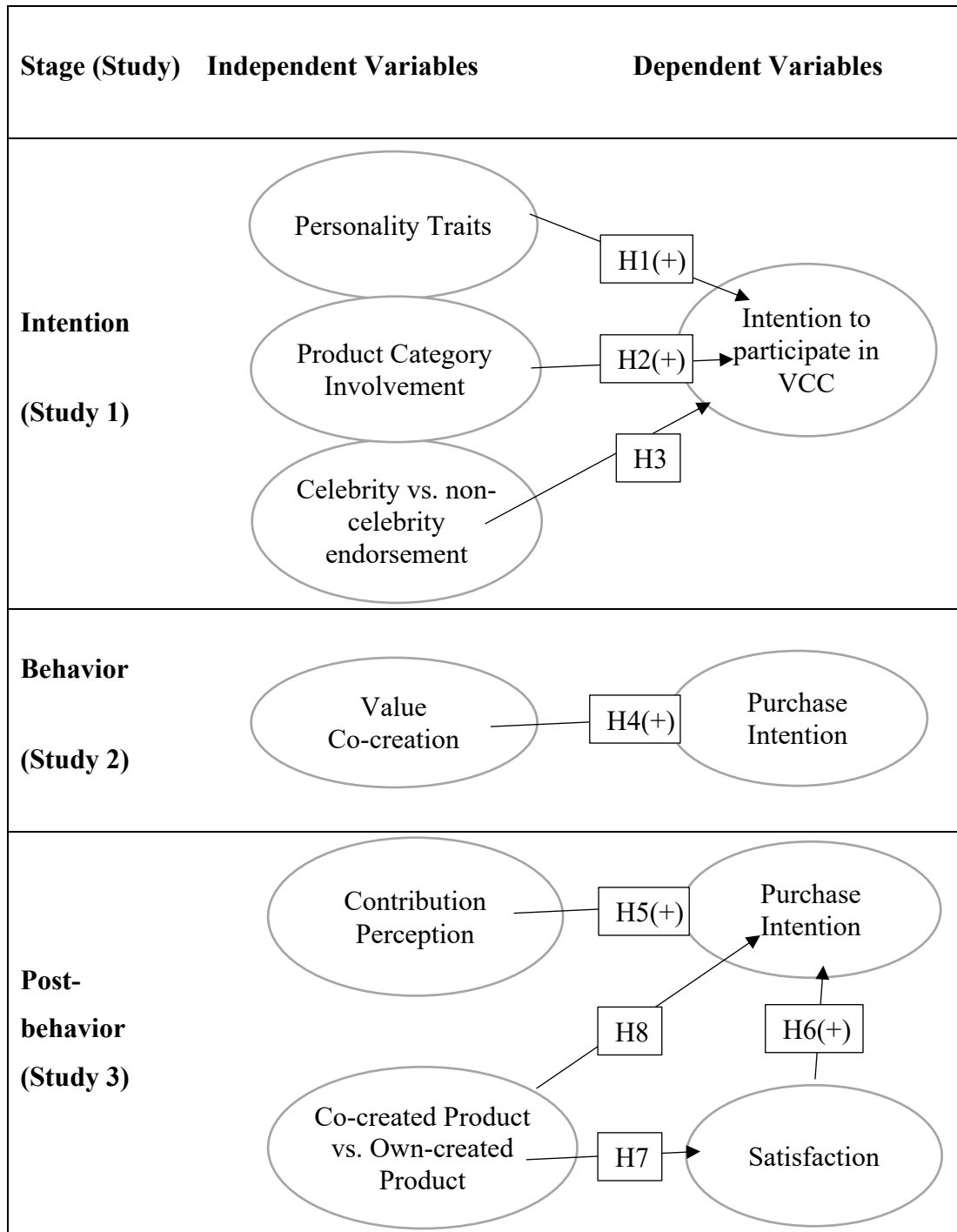
The proposed research questions in this study have emerged from these main motivational questions and developed around behavioral stages. These stages have been experimentally observed under three consecutive studies.

In the first study, participants are asked to what extent celebrity endorsement, product category involvement, and personality traits affect their intention to participate into a value co-creation activity (a scenario of co-creative headphones design).

In the second study, volunteers from the first study actively participate into co-creation of a new headphones design. They are expected to evaluate their purchase intention of the co-created product in which they have actively contributed.

In the last study, consumers are presented the co-created product design. They are asked to evaluate their satisfaction and purchase intention upon seeing the final output, and their perception about how much their contributions are applied in the co-created outcome, if any. Figure 1 provides a visualization of the whole conceptual flow of this research.

Figure 3.1. Research Model



3.2. Hypothesis Development

3.2.1. The Effect of Personality Traits on Participation Intention

Dabholkar and Sheng (2011) advise that the drivers of consumer participation into value co-creation should be further studied. Following this suggestion, antecedents of consumer's intention to participate into value co-creation are studied in Study 1. Concepts related to behavioral dispositions, such as personality, play an important role in attempts to explain and predict human behavior (Ajzen, 1991; Mandolfo, 2020). Personality traits may influence how people act. Therefore, several typologies are developed in personality literature such as Big Five (aka Five Factor or Norman's Five, Norman, 1963), HEXACO, NEO Personality Inventory, and The Dark Triad as well as either their extended or shortened versions. However, Big Five is observed to be well-established both in psychology (Tupes and Christal, 1961; Norman, 1963; Goldberg, 1990; McCrae & Costa, 1997; Gosling et al., 2003; Ashton et al., 2004; De Vries, 2013) and consumer behavior literature (Bosnjak, 2007; Marbach et al., 2016; Huynh and Olsen, 2015; Faullant et al., 2016; Gorbaniuk et al., 2017; Soutter et al., 2020). According to Choi and Hwang (2019), Big Five personality traits, as being accepted by organizational literature, may carry significant prediction of voluntary behaviors in consumer context, too. Here this taxonomy is used as a personality index.

Big Five dimensions are; extraversion, agreeableness, conscientiousness, emotional stability and openness to experience. Extraversion defines "the extent to which a person craves for social attention and interpersonal relationship" (Harari et al., 2018; Borghans et al., 2008). The extraverts are communicative and interact with other people which give them a tendency toward cooperative nature of co-creation and a willingness to share their ideas (Faullant et al., 2016). Agreeableness is associated with being trusting, flexible, cooperative and tolerant (Barrick and Mount, 1991). People who are agreeable is assumed to be inclined to collaboration. As the third dimension, conscientiousness reflects being hard-working, organized and dependable which goes hand in hand with teamwork. Emotional stability is related to anxiety and instability (Ryu and Kim, 2016), which can either boost or hinder co-creation. Such people are driven by their emotions and can easily change their actions in a blink of eye. And

finally, openness to experience is “the extent of discovery, flexibility and creativity” (Zeekaf, 2018). Feist (1998) concludes in his research that openness is the most strongly related to creativity. Open people are innovative, which intrinsically motivates them to engage into creative activities like co-creation.

Following Ajzen’s (1991) claim, it is argued that personality traits are important in predicting behavior as well as behavioral intention (Mowen & Carlson, 2003; Soutter et al., 2020) and hypothesize that:

H1: Personality Traits (specifically a) extraversion, b) agreeableness, c) conscientiousness, d) emotional stability and e) openness to experience) significantly and positively affects participation intention to VCC. (Study 1)

3.2.2. The Effect of Product Category Involvement on Participation Intention

Due to challenging nature of developing new products, companies are increasingly looking for external knowledge sources like co-creative customers (Nambisan, 2002). With its voluntary nature (Nambisan, 2002) consumer’s involvement is also critical in value co-creation context. Given that customer’s involvement degree positively affects behavioral intention (Sarmah et al., 2017), it may motivate or discourage consumers to participate into VCC activity as well.

Product category involvement or product involvement is defined as a motivational state of interest and enthusiasm toward a product. Referring to one specific category of product is somehow central to consumer, it is critical both in positively affecting purchase decisions and in companies’ deciding product features and benefits (Nkwocha et al., 2005). Kaufmann et al. (2016) further argue that involvement has positive relation with value co-creation. Ercsey (2017) finds positive effect of involvement on specifically customer participation behavior. As involvement refers to motivational arousal and positively related to co-creation (Morosan, 2018), consumers with a high involvement are supposed to display a tendency to participate into value co-creation. Since the object of our studies is a product, based on Zaichkowsky’s (1985) argument that involvement with different objects such as

service, product or advertisement will lead to different responses, here product category involvement is focused and that is proposed;

H2: Product Category Involvement significantly and positively affects participation intention to VCC. (Study 1)

3.2.3. The Effect of Celebrity Endorsement on Participation Intention

Ohanian (1990) believes that a communicator's character plays an important role on message persuasiveness. Marketing professionals must be sharing this belief and observing positive influence of endorsers that it is a fairly common practice to use celebrities as the carrier of company's message (Erdogan, 1999). According to a claim by MarketWatch, "just one endorsement can spell an increase in sales by 4%, almost immediately" (Olenski, 2016).

Celebrity endorsement leads to several positive outcomes such as advertising effectiveness, brand recognition, brand recall, purchase intention and even purchase behavior (Spry et al., 2011). Therefore, celebrity endorsement has already been commonly applied by both brands (Pepsi Co & Beyonce, Naomi Campbell & Calvin Klein) and marketing researchers (Rachmat et al., 2019). Although there are plenty of study on celebrity endorsement's influence over consumer outcomes such as purchase intention (Attia, 2017, Rachmat et al., 2019), consumption behavior (Majeed et al., 2017), brand recognition (Verhellen et al., 2013) and brand equity (Dwivedi et al., 2015), to the best of our knowledge this study is the first to examine the effect of celebrity endorsement in the value co-creation context. In this study, one group of participants have been invited to value co-creation by a celebrity, and the other group by a non-celebrity in order to test the below hypothesis:

H3a: Participation intention to value co-creation differs according to celebrity endorsement; specifically, celebrity-endorsed group's participation intention is higher than non-celebrity-endorsed group. (Study 1)

All the participants are asked whether they recognize the celebrity in order to ensure the celebrity manipulation actually works and also to detect if there is any difference

in participation intention within the celebrity-endorser group between those who recognize him and those who do not. Therefore, the following hypothesis is proposed about celebrity endorsement:

H3b: Intention to participate in value co-creation varies depending on recognition of the celebrity-endorser; specifically, consumers who recognize the celebrity-endorser display a higher intention to participate than those who do not recognize. (Study 1)

3.2.4. The Effect of Value Co-Creation on Purchase Intention

Value co-creation is positively related to buying behavior (Algharabat, 2018; Martínez-López et al., 2010). Even when consumers virtually co-create a product, they can build imaginary relationships with the new product (Füller & Bilgram, 2017), which leads to a tendency to buy that product. See-To and Ho (2014) analyze the interactions between various variables and value-co-creation, and conceptually support co-creation's individual effect on purchase intention. Supporting this conceptual finding, Pee (2016) emphasizes evidence that value co-creation influence both intention and behavior of purchase. Some other research support positive impact of co-creative awards on buying intention in specific context such as electric cars (Nosi et al., 2014), online communities (Hsu, 2017; Gebauer et al., 2013; Elsharnouby and Mahrous, 2015), and luxury brands (Choi et al., 2016). In this study, consumers actively co-create themselves by contributing to a new product design, and state their intention to buy the co-created product.

Contributing to creation of a new product, consumers who co-create feels emotionally-engaged (Payne et al., 2008) in the outcome. The product will possibly and cognitively (Chan, 2019) display a closer fit with their needs, and they tend to purchase the co-created product (Hoyer et al., 2010). Despite several research, as recommended by Kennedy (2017), there is still a need to further explore the positive impact of co-creation on purchase intention. This research gap is especially urgent in the context of new product development which is mostly occupied with B2B studies (Hoyer et al., 2010). Therefore, it is proposed that:

H4: Value co-creation behavior (specifically a)information seeking, b) information sharing, c) feedback, d) advocacy, e) helping, f) tolerance) significantly and positively affects intention to purchase the co-created product. (Study 2)

3.2.5. The Effect of Consumers' Perceived Contribution on Purchase Intention

Consumers are influenced by several factors in decision making process. Given that consumers build up their perceptions upon their personal observations and experiences, they usually tend to judge and make purchases according to their own perceptions (Wee et al., 2014). Although perception as a psychological factor is selective and often biased (Butcher and Laycock, 2009), consumers mostly give buying decisions based on their perceptions rather than the factual reality (Wee et al., 2014). Because perception is vital in understanding consumers' buying behavior, researchers focus on perceived version of various behavioral antecedents such as perceived quality (Woodside and Taylor, 1978), perceived value (Ong et al., 1997; Polites et al., 2012) and perceived risk (Pavlou, 2003; Khan and Ahmad, 2016). Depending on the strategic implication of perception, this study aims to explore the positive effect of consumers' perceptions upon purchase intention in the context of value co-creation.

Contribution is a much less studied factor than perception. It defines either what benefits is given to a consumer, for example value (Kılıç et al., 2017), or how much personal source is given by a consumer themselves, for example time and effort (Tavoletti et al., 2019). The former definition is generally adapted by marketing researchers (Wee et al., 2014) while the latter is mainly applied by organizational theorists mostly in the context of team/group work (Rajlich et al., 2000; Karakowsky and McBey, 2001; Ammons and Brooks, 2011; Tavoletti et al., 2019). In line with both organizational theory findings and marketing literature, here is adopted Vargo and Lusch's (2008) argument accepting consumers as "co-creators of value" and similarly Dujarier's (2014) definition of consumers as workers. And consequently, it is concluded that co-creation process is also a matter of teamwork. Therefore, this study adapts the latter definition of contribution with the added value of perception.

Contribution perception of consumers is defined as consumers' own perception of the extent that their ideas and suggestions are taken into consideration during the design of the co-created product. There is no reported research focusing on the perception of the outcome in a value co-creation activity and using this variable so far. The contribution perception is believed to be an important driver of purchase intention. The more customers believe they have participated into co-creation, the more their purchase intention increases (Balsco-Arcas et al., 2014), therefore, it is hypothesized that;

H5: Consumers' perception of contribution to the co-created product significantly and positively affects their purchase intention. (Study 3)

3.2.6. The Effect of Satisfaction on Purchase Intention

Satisfaction is an assessment emerging from a comparison between consumer expectation and actual experience (Oliver, 1980; Vega-Vazquez et al., 2013). When Oliver (1980) defines antecedents and consequences of satisfaction, he proposes that as a function of expectation, satisfaction is believed to result in purchase intention. Several studies have already reported significant and positive influence of customer satisfaction on purchase intention in several contexts except for value co-creation (Anderson and Srinivasan, 2003; Zeithaml et al., 2006; Tuu and Olsen, 2012; Hsu et al., 2012; Ali, 2016; Rehman et al., 2019; Aren et al., 2013). In the context of value co-creation, there are much fewer studies. For example, López et al. (2017) conclude that satisfaction with value co-creation positively influences purchase intention. And Gebauer et al. (2013) finds that if consumers are satisfied with the final outcome of value co-creation, they tend to buy it. However, this finding is relatively new in this context and requires to be further analyzed. Therefore, it is hypothesized that;

H6: Satisfaction with the co-created product design significantly and positively affects purchase intention. (Study 3)

Previous studies support that consumers who co-create become more engaged in the process (Gebauer et al., 2013) and tend to buy the resulted product (López et al., 2017). What if the co-created product does not cover even one piece of their

contributions? Here it is aimed to differentiate participants' reactions when they come across the final output. In other words, participants' satisfaction and intention to buy the product may change depending on whether the final product includes their contributions or not. It is very important for people to be cared and for their ideas to be appreciated. In the context of co-creation, they expect their co-creative ideas to be used in the co-created product. This expectation may affect consumers' satisfaction and purchase intention. Despite extant literature review, no research has been found that focus on the consequences of co-creation behavior from a consumer-centered way before. Therefore, this study is finalized by comparing participants' reactions (satisfaction and purchase intention) to the final product, and it is hypothesized that;

H7: Satisfaction with the co-created product design significantly differs between participants whose contributions are taken into account and participants whose contributions are not displayed in the final design.

H8: Intention to purchase the co-created product design significantly differs between participants whose contributions are taken into account and participants whose contributions are not displayed in the final design.

4. METHODOLOGY AND IMPLEMENTATION

4.1. Experimental Design and Participants

Three consecutive studies have been planned around a scenario in order to observe a comprehensive before-during-after phases of a value co-creation process. This three-study scenario is emerged from real-life observations. If behavior is analyzed together with antecedents and results and this behavior is to be observed with emphasis to its multidimensionality, then this observation has to be longitudinal and a process with stages. For example, as defined by Fishbein and Ajzen (1975), intention is the best predictor of behavior therefore intention cannot occur at the same time with behavior.

Depending on Chiu et al.'s (2019) advice to provide a wider external validity, headphones have been decided on as the product of the scenario because participants of this research are university students and obviously dedicated users of headphones today. As a famous Turkish DJ, Doğukan MANÇO, has been collaborated in accordance with headphones. Participants are university students, and no specific departments are focused. Participating students have been accessed from different faculties to support randomness and to avoid a common tendency about designing among students from design-related departments. A fictitious brand has been created with its original logo, characterization, association, colors and website. A monetary reward has been offered like real brands and companies do in such contexts nowadays. A population of 934 students has been reached in the first stage. Participants of the second and the third stages are the volunteers from the first stage population. The whole data collection for the three studies has lasted six months totally.

Depending on the Theory of Reasoned Action (Fishbein & Ajzen, 1975), this co-creation scenario starts with invitation for students in order to observe their intention to participate into a value co-creation activity: company's headphones design together with students. As further-developed in the Theory of Planned Behavior (Ajzen, 1985) behavioral intentions are the best predictors of behavior itself. Students have been made an announcement which invites them to participate into a three-phase headphones design project. There have been monetary awards for participants: one is

a free lunch for all the second stage participants and monetary award for three participants who make it till the end of the third stage and win the raffle.

In the first stage participants are invited to participate into a value co-creation activity (i.e. collaborative headphones design) by using a booklet that includes one single questionnaire of the scales to be measured and two different covers: one cover is with a Turkish DJ-celebrity's photo and the other with a non-celebrity stock photo. The content and design of the covers are all the same except for the inviting person's face. Accordingly, participants are categorized into two groups (test group and control group). There is no specific department where only one cover is used; that is to say: both groups include students from the same departments not to risk randomness. In this stage is measured basically participants' celebrity endorsement, personality traits, product category involvement and participation intention through a well-structured print questionnaire.

Upon completion of the first stage, the participants who choose to participate into headphones design have been contacted for the second time to co-create the headphones design. Participants' active contributions have been asked through an online questionnaire. In addition, their intention to buy the product to be co-created has been asked. Elaborating the participants' choices and suggestions about headphones, two different headphones have been designed for the third and the final stage: one displays participants' ideas while the other is totally different from what participants have contributed.

Accordingly, in the final stage, these two different headphones designs have been sent to two groups with the same online questionnaire. They are expected to evaluate their perception of how much their ideas are taken into account in the product design, if any. And also after seeing the final design, purchase intention have been asked once again to observe if there is any change upon seeing the final design. Additionally, their satisfaction with co-creation experience and the co-created product have been examined.

Table 4.1: Summary of the Thesis Methodology

	Data Collection		Independent variables	Dependent variables	Analysis methods and Tools
	Tools	Participants			
Study 1- Intention Stage	One single offline questionnaire with two different invitation covers (7-point Likert)	443 celebrity-invited students vs. 433 non-celebrity-invited	Personality Traits Involvement Celebrity endorsement	Intention to participate into VCC	Structural Equation Modelling (Exploratory and Confirmatory Factor Analyses with SPSS and Amos)
Study 2- Behavior Stage	One online questionnaire (7-point Likert)	317 students who want to participate from the 1st stage	Value Co-creation	Purchase intention (co-created product)	
Study 3- Post-behavior Stage	One single offline questionnaire with three different product designs (7-point Likert)	152 students (whose co-creations included in the revealed product design) vs. 153 students (whose co-creations not included)	Satisfaction Contribution Perception	Purchase intention (co-created product)	

4.2. Pilot Study

Although the previously-validated scales are used in the three structured questionnaires, a pretest has been done by collecting comments and suggestions of four marketing professors. As a result, the questionnaires have been revised especially in the ordering and wording of items and reasonable presentation of the scenario. Secondly, the questionnaires have been translated into Turkish. A team-based approach has been employed (Douglas and Craig, 2007). Three professional translators are asked to independently translate original items (totally in English) into Turkish. A review meeting has been organized to agree upon the final version of the translation. During the translation of Likert's scale categories, the translators'

interpretations have been applied together with reference to Dursun and Alniacik's (2018) study on Turkish equivalences of Likert type scales.

Upon a roundtable evaluation of the proposed translations, a pilot test has been conducted with the Turkish version of questionnaires. In order to measure scale items all through the questionnaires -apart from descriptive questions-, a seven-point Likert's scale has been used, ranging from "1=Strongly Disagree" to "7=Strongly Agree". As it is impossible to carry out three stages according to their planned time sequence and creation of headphones design during the pilot test, 15 participants have been randomly accessed and asked to imagine the scenario while answering/rating the items for all three studies at the same gathering. These participants have also been asked to feel free and welcomed to comment on the process, scenario, items and their meanings. Based on the pilot study, the questionnaires have been revised for the last time and the first study has been launched.

4.3. Study 1: Drivers of Intention to Participate into Value Co-creation

The first study aims to answer how personality and product category involvement drive consumers' intention to participate into value co-creation. University students were invited to a co-creative headphones design project in order to answer this question. The invitation came with a questionnaire and by a celebrity for one group of participants and with a non-celebrity for another group.

4.3.1. Research Instrument

A questionnaire has been developed for the first empirical study in order to measure antecedents of participant's intention to participate into value co-creation. In the first stage participants are invited to participate into a value co-creation activity (i.e. collaborative headphones design) by using a booklet that includes this single questionnaire of the scales to be measured and two different covers: one cover is with a Turkish DJ-celebrity's photo and the other with a non-celebrity stock photo. The questionnaire includes questions of demographic profile (age, gender, degree), headphones usage profile (headphones possession, daily hours and monthly duration of headphones usage), their motivators and barriers in value co-creation participation

as well as dependent and independent variables (involvement, personality traits and participation intention).

4.3.2. Measures

As the dependent variable of this stage, participation intention is measured with a scale of three items adapted from Zhang et al. (2015), Zhou (2011), Fang et al. (2009), and Dholakia et al. (2004). The items for Big Five are adapted from De Vries (2013), Gosling et al., (2003). Each personality trait under Big Five has been measured with three items each. Product category involvement is measured with a scale adapted from De Pelsmacker et al. (2018), Sarmah et al., (2017), Zhang et al. (2015) and Koufaris (2002). The scale items are not translated into Turkish with word-for-word translation of a single scale but adapted from several scales developed by other researchers in order to minimize the translation loss due to synonyms or psychological nuances. A seven-point Likert's scale is applied while testing below-listed constructs in Study 1.

Table 4.2: Scale Items of Study 1

Code	Turkish Scale items	Original Scale items
<i>Participation intention</i>		
Paint1	Tasarım ekibine muhtemelen ben de katılacağım.	I will try to participate in headphones design.
Paint2	Tasarım ekibine katılmayı düşünüyorum.	I intend to participate in headphones design.
Paint3	Tasarım ekibine katılmak istiyorum.	I plan to participate in headphones design.
<i>Extraversion</i>		
Extr1	Dışadönük bir insanım.	Extraverted, enthusiastic,
Extr2	Çekingen bir insanım. -R-	Reserved, quiet. -R
Extr3	Sosyal bir insanım.	Outgoing, social

Table 4.2: (Continued)

Code	Turkish Scale items	Original Scale items
<i>Agreeableness</i>		
Agr1	Sabırsız bir insanım. -R-	Critical, quarrelsome. -R-
Agr2	Anlayışlı bir insanım.	Sympathetic, warm.
Agr3	Uyumlu bir insanım.	I tend to quickly agree with others.
<i>Conscientiousness</i>		
Cons1	Disiplinli bir insanım.	Dependable, self-disciplined.
Cons2	Dağınık bir insanım. -R-	Disorganized, careless. -R
Cons3	Sorumluluk sahibi bir insanım.	I work very precisely.
<i>Emotional Stability</i>		
Emo1	Duysal iniş-çıkışları olan bir insanım. -R-	Emotionally unstable. -R
Emo2	Sakin bir insanım.	Calm.
Emo3	Soğukkanlı bir insanım.	Hardly upset.
<i>Openness to Experience</i>		
Open1	Yeniliklere kapalı bir insanım. -R-	Open to new experiences, complex.
Open2	Hayal gücü zengin bir insanım.	I have a lot of imagination.
Open3	Yaratıcı bir insanım.	Conventional, uncreative
<i>Product Category Involvement</i>		
Inv1	Kulaklıklar her zaman ilgimi çeker	My level of involvement with headphones is high.
Inv2	Kulaklık benim için önemlidir.	Headphones are important to me.
Inv3	Kulaklık, bence bir eğlence aracıdır.	-Headphones are a matter of fun.
Inv4	Kulaklık almak, ciddi bir iştir.	Choosing headphones requires a lot of thought.
Inv5	Kulaklık kullanmak zevklidir.	Using headphones is fun.
Inv6	Kulaklık almak, eğlenceli bir iştir.	Using headphones is exciting.

In addition to the measured constructs, motivators and barriers of participation intention have been covered by the first study. And the measures for motivators have been adapted from Nambisan & Baron, (2009) and Constantinides et al. (2015) while the measures for barriers have been adapted from the research by Chepurna and Criado (2018). These measures are listed below in Table 4.3.

Table 4.3: Motivators and Barriers of VCC Participation Intention

Code	Turkish Scale items	Original Scale items
<i>Motivators</i>		
Cognitive or Learning	Katılacağım, çünkü bu yeni bir şeyler öğrenme fırsatı olabilir.	Enhance my knowledge about the product and its usage.
Hedonic	Katılacağım, çünkü zevkli bir deneyim olabilir.	Derive fun and pleasure.
Social integrative	Katılacağım, çünkü farklı sosyalleşme imkanları bulabilirim.	Expand my personal/social network.
Personal integrative	Katılacağım, çünkü kendimi (bilgi, fikir, beğeni, vb.) gösterme fırsatı olabilir.	Enhance my status/reputation as product expert in the community.
Financial	Katılacağım, çünkü ödülü kazanmak istiyorum.	Added because of the financial reward proposed by the study
<i>Barriers</i>		
Inertia	Katılmayacağım, çünkü neyle karşılaşacağımı bilmediğim için tedirginim.	No items are available. Constructs are named upon interpretation of interview answers of participants by Chepurna and Criado (2018).
Skepticism	Katılmayacağım, çünkü kişisel bilgilerimi paylaşmak istemiyorum.	
Lack of Trust	Katılmayacağım, çünkü bu çalışmaya güvenmiyorum.	

4.3.3. Data Collection

Participants are students at a Turkish University because headphones are commonly used by university students. Students have been contacted by the researchers at the beginning of their classes with permission of lecturers. Using convenient sampling, those who are interested have been invited from different departments so that there would be no subgroups with a designer's point of view from department of architecture, for instance. They have been given a short introduction and an explanation about the design project. It usually takes 10 minutes for participants to complete the questionnaire. 433 (39 invalid) valid samples for non-celebrity group have been collected whereas 443 (19 invalid) valid samples have been gathered for celebrity group. Comparing the invalid questionnaire numbers and missing value incidences of groups, celebrity group clearly seems to take the questionnaire more seriously than non-celebrity group. Data collection process was launched on 18th March 2019 and finished on 10th April 2019. This period seems reasonable in consideration to the total number of about 1,000 participants.

In order to evaluate the profile of the participants, some demographic questions have been asked in the beginning of the questionnaire. Considering the 876 valid questionnaires, almost all of the participants are undergraduate students. There are a few graduate students (n: 42 out of 876, 0.048%). As they are in the same range of age and obviously have similar interests about headphones, their surveys have been welcomed in the dataset.

Using student samples in social science research has been criticized because of external validity and generalizability issues (Peterson, 2001). However, it is a widely used strategy in experimental studies since it enables researchers to have homogeneous sub-samples and facilitates the control of extraneous variables that could potentially confound the results (Calder and Tybout, 1999). Beyond that, in parallel with previous researchers (Costa & Coelho do Vale, 2018) observing that young participants are more open to new products and new product development methods, 97% of participants are between 18-24 years old and average age is 20. This finding supports university students' being the target group of this study because they are a young group of consumers and heavy-users of headphones. The following findings are also

consistent and supporting this research on university students. Participants have expressed their use of headphones for 4 hours a day in average, and their average duration of possessing headphones is 3 years. Participation is almost equal in terms of gender. 52% of participants are female while 48% are male.

Table 4.4: Demographics of Study 1

		Frequency	Percent	Valid Percent
Degree	Undergraduate	834	95.2	95.2
	Master	37	4.2	4.2
	PhD	5	.6	.6
	Total	876	100.0	100.0
Gender	Female	395	45.1	51.6
	Male	371	42.4	48.4
	Missing	110	12.6	100.0
	Total	876	100.0	
Headphones Possession	Yes	421	48.1	48.1
	No	455	51.9	51.9
	Total	876	100.0	100.0

Most of the participants (51.9%) do not seem to possess headphones like the one in the cover page, which is the same for the whole sample. Many participants have been observed to state none-possession of headphones but daily usage of headphones. Here it can be assumed that participants have misinterpreted the word of headphones with earphones. Those, who have headphones, have expressed their use of headphones for 4 hours a day in average, and their average duration of possessing headphones is 3 years.

Together with these demographic questions, participants have been asked to give their contact details in order to keep in touch with those who have expressed willingness to participate into the second stage. In order to keep record of the participants flow and make sure that participants are not fake but all students from Gebze Technical University, they have been required to share their student number.

Table 4.5: Headphones Usage Statistics

		Daily Hours	Monthly Duration	Age
N	Valid	876	876	876
	Missing	0	0	0
Mean		3.97	32.29	20.36
Median		4.00	29.00	20.00
Mode		4	36	20
Std. Deviation		2.153	29.288	2.029
Minimum		0	0	17
Maximum		17	144	30

Motivators and Barriers in front of value co-creation

Participants are evaluated in terms of their reasons to accept or refuse to participate into value co-creation activity. These reasons are categorized as positive and negative reasons. Positive category includes reasons that encourage participants to continue with co-creation activity. Negative category covers factors that discourage participants from co-creative headphones design. Positive reasons are expected to address to those participants who state their willingness to continue while negative reasons to those who do not want to co-create in this study as described by the related literature (Chepurna and Criado, 2018; Nambisan & Baron, 2009; Constantinides et al., 2015). Therefore, the first stage questionnaire has been designed accordingly. Reasons are located just after the items of participation intention. Before listing the reasons, a sentence is located. It states that participants who would like to participate into further stages are expected to fill in the following part which includes the positive reasons and finish their questionnaire. And another sentence state that participants who do not want to accept this invitation of co-creation are expected to skip out the positive reasons part and to fill in the negative reasons to finish their responses. Arrows are also used to clearly guide participants.

Among total number of participants (N=876), 450 participants have accepted collaborative design invitation in this study. Depending on the frequency tables of positive reasons, the mostly-preferred positive reasons are learning and hedonic benefits. Therefore, participants are motivated by learning and hedonic benefits more

than social, personal and financial benefits. Social motivators rank the second, personal benefits the third and the financial motivators the fourth. All the motivators are significantly rated by the participants.

Table 4.6: Motivators Statistics

		Learning	Hedonic	Social	Personal	Financial
N	Valid	412	412	408	406	405
	Missing	464	464	468	470	471
Mean		6.1917	6.1942	6.0784	5.8892	5.4889
Median		7.0000	6.0000	6.0000	6.0000	6.0000
Mode		7.00	7.00	7.00	7.00	7.00
Std. Deviation		1.19595	1.08794	1.15345	1.24921	1.55366
N=876						
The number of participants who accept the invitation to participate into VCC=450						

426 participants have stated their unwillingness to participate into the following stages. They have been observed to choose their reasons not to participate them. The mostly-selected reason is inertia which is followed by both skepticism and lack of trust.

Table 4.7: Barriers Statistics

		inertia	skepticism	trust	Personal availability
N	Valid	438	430	430	83-433
	Missing	438	446	446	70-420
Mean		3.9612	3.0698	2.6581	
Median		4.0000	2.0000	2.0000	
Mode		5.00	1.00	1.00	
Std. Deviation		1.81926	1.92512	1.58574	
N=876					
The number of participants who refuse the invitation to participate into VCC=426					

Participants have been given comment box in several sections throughout the first study questionnaire because value co-creation is a voluntary action by its nature and this study gives participants opportunity to show their voluntary contributions. After the last items of each category, an optional comment item has been left to participants. The comments that have been voluntarily written by some of the participants are listed below as well as their frequencies. The answers are qualitatively analyzed and categorized under several groups. According to comments made after the

completion of motivators and barriers section, the number of participants who have commented on motivators box is 95. The number of participants who have added comments on barriers box is 152. The groups are named with the repetitive usage of one common word or its synonym. For instance, the category of motivation includes comments that have “motivated, motivation, interest, interested” in it.

Table 4.8: Consumers’ Added Motivators and Barriers Statistics

Motivators	Frequency	Percent	Barriers	Frequency	Percent
Motivation	21	22%	Time	84	55%
Involvement	21	22%	Involvement	22	14.5%
Openness to the new and the different	19	20%	Motivation	19	13%
Need	12	13%	Competence	14	9%
Experience	10	11%	Knowledge	13	8.5%
Design	6	6%			
Brand	4	4%			
Curiosity	2	2%			
N	95	100%	N	152	100%

The category of involvement obviously covers comments made by participant who are “involved” or have “involvement” in headphones, co-creation and this project. Participants who write motivators that include “new” and/or “different” are categorized under the same group. They express a clear interest in specifically new, different and creative activities. The category “need” covers the comments that emphasize a need to develop headphones matching their needs. Those who believe that co-creation activity will be a valuable experience for themselves are grouped under “experience” while others who are interested in designing are categorized as “design”. The rest is composed of participants who are triggered by the brand itself, and those who are driven just by “curiosity”.

The same method to categorizing and naming as the motivators has been applied in the barriers as well. But the categories shall be considered with “lack of ...” in order it to be a deterrent in front of co-creation participation. Therefore, the group “time” refers to the participant who clearly state their lack of time to participate into the following stages. “Involvement” includes the comments that express lack or low involvement while “motivation” covers those comments of being not motivated

enough to participate in headphones design. Finally, participants who are categorized under the group of “competence” have stated their lack of ability to design, and “knowledge” have written their lack of knowledge to headphones, design, or co-creation.

Having evaluated the frequency table, the mostly-commented groups are obviously the top three categories in both motivators and barriers. The other categories have much less preference to be significantly evaluated. The top two groups, namely motivation and involvement, have been equally preferred (22%) in motivators, and surprisingly these two groups (involvement=14.5% and motivation=13%) are also in the top three in the barriers as well. What is the differentiating group of the top three in motivators and barriers is openness to the new and the different (20%), and timelessness (55%). Here stands out the group of “time” in barriers. Its percent is over the half of the comments. This result is in line with the research of Chepurna and Criado (2018). According to their observations, “no time for this” was the most frequently mentioned reason in their interview process to detect co-creation deterrents.

4.3.4. Manipulation Checks

Brand Awareness Check

In this study, a headphones brand has been created: InnoMuji. Deciding on its name was critical. It is designed as a compound consisting of two parts: Inno and Muji. Inno symbolizes and has clear association of innovation. Muji sounds like far eastern Asian, which has been nowadays famous for its technological innovations and new brands. In order to keep them together as a name of one single brand, and at the same time not to lose these individual words’ associations, the compound is written specially with “M” in capital letter. After deciding on the brand name and associations, its logo and colors have been created with a professional designer. The brand name stands totally in capital letters in the logo. What is differentiating Inno and Muji is a design element, e.g. a head wearing headphones. The motto of the brand is also included in the logo: Innovation & Design. And finally, the logo includes a few characters that seem Japan/Chinese/Taiwanese but actually has no meaning or do not match with any letter in those alphabets.



As the sample would be millennials, they are born with a tendency to search anything they hear in the internet. If the thing they are looking for has a website or references from websites or social media, they tend to trust the knowledge they receive. Considering this study would be carried out in three stages and there would be a continuing relationship with participants, they may wish to search a website for this brand to keep on with the second stage. Some of the participants have been observed to write comments about its website on questionnaires indeed. Therefore, a website domain has been created for InnoMuji: www.innomuji.com. Its main page has a large clock that is counting down according to the time period of this study. The content presents the invitation for headphones design and this research.

Participants are not expected to recognize the brand although they are told that it is a real brand in several communications like questionnaires, e-mails, etc. Accordingly, 97% states they do not know the brand.

Table 4.9: Brand Awareness Statistics

		Frequency	Percent	Valid Percent
Brand Awareness	Yes	27	3.1	3.1
	No	849	96.9	96.9
	Total	876	100.0	100.0

Further to frequency comparison, a manipulation check has been carried out by applying independent samples t test in order to compare two groups in terms of brand awareness. The results show that there is no significant difference ($p > 0.05$) in terms of brand awareness between celebrity and non-celebrity groups as expected.

Table 4.10: Brand Awareness Independent Samples t Test Results

Brand Awareness	Mean	N	Std. dev.	Mean difference	t	df	Sig. (2-tailed)
Celebrity endorser	.02	443	.156	-.012	-1.037	874	.300
Non-celebrity endorser	.04	433	.189	-.012	-1.035	836.196	.301

Endorser Awareness Check

The celebrity endorser used in this study is Doğukan MANÇO who is the son of Turkey's one of the best-known singers, Barış MANÇO. Moreover, he had participated in the popular Turkish reality show, Survivor, just before this study. Therefore, participants of this study have a fresh memory of Doğukan MANÇO. Having contacted with his agency, an agreement on the usage of his photos has been mutually signed, and his photos have been provided for this research. On the other hand, several attempts have been made in order to find a non-celebrity volunteer who has similar characteristics with Doğukan like beard and can be model for this study. As these efforts could not get the results, a stock photo has been used by the poster designer from a commercial photo retailer website. Therefore, participants have been expected to recognize the celebrity, which in turn positively impact their intention to participate into the co-creative headphones design.

Table 4.11: Endorser Awareness Statistics

Endorser Awareness		Frequency	Percent	Valid Percent
Celebrity endorser	Yes	337	76.1	76.1
	No	106	23.9	23.9
	Total	443	100.0	100.0
Non-celebrity endorser	Yes	4	.9	.9
	No	429	99.1	99.1
	Total	433	100.0	100.0

Frequency table shows that non-celebrity endorsed group members do not recognize the so-called celebrity with a rate of 99% while the 76% of celebrity endorsed group's members recognize the celebrity. In order to scientifically confirm a difference between groups, a manipulation check has been applied as in the analysis of brand awareness. The results are listed below in Table 4.12, and the two groups have been observed to be significantly different ($p \leq 0.001$) in terms of celebrity awareness.

Table 4.12: Celebrity Awareness Independent Samples t Test Results

Celebrity Awareness	Mean	N	Std. dev.	Mean difference	t	df	Sig.(2-tailed)
Celebrity	.76	337*	.427	.751	35.743	874	.000
Non-celebrity	.01	433	.096	.751	36.114	487.328	.000

*: Only those who recognized the celebrity in the celebrity group is compared with non-celebrity group. Participants from the celebrity group who did not recognize the celebrity are not included in this analysis.

4.3.5. Experimental Analyses Results

The data has been collected from 876 valid surveys and analyzed using SPSS 26.0 and Amos 26.0. In order to develop the final research model, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) have been performed respectively.

Exploratory Factor Analysis has been conducted to detect whether variable items are loading on the specifically measured factor or any other factors in the theoretical model. Before starting Exploratory Factor Analysis, firstly, Kaiser-Meyer-Olkin (KMO) test has been performed to evaluate the sample's adequacy (Kaiser, 1970). The sample shows a value of 0.807 for KMO test, which is greater than 0.50 and obviously in the suitable range. Secondly, Bartlett's test of sphericity has been applied to evaluate the sample's suitability for factor analysis (Bartlett, 1950). The result displays a significance level of 0.000 (less than 0.001), which is in the acceptable range and

shows us that our sample data is suitable for factor analysis. And finally, EFA has been carried out by applying principal component analysis (PCA) with varimax rotation.

According to EFA results as shown at Table 4.13, items with less than 0.50 factor loading have been dismissed, and the research model has been revised accordingly. Those items (Involvement-INV3, Agreeableness-AGR1 and Openness to experience-OPEN1) has been removed due to factor loading less than 0.50 and cross-loading. By using final set of items, reliability test has been conducted to assess their internal consistency.

The lowest Cronbach Alpha level is 0.743 of conscientiousness and the highest is 0.968 of participation intention (Table 4.13). Cronbach's Alpha values of items are in the acceptable reliability range, exceeding the threshold value of 0.70 (Nunnally, 1978) except for one variable, emotional stability. Its Cronbach Alpha value is not in the acceptable range ($0.510 < 0.70$). However, its factor loadings and its further confirmatory factor analysis results are satisfactory as well as its CR and AVE values of other reliability criteria are significantly at the satisfactory level (Table 4.15). Therefore, this variable has been kept for the following analyses.

Following EFA, confirmatory factor analysis has been conducted to assess the convergent and discriminant validity of the constructs. The standardized regression weights are expected to be over 0.50 and statistically significant. By using Amos 26.0, Confirmatory Factor Analysis had been employed. According to CFA results, all the items load on the constructs significantly and the standardized loadings exceeds 0.50 as seen at Table 4.13.

Table 4.13: Results of Exploratory and Confirmatory Factor Analyses (Study 1)

Construct	Items	Exploratory Factor Analysis		Confirmatory Factor Analysis	
		Factor loadings	Cronbach Alpha	Standardized loadings	P value
Extraversion	Extr1	.834	.801	.817	***
	Extr2	.825		.651	***
	Extr3	.791		.823	***
Agreeableness	Agr2	.865	.759	.732	***
	Agr3	.808		.836	***
Conscientiousness	Cons1	.846	.743	.771	***
	Cons3	.845		.786	***
Emotional Stability	Emo2	.730	.510	.833	***
	Emo3	.862		.410	***
Openness to Experience	Open2	.905	.865	.806	***
	Open3	.867		.946	***
Product Category Involvement	Inv1	.801	.828	.789	***
	Inv2	.802		.776	***
	Inv4	.744		.643	***
	Inv5	.790		.733	***
	Inv6	.692		.617	***
Participation Intention	Paint1	.920	.968	.922	***
	Paint2	.948		.981	***
	Paint3	.940		.962	***

*** $p \leq 0.001$ **Table 4.14:** Fit Indices of Measurement Model (Study 1)

Goodness of Fit Indices	Obtained Value	Reference Value
X^2/df	2.970	$2 < X^2/df < 5$
P value for model	0.000	≤ 0.001
Root Mean Square Error of Approximation (RMSEA)	0.047	$RMSEA < 0.08$
Comparative Fit Index (CFI)	0.970	$0.90 < CFI < 1$
Tucker-Lewis Index (TLI)	0.961	$.90 < TLI < 1$
Incremental Fit Index (IFI)	0.971	$.90 < IFI < 1$
Relative Fit Index (RFI)	0.943	$.90 < RFI < 1$
Normed Fit Index (NFI)	0.956	$.90 < NFI < 1$

Notes: $x^2 = 389.132$, $DF = 131$, $R^2_{\text{intention}} = 0.237$. Path coefficients are standardized.

Further evaluating the results of CFA, the measurement model fits the data adequately (Table 4.14). The average variance extracted (AVE) values are also evaluated to confirm that all AVE values of the factors are above the cutoff value of 0.50 (Hair et al., 2010). These results also assure the convergent validity. In order to estimate discriminant validity, each construct has been evaluated in terms of AVE values and CR values (Table 4.15). Given that AVE values are over 0.50, CR values are observed to be higher than the recommended threshold of 0.7 (Hair et al., 2010). Therefore, the constructs show satisfactory discriminant validity.

Table 4.15: Correlation Matrix and Descriptive Statistics (Study 1)

	Extr	Agr	Cons	Emo	Open	Inv	Paint
Extr	(0.741)						
Agr	.218**	(.774)					
Cons	.284**	.414**	(.865)				
Emo	-.034	.230**	.246**	(.858)			
Open	.347**	.324**	.327**	.144**	(0.902)		
Inv	.186**	.250**	.188**	.060	.222**	(0.714)	
Paint	.283**	.255**	.287**	.143**	.325**	.287**	(0.954)
Mean	5.001	5.942	5.572	4.841	5.522	5.552	4.088
SD	1.285	0.941	1.147	1.314	1.160	1.084	1.862
CR	0.853	0.925	0.856	0.834	0.897	0.838	0.969
AVE	0.550	0.600	0.749	0.737	0.815	0.511	0.912

Notes: Extr Extraversion, Agr Agreeableness, Cons Conscientiousness, Emo Emotional Stability, Open Openness to Experience, Inv Involvement, Paint Participation Intention SD Standard Deviation, CR Composite Reliability, AVE Average Variance Explained

** $p \leq 0.01$. Numbers on diagonals indicate square root of AVE. No correlation is greater than the corresponding square root of AVE.

Having been completed the validity verification and developed the structural research model, both SPSS 26.0 and Amos 26.0 has been employed to test the proposed hypotheses.

Firstly, effects of personality traits have been evaluated upon participation intention (H1). The results show that extraversion positively influences participants' intention to participate into value co-creation ($\beta = 0.181$, $p \leq 0.001$) and therefore support Hypothesis 1a. The positive impact of agreeableness on participation intention (Hypothesis 1b; $\beta = 0.022$, $ns > 0.05$) is not supported. But another personality trait of

participants, conscientiousness, is observed to significantly and positively affect their intention to participate into the following co-creation stages ($\beta = 0.106, p \leq 0.05$), which fully supports Hypothesis 1c. As in Table 4.16, emotional stability positively affects intention to participate into value co-creation ($\beta = 0.096, p \leq 0.05$) and therefore supports Hypothesis 1d. And finally, openness to experience is reported to positively influence participation intention ($\beta = 0.177, p \leq 0.001$), which fully supports Hypothesis 1e. The proposed effects of personality traits upon intention to participate into value co-creation activity are fully supported except for the effect of agreeableness. Extraversion and openness to experience has been observed to affect much more than other traits because co-creation naturally includes creativity and addresses to extraverted and open customers.

Table 4.16: Standardized Estimates for the Structural Model (Study 1)

Hypothesis	Path	Standardized estimate	<i>t</i> value	Result
H1a	Extraversion→Participation Intention	.181***	4,010	Supported
H1b	Agreeableness→Participation Intention	.022	0,436	Not Supported
H1c	Conscientiousness→Participation Intention	.106*	2,082	Supported
H1d	Emotional Stability→Participation Intention	.096*	2,171	Supported
H1e	Openness→Participation Intention	.177***	4,450	Supported
H2	Involvement→Participation Intention	.184***	5,068	Supported

*** $p \leq 0.001$ * $p \leq 0.05$

Secondly, effect of product category involvement on intention to participate into value co-creation has been analyzed and the path in between has been observed to be positive and significant ($\beta = 0.184, p \leq 0.001$), supporting Hypothesis 2.

Finally, an independent samples *t* test between test group and control group (celebrity endorser vs. non-celebrity endorser) has been conducted. According to the results in Table 4.17, celebrity endorsed group ($M=4.29$) display a higher intention to participate into VCC than non-celebrity endorsed group ($M=4.00$), and the difference

is significant ($t(764) = -2.206, p \leq 0.05$), which fully supports H3a. Given that 76% of the participants within the celebrity-endorsed group recognize the endorser while the 24% do not, another independent samples t test was applied in order to find out any difference between these participants. The results show that those who recognize the celebrity have a higher intention to participate ($M=4.29$) than those who do not recognize the endorser ($M=3.74$). Therefore, H3b is supported ($t(441) = 2.582, p \leq 0.01$). Both findings enhance the effect of celebrity endorser upon participation intention.

Table 4.17: Results of Independent Samples t Test (Study 1)

		N	Mean	S	Df	t value	Sig.
1	Celebrity	337	4.299	1.90503	764	-2.206	.028*
	Non-Celebrity	429	4.004	1.78300			
2	Recognition of celebrity	337	4.299	1.905	441	2.582	.010**
	No recognition of celebrity	109	3.745	2.001			

* $p \leq 0.05$ ** $p \leq 0.01$

4.4. Study 2: Value Co-creation Behavior

In Study 2, it is aimed to observe whether consumers' co-creation behavior affects their intention to buy the product to be co-created with their own contributions. Participants of Study 2 are those coming from the first stage and who have expressed a willingness to participate into next steps (i.e. headphones design). They have been sent online questionnaires that includes scale items of co-creation and purchase intention as well as questions about design features of headphones.

4.4.1. Research Instrument

In order to observe participants' value co-creation behavior and intention to purchase the co-created product, a questionnaire has been developed by using an online survey platform (surveyey.com). This questionnaire starts with two compulsory questions: student number and e-mail address. These are necessary for keeping record

of ongoing participation of the same people and the monetary rewards can be transferred to their account at student cards. Before scale items of study constructs, one question is asked, which aims to involve participants more into the co-creation and to assure that their ideas are important in this study. It is a reward-related question with three items in it. The participants have had the chance to share their ideas about the rewards.

The final and the core questionnaire can be evaluated in two parts. In the first part, participants have been given compulsory and optional questions related to headphones features. They have rated or written their own headphones design elements such as color and material. In the second part, value co-creation and purchase intention scales have been presented.

4.4.2. Measures

Study 2 concentrates mainly on actual co-creation behavior and its effects over purchase intention. The explained variable is purchase intention and scale is adapted from Limayem et al. (2000), Pavlou and Gefen (2005); Algharabat, (2018); Blasco-Arcas et al., (2013). For value co-creation, Yi and Gong's (2013) scale is used except for two sub-scales: personal interaction and responsible behavior. These scales are specifically and originally developed by the researchers in an off-line context and not addressing to this study's nature of being applied totally online.

A seven-point Likert type scale is applied to capture the responses. Apart from these scale items, participants are asked to share their choices and ideas about headphones design. Depending on their answers, the final co-created designs are formed so that participants' reaction to the co-created product design has been observed in the third stage.

Table 4.18: Scale Items of Study 2

Code	Turkish Scale items	Original Scale items
<i>Purchase intention</i>		
Puint1	Bir kulaklık satın alacak olsam, tasarımına katıldığım bu ürünü satın alırım.	Given the chance, I would consider buying headphones the co-created headphones in future.
Puint2	Tasarımına katıldığım bu ürün satışa sunulduğunda onu almayı düşünüyorum.	Given the opportunity, I intend to buy the co-created headphones.
Puint3	Tasarımına katıldığım bu ürünü muhtemelen satın alacağım.	It is likely that I will buy the co-created headphones in the near future.
<i>VCC- Information Seeking</i>		
I_Seek1	Bu markayı araştırdım.	I searched for this brand.
I_Seek2	Bu markanın websitesini ziyaret ettim (www.innomuji.com)	I visited its website (www.innomuji.com).
I_Seek3	Kulaklık tasarımıyla ilgili açıklamaları okudum; anlaşılmayan nokta varsa sordum.	I read the instructions and asked if/when confused.
I_Seek4	Kulaklık tasarımıyla ilgili ne yapmam gerektiğini öğrendim.	I understood what to do for the headphones design.
I_Seek5	Başkalarının tasarımıyla ilgili ne yaptığına dikkat ettim.	I paid attention to how others behave during the design process.
<i>VCC- Information Sharing</i>		
I_Share1	Kulaklık tasarımı hakkındaki fikirlerimi açıkça paylaştım.	I clearly explained my ideas about the design.
I_Share2	Kulaklık tasarımı için istenen bilgileri doğru şekilde girdim.	I gave the proper information for the design.
I_Share3	Kulaklık tasarımına katılmak için gerekli tüm bilgileri (kişisel bilgiler, cevapları işaretleme, vb.) paylaştım.	I provided necessary information in order to participate into the headphones design (personal data, etc.)
I_Share4	Kulaklık tasarımıyla ilgili tüm sorulara cevap verdim.	I answered all the headphones-related questions.

Table 4.18: (Continued)

Code	Turkish Scale items	Original Scale items
<i>Responsible Behavior</i>		
Resp_Beh1	Bu çalışmada benden beklenen tüm davranışları gerçekleştirdim.	I performed all the tasks that are required.
Resp_Beh2	Kulaklık tasarımıyla ilgili tüm sorulara cevap verdim.	I adequately completed all the expected behaviors.
Resp_Beh3	Bu çalışmada benden beklenen tüm davranışları gerçekleştirdim.	I fulfilled responsibilities to the headphones design.
Resp_Beh4	Kulaklık tasarımıyla ilgili üzerime düşeni yaptım.	I followed the design project's directives or orders.
<i>Personal Interaction</i>		
P_Inter1	Tüm soruları samimiyetle yanıtladım.	I answered the questions friendly.
P_Inter2	Bu çalışmayı yürütenlere karşı kibar davrandım.	I was polite to the contact people in this design project.
P_Inter3	Bu çalışmayı yürütenlere karşı saygılı davrandım.	I was courteous to the contact people in this design project.
<i>VCC- Feedback</i>		
Feed1	Bu kulaklığı kullanırken aklıma yeni fikirler gelirse paylaşıyorum.	If I have a useful idea on how to improve the co-created headphones, I let the company know.
Feed2	Bu kulaklığı beğenirsem yorumlarımı paylaşıyorum.	When I like the co-created headphones, I comment about it.
Feed3	Bu kulaklığı beğenmezsem yorumlarımı paylaşıyorum.	When I don't like the co-created headphones, I comment about it.
Feed4	Bu kulaklığı kullanır ve sorun yaşarsam firmayla bunu paylaşıyorum.	When I experience a problem, I let the company know about it.
<i>VCC- Advocacy</i>		
Adv1	Bu kulaklıkla ilgili etrafıma olumlu şeyler söylerim.	I said positive things about the co-created headphones to others.

Table 4.18: (Continued)

Code	Turkish Scale items	Original Scale items
<i>VCC- Advocacy</i>		
Adv2	Bu kulaklığı çevremdekilere tavsiye ederim.	I recommended the co-created headphones to others.
Adv3	Çevremdekileri bu kulaklığı almaya teşvik ederim.	I encouraged friends and relatives to use the co-created headphones.
Adv4	Arkadaşlarımdan kulaklık alacak olan olursa bu markayı tavsiye ederim.	I recommended the co-created headphones to my friends.
<i>VCC- Helping</i>		
Help1	Bu kulaklık hakkında yardım isteyen olursa onlara yardım ederim.	I assist other customers if they need my help.
Help2	Başkaları bu kulaklığı kullanırken sorun yaşarsa onlara çözüm bulmalarında yardım ederim.	I help other customers if they seem to have problems.
Help3	Çevremdekilerin bu kulaklığı en iyi şekilde kullanmalarına yardımcı olurum.	I teach other customers to use the service correctly.
Help4	Çevremdekilere bu kulaklıkla ilgili tavsiyelerde bulunurum.	I give advice to other customers.
<i>VCC- Tolerance</i>		
Tol1	Bu kulaklığı satın alırsam ve ürünle veya hizmetlerle ilgili herhangi bir aksaklık yaşarsam bunu fazla dert etmem.	If I experience a problem with the co-created headphones, I would be willing to put up with it.
Tol2	Bu kulaklığı satın alırsam ve firma bu kulaklıkla ilgili hizmetlerde bir hata yaparsa firmaya karşı anlayışlı davranırım.	If the company makes a mistake during services about the co-created headphones, I would be willing to be patient.
Tol3	Bu kulaklıkla ilgili hizmetlerde (fatura, teslim, vb.) normalden biraz daha fazla beklemem gerekirse beklerim.	If I have to wait longer than I normally expected in services about the co-created headphones, I would be willing to adapt.

4.4.3. Data Collection

Upon the data analysis of the first touchpoint, a total number of 450 participants has been observed to state their intention to participate into collaborative headphones design. These participants have been contacted by e-mail this time and asked to click the link inside to start rating and sharing ideas. Data collection for Study 2 starts on 23rd April 2019 and lasts till 7th July 2019. This period takes longer than the first stage because the return rate is generally higher and time period is obviously shorter in face-to-face data collection despite its high costs (time and effort) than online surveys. In order to be able to collect 317 samples for higher statistical probability, reminders have been sent to those who haven't done the online questionnaire, which resulted in a longer data collection period than planned. Respondents have not been asked demographic questions as the participants of the second stage are coming from the first stage and the demographic profile of the first stage is still valid.

The questionnaire starts with a few questions that aim to involve participants into the study more and feel more assured that their ideas really matter. Therefore, these questions are not related to the scales but the organization of the study (monetary awards). Most of the participants have not specified either positive or negative response to “whether free lunch is enough for my contributions” and “it would be more appropriate to share the final reward to all the participants”. On the other hand, they have been observed to strongly agree with the statement that “the raffle for the big reward should be done in the presence of notary”.

This choice of participants was planned to be carried out to show their choices are important in this study. However, it became impossible due to the Covid19 pandemic during which researchers had to work from home for months and are strongly advised not to be in the crowds. Therefore, the raffle was drawn by the international office manager as an authority and in the presence of two more officers as witnesses. The raffle has been recorded and kept for transparency purposes.

Table 4.19: Participants' Reaction to Involvement-Boosting Questions

	Percent	Answer
Free lunch is enough for my contributions.	75.23%	Neither agree nor disagree
It would be more appropriate to share the final reward to all the participants.	71.22%	Neither agree nor disagree
It would be better to do the raffle for the big reward in the presence of notary.	119.37%	Strongly agree

Participants' choices and ideas on headphones design

Participants have been asked their choices and ideas on headphones design features. These features are organized under two headings: fundamental features and extra features. The fundamental features include questions of basic and technical properties such as color and form (Table 4.20). These design questions start with four pictures of common headphones in order to grab participants' attention and evoke their imagination. Then other fundamental features are asked through the question; "which one (form/color/etc.) do you prefer?". Each question has three responses that can be easily selected thanks to online form and drop-down menus.



1st choice

Single body-big ears



2nd choice

Two-part



3rd choice

Single body-round



4th choice

Single body-square

Table 4.20: Fundamental Features of Headphones

Question	Options	Explanation
Headphones design	Four different headphones images	(Compulsorily selected from the given options by participants)
Form	Round/square/foldable	
Color	Black/white/blue	
Material	Plastic/leather/fabric	
Connection	Cabled/wireless	
Price (TL)	25-50 50-100 100-200 200-500 500-1000 1000 and more	
What else?	Comment box	(Optionally filled by participant themselves)

Following to the basic features, participants come across with extra features that are not compulsory for headphones usage but mainly pamper hedonic demands such as glossy cover and personalized product (Table 4.21). Therefore, fundamental questions are compulsory but extra features are optional. In order to create a headphones design, participants' responses related to basic design features are necessary. However, they are expected to voluntarily give more feedback about their preferences and expectations in order to catch the active cooperation in value co-creation. This approach emerges from the construct of value co-creation itself.

As described in the literature review, value co-creation has two sub-dimensions in which participation covers the fundamentals while citizenship includes voluntary behaviors. Although participation is compulsory for co-creation to exist, citizenship gives the proactive and voluntary nature of the construct.

Table 4.21: Additional Features of Headphones

Question	Options
Form	(Optionally filled by participant themselves)
Color	
Material	
Connection	

Table 4.21: *(Continued)*

Genuine leather material Sparkling pave design External speaker Microphone User's name on it Woolen cover for winter Mp3 player (128GB) on it USB port Foldable design	(Optionally selected by participant themselves as many as possible among them)
Price with the added features (TL)	25-50 50-100 100-200 200-500 500-1000 1000 and more
What else?	Optional comment box
E-mail address	Participants can e-mail their own designs

The questions listed in Table 4.21 are asked in order to detect respondents' choices and ideas related to headphones. Depending on their answers three headphones designs have been created. Two of them are matching with these answers while one is absolutely different so that participants' reaction to the co-created product design has been observed in the third stage which will be presented in the following sections.

According to the analyses of responses in this part of the questionnaire, the data are listed with their frequencies and percentage at Table 4.22. Among four different headphones pictures, the most selected one is single body-round (35%) followed by two part which is round as well (32.8%). The other two designs have been preferred by much fewer respondents (single body-big ears=18.6% and single body-square=13.5%). The tendency to prefer round shape has been also observed at the second question asking form preference: round form has been selected with 62.7% while foldable form has less frequency with 23.6% and square with 13.5%. Black is by far the most popular color for headphones (65.6%). Blue (17.9) and white (16.4%) are in the following ranks.

Table 4.22: Frequency Table of Fundamental Features (N=317 valid)

Question	Options	Frequency	Percent
Headphones design	1. Single body-big ears	59	18.6
	2. Two-part	104	32.8
	3. Single body-round	111	35
	4. Single body-square	43	13.5
Form	Round	199	62.7
	Square	43	13.5
	Foldable	75	23.6
Color	Black	208	65.6
	White	52	16.4
	Blue	57	17.9
Material	Plastic	83	26.1
	Leather	144	45.4
	Fabric	90	28.3
Connection	Cabled	37	11.6
	Wireless	280	88.3
Price (TL)	25-50	7	2.2
	50-100	61	19.2
	100-200	118	37.2
	200-500	110	34.7
	500-1000	15	4.7
	1000 and more	6	1.9

Regarding material of the headphones, most of the participants have chosen leather (45.4%) and the rest have preferred fabric (28.3) and plastic (26.1). As cables are vanishing day by day, the respondents here also have stated their preference of wireless connection the most (88.1%) and a small number have chosen cabled connection (11.6%). As participants are quite familiar with the headphones market, they have stated their price preference within the market range. The mostly preferred two price ranges are TL 100-200 (37.2%) and TL 200-500 (34.7%).

11.6% (n=37) of the total 317 respondents have done additional comments about their preferences upon the completion of compulsory questions. They have most frequently expressed their preferences about the form of headphones (N=37, n=23, 62%). They have written more about design elements (N=37, n=13, 35%) which some are similar to what they have chosen in the previous questions. And only one single comment has been recorded about price.

Table 4.23: Frequency Table of Comments on Fundamental Features

Question	Total Response	Content category	Frequency	Percent
What else?	37	Several design elements	13	35
		Form	23	62
		Price	1	2.7

Participants have been given a further chance to express their own choices and ideas about the questions that have just been asked and previously required to choose one of the specified answers. These extra questions symbolize the contribution of participants and therefore the proactive spirit of co-creation. Participants spend time and effort to express themselves voluntarily unlike the easy pick-up responses of the previous part of the questionnaire. Therefore, the value of these answers, if any, will be more than the compulsory questions when determining the most contributing participants for the biggest reward at the end of the third study.

Table 4.24: Frequency Table of Additional Features

Question	Total Response	Content category	Frequency	Percent
Form	37	Round	10	27
Color	76	Red/Gray	13/13	17/17
Material	45	Not single /blended materials.	20	44
Connection	48	More options at the same product (e.g. wireless&cabled)	26	54
Luxuries	NA	Genuine leather material	74	23*
		Sparkling pave design	13	4
		External speaker	68	21
		Making/answering phone calls	234	73
		Microphone	234	73
		User's name on it	76	24
		Woolen cover for winter	71	22
		Mp3 player (128GB) on it	153	48
		USB port	111	35
		Foldable design	262	82
Price (TL)	NA	25-50	1	1,3
		50-100	28	8
		100-200	86	27
		200-500	141	44
		500-1000	48	15
		1000 and more	13	4

*The percent refers to the rate of response number to the total participants' number.

The most frequent comments are given at Table 4.24. In evaluation of participants' contributions and, in comparison with their answers to compulsory questions, participants are observed to repeat their previous choices in the voluntary comment part, as well. For example, they have similarly expressed their preference about the form of headphones as round shaped (N=37, n=10, 27%) just like the data about the form in the previous compulsory question (N=317, n=199, 62.7%). They have expressed their choice of black headphones, but most frequently they have mentioned the colors of red and gray equally (N= 76, n= 13, 17%). Regarding materials (N=45, n=20, 44%) and connection type (N=48, n=26, 54%), blended versions and mixed options combining different types at the same product have been mostly written.

The respondents have been observed to be interested in the luxury features more than the other optional questions. And the most frequently selected ones are “foldable design” (N=317, n=262, 82%), “making/answering phone calls” (N=317, n=234, 73%), “microphone” (N=317, n=234, 73%), “Mp3 player (128GB) on it” (N=317, n=153, 48%), and “USB port” (N=317, n=111, 35%). Finally, the participants have thought the price of the product upon the addition of these extra features should be between TL 200-500 (N=317, n=141, 44%) while their preference has been between TL 100-200 (N=317, n=118, 37.2%) for the product with basic features in the compulsory part of the questionnaire.

The participants are given a comment box once again to voluntarily share ideas after the optional additional features. 30% (n=95) of the total 317 participants have added in this comment box, which is obviously more than the answers (n=37) written in the first voluntary comment box after the compulsory questions. This shows that participants are more involved in the study as they have dived into the questionnaire. And the content analysis of the comments show that the content is quite limited in the first part while it is quite diversified in the second part. Therefore, the categories used to analyze the contents are much more in the second part. The first comments are categorized into three groups: several design elements, form and price. Form is a design-related element and can be included into the first category so that design elements and price are also matching with the second comment part. The additional categories are sound isolation, sound quality, product quality, game and music

consideration, customer satisfaction, trust in this study and comfort. When compared with the first comments, the second comments are seen to be more than just technical features but experience and marketing elements as well. Especially, under trust category, such comments fully support the efficiency of this co-creation study:

“I am glad to be given a chance to give ideas in a new product development” or “I believe in this study and you will be successful as you have taken our ideas as customers”

And finally, comments about price show that participants really take this study seriously and imagine themselves in the shoes of InnoMuji company. For example, one says:

“The additional features I have chosen will raise price, so I advise you to produce simple and affordable products at the same time.”

Table 4.25: Frequency Table of Comments on Additional Features

Question	Total Response	Content category	Frequency	Percent
What else?	95	Several design elements	39	41
		Sound quality	13	13.6
		Comfort	12	12.6
		Sound isolation	11	11.5
		Price	6	6.3
		Game & music	4	4.2
		Customer satisfaction	4	4.2
		Trust in this study	4	4.2
		Product quality	4	4.2

4.4.4. Experimental Analyses Results

Participants of the first study who volunteer to participate into the second stage have been asked to complete a web-based survey. The data from these 317 participants have been analyzed with SPSS 26.0 and Amos 26.0. Structural Equation Modeling (SEM) has been chosen as it provides all the necessary tools to test the research hypotheses. Exploratory Factor Analysis and Confirmatory Factor Analysis have been applied for validity test respectively.

Exploratory Factor Analysis has been conducted to detect whether variable items are loading on the specifically measured factor or any other factors in the theoretical model. Before Exploratory Factor Analysis, Kaiser-Meyer-Olkin (KMO) test has been employed, firstly, to evaluate the sample's adequacy (Kaiser, 1970). The value of 0.905 (>0.50) for KMO test is in the highly acceptable range. Secondly, Bartlett's test of sphericity has been applied to evaluate the sample's suitability for factor analysis (Bartlett, 1950). The result displays a significance level of 0.000 (less than 0.001), which is in the acceptable range and shows us that our sample data is suitable for factor analysis. And finally, EFA has been carried out by applying principal component analysis (PCA) with varimax rotation. According to EFA results as shown at Table 4.26, items with less than 0.50 factor loading have been dismissed, and the research model has been revised accordingly.

The main cross-loading is the factors of responsible behavior and personal interaction. These factors, no matter how their items are analyzed with different combinations, do not fit the model and destroyed the internal consistency of other factors as well. Responsible behavior refers to the fulfillment of fundamental steps required from the respondents such as acting what the study requires or submitting all the responses. Personal interaction on the other hand refers to treating researchers with respect, etc. These constructs are originally developed in an offline context by Yi and Gong (2013). No matter how much their items are tried to be adapted to online environment by the researchers of this study, they have been observed not to have matched and measured what they actually refer to. Therefore, these two factors are dismissed with all their items.

The other items individually removed from the EFA due to factor loading less than 0.50 and cross-loading are I_Seek1, I_Seek2 and I_Share4. The final factor loadings range from 0.609 to 0.881. By using final set of items, reliability test has been conducted to assess their internal consistency of the final 24 items. The lowest Cronbach Alpha level is 0.753 of tolerance and the highest is 0.919 of helping (Table 4.26). Cronbach's Alpha values of items exceeds the threshold value of 0.70 (Nunnally, 1978).

Table 4.26: Results of Exploratory and Confirmatory Factor Analyses (Study 2)

Construct	Items	Exploratory Factor Analysis		Confirmatory Factor Analysis	
		Factor loadings	Cronbach Alpha	Standardized loadings	P value
Info_Seeking	I_Seek3	.876	.799	.809	***
	I_Seek4	.827		.821	***
	I_Seek5	.735		.654	***
Info_Sharing	I_Share1	.829	.856	.727	***
	I_Share2	.881		.923	***
	I_Share3	.832		.842	***
Feedback	Feed1	.754	.886	.838	***
	Feed2	.830		.906	***
	Feed3	.834		.786	***
	Feed4	.672		.740	***
Advocacy	Adv1	.833	.917	.851	***
	Adv2	.854		.904	***
	Adv3	.758		.895	***
	Adv4	.634		.795	***
Helping	Help1	.609	.919	.851	***
	Help2	.757		.879	***
	Help3	.799		.875	***
	Help4	.625		.841	***
Tolerance	Tol1	.813	.753	.679	***
	Tol2	.816		.713	***
	Tol3	.757		.761	***
Purchase Intention	Puint1	.660	.869	.694	***
	Puint2	.826		.911	***
	Puint3	.818		.903	***

*** $p \leq 0.001$

Table 4.27 provides the average variance extracted (AVE) values, the square root of AVE, composite reliability (CR) values and correlations together with descriptive data of the latent variables. AVE values are recommended to be over 0.50 (Fornell and Larcker, 1981) while CR values are over 0.7 (Hair et al., 2010). All the latent variables are significantly correlated except for the correlation between information sharing and tolerance. These are both independent variables and kept for the following analyses. Therefore, statistics in Table 4.27 meet the related requirement and recommendations, providing evidence to appropriate discriminant and convergent validity.

Table 4.27: Correlation Matrix and Descriptive Statistics (Study 2)

	Info_Seeking	Info_Sharing	Feedback	Advocacy	Helping	Tolerance	Purchase Intention
Info_Seeking	(0.764)						
Info_Sharing	.256**	(0.834)					
Feedback	.305**	.473**	(0.844)				
Advocacy	.363**	.312**	.511**	(0.883)			
Helping	.361**	.388**	.678**	.731**	(0.868)		
Tolerance	.208**	.005	.205**	.301**	.346**	(0.713)	
Purchase Intention	.397**	.270**	.473**	.646**	.548**	.362**	(0.841)
Mean	4.454	6.398	6.317	5.955	6.120	4.495	5.513
SD	1.492	0.883	0.799	0.957	0.891	1.376	1.103
CR	0.807	0.872	0.925	0.947	0.941	0.761	0.878
AVE	0.585	0.696	0.713	0.780	0.754	0.516	0.708

Notes: SD Standard Deviation, CR Composite Reliability, AVE Average Variance Explained

** $p \leq 0.01$. Numbers on diagonals indicate square root of AVE. No correlation is greater than the corresponding square root of AVE.

Before path analysis, the measurement model has been evaluated in terms of model fit indices. According to CFA results, the model shows an acceptable goodness of fit. RFI and NFI values are good fit if greater than 0.90. However, literature has research that supports values greater than 0.85 (Kiyemli Sen and Ucoglu, 2018; Toksoy and Evran Acar, 2019). As the observed values here are between 0.85 and 0.90 as well as the other indices are in the good fit range, they are accepted.

Table 4.28: Fit Indices of Measurement Model (Study 2)

Goodness of Fit Indices	Obtained Value	Reference Value
X ² /df	2.619	2 < X ² /df < 5
P value for model	0.000	≤ 0.001
Root Mean Square Error of Approximation (RMSEA)	0.072	RMSEA < 0.08
Comparative Fit Index (CFI)	0.929	.90 < CFI < 1
Tucker-Lewis Index (TLI)	0.908	.90 < TLI < 1
Incremental Fit Index (IFI)	0.930	.90 < IFI < 1
Relative Fit Index (RFI)	0.859	.90 < RFI < 1
Normed Fit Index (NFI)	0.891	.90 < NFI < 1

Notes: X²: 604.995, DF: 231, R²_{intention}: 0.533. Path coefficients are standardized.

Upon assessing reliability and validity of variables, the paths in between and their standardized estimates are evaluated. The results of path analyses are provided in Table 4.29. According to these results, participants' information demanding behavior significantly affects purchase intention (H4a, $\beta = 0.180$, $p \leq 0.01$) while the hypothesized effect of information sharing on their intention to purchase the contributed product (H4b) is not supported ($\beta = -0.048$, $ns > 0.05$).

Table 4.29: Standardized Estimates for the Structural Model (Study 2)

Hypothesis	Path	Standardized estimate	<i>t</i> value	Result
H4a	Info_Seeking→Purchase Intention	.180**	3.135	Supported
H4b	Info_Sharing→Purchase Intention	-.048	-.842	Not Supported
H4c	Feedback→Purchase Intention	.203*	2.497	Supported
H4d	Advocacy→Purchase Intention	.501***	5.749	Supported
H4e	Helping→Purchase Intention	-.101	-.930	Not Supported
H4f	Tolerance→Purchase Intention	.198***	3.195	Supported

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$, $ns > 0.05$

Participants' giving feedbacks has been analyzed and its effect on their purchase intention has been observed to be positive and significant ($\beta = 0.203$, $p \leq 0.05$), supporting Hypothesis 4c. The effect of participants' being advocate about the co-created output has been analyzed. The results show that advocacy significantly influences participants' intention to buy it ($\beta = 0.501$, $p \leq 0.001$) and therefore supports H4d. Although the path between helping behavior and purchase intention has been observed not to be significantly supported (Hypothesis 4e; $\beta = -0.101$, $ns > 0.05$), results show a significant and positive effect of tolerance upon participants' purchase intention ($\beta = 0.198$, $p \leq 0.001$), fully supporting Hypothesis 4f.

4.5. Study 3: Consequences of Value Co-creation

The purpose of Study 3 is to find out whether consumers' perception of contribution to the co-created product and their satisfaction about it affect their intention to buy this product. Upon analyzing the participants' feedback on headphones designs received in Study 2, two headphones designs have been created and presented to the same participants who have contributed to these designs. And their reactions (satisfaction, purchase intention and perceived contribution) have been measured through an online questionnaire.

4.5.1. Research Instrument

In the first two studies, one hard-copy and one online questionnaire have been used by researchers. In the first study, customers' intention to participate into value co-creation has been analyzed. Those who have expressed their willingness to participate have been contacted for the second study. The participants' co-creation behavior has been observed together with their intention to buy the co-created product they have contributed. Their preferences and ideas have also been collected about headphones at the end of the second study. This feedback has been analyzed and the results have paved the way for the third study.

The third study aims to observe participants' satisfaction and perceptions about their contribution to this co-created product and its effect of their intention to buy the co-created product. Therefore, ideas and choices of the 317 participants about a headphones design have been qualitatively and quantitatively analyzed, and original headphones have been designed consequently. The perceptions of participants have been compared on the basis of whether their ideas are taken into account in the design of the co-created product or not. All the possible answers regarding the design elements in the second study questionnaire are given with three options. Therefore, design choices of the participants have been evaluated in three groups. The biggest single group has 153 participants (Group 2 = G2) and the other two groups totally equal to this group with a total number of 152 participants (Group 1 = G1). One design has been produced for G2 with utmost attention not to coincide with all of the participants design choices and ideas. The so-called features of this design are

described out of what anyone of the participants expectations. This design is as follows:



Affordable price of TL800; Two-parts design; with futuristic color options of three (neon green, fuchsia, brown)

On the other hand, two different headphones designs have been created that are the best matches of the G1's ideas as much as possible. The frequency tables are used as the best references for the development of designs and the description of the so-called features in this group. These designs are as follows with the same explanation below:



Affordable price of TL180; Several color and materials options; foldable design; perfect sound isolation; Bluetooth; ergonomic design with changeable wideness; hard-plastic cover; Mp3 player and speaker at the same time

All the three designs are accompanied with the same questionnaire measuring participants' perceptions of contribution, intention to buy the co-created product, and satisfaction with the whole process. Design and questionnaire have been spread out with an online survey platform (surveey.com) in an e-mail inviting participants to the final stage of the co-creation project.

4.5.2. Measures

Purchase intention in Study 2 has been measured again to see if there is any change of attitude after participants have come across the final design. Therefore, the same scale for this variable is applied without any change in items. Satisfaction scale has been added to this study's questionnaire. The scale items for satisfaction have been adapted from Carvalho Martins (2014) and Hellier et al. (2003). However, the originality of scales in this stage is the development of a new variable named perception of contribution. This variable is measured with questions that directly asking their perception about the extent that their contributions (preferences, proposed ideas, etc.) has been taken into account in the final product design. A seven-point Likert's scale is applied while testing below-listed constructs in Study 3.

Table 4.30: Scale Items of Study 3

Code	Turkish Scale Items	Original Scale items
<i>Perceived Contribution</i>		
PC1	Seçtiğin kulaklık fotoğrafından esinlenilmiş mi?	Does the co-created product reflect your choice of headphones picture?
PC2	Seçtiğin kulaklık şekli dikkate alınmış mı?	Does the co-created product reflect your choice of headphones shape?
PC3	Seçtiğin renk dikkate alınmış mı?	Does the co-created product reflect your choice of headphones color?
PC4	Seçtiğin malzeme dikkate alınmış mı?	Does the co-created product reflect your choice of headphones material?
PC5	Seçtiğin bağlantı türü dikkate alınmış mı?	Does the co-created product reflect your choice of headphones connection type?

Table 4.30: (Continued)

Code	Turkish Scale Items	Original Scale items
<i>Perceived Contribution</i>		
PC6	Ürünün fiyatı, seçtiğin fiyat aralığına göre belirlenmiş mi?	Is the co-created product sold in your choice of price range?
PC7	Seçtiğin ekstra özellikler dikkate alınmış mı?	Does the co-created product reflect your choice of extra features?
PC8	Ayrıca paylaştığın bir fikir (renk, şekil, vb) varsa o fikir dikkate alınmış mı?	In case you have shared additional idea (color, shape, etc) does the co-created product reflects your contribution?
PC9	Bir çizim veya görsel paylaştıysan, ondan faydalanılmış mı?	In case you have shared any sketching or image does the co-created product reflects your contribution?
<i>Purchase Intention</i>		
Puint1	Bir kulaklık satın alacak olsam, tasarımına katıldığım bu ürünü satın alırım.	Given the chance, I would consider buying headphones the co-created headphones in the future.
Puint2	Tasarımına katıldığım bu ürün satışa sunulduğunda onu almayı düşünüyorum.	Given the opportunity, I intend to buy the co-created headphones.
Puint3	Tasarımına katıldığım bu ürünü muhtemelen satın alacağım.	It is likely that I will buy the co-created headphones in the near future.
<i>Satisfaction</i>		
Sat1	Genel olarak bu çalışmaya katılmak, hoşuma gitti.	Overall, I am satisfied with participating into this design project
Sat2	Bu çalışmaya katıldığım için memnunum.	Im pleased with my decision to participate into this design Project.
Sat3	Bu çalışmaya katılmak, keyifli bir deneyimdi.	I am truly enjoying my experience of participating into this design project.

4.5.3. Data Collection

In the final stage, participants are those coming from the second stage. Although the number of participants is totally 317 in the second stage, the total number has decreased 305 in the final study. Evaluating the results of the second stage (ideas, choices and suggestions of participants), three different headphones designs are created while separating participants into two groups. two designs are created for Group1 according to one group of participants' contributions (n=152) while one design is created without taking any contribution from Group2's participants (n=153). One and the same questionnaire is sent to two groups with a difference of headphones design and its stated traits such as color, price, etc.

The participants are those coming from the second stage. Two groups are almost equal in number of participants. The designs are sent online to participants on 17th July 2019, and data collection is completed on 27th September 2019.

4.5.4. Experimental Analyses Results

Coming across the final design, participants' intention to buy the product has been measured. As they have spent time and effort for this design, they may feel attached to the product. However, this possible attachment may be affected by the extent that what they have shared in the creation process has been taken into account. This approach reminds the construct of satisfaction because satisfaction is related to the difference between reality and expectation. In order to assess these relations among contribution expectation, satisfaction and purchase intention, both SPSS 26.0 and Amons 26.0 has been used.

Prior to the hypothesis testing, an exploratory factor analysis (EFA) and a confirmatory factor analysis (CFA) have been applied to evaluate reliability and validity of the variables. According to the Kaiser-Meyer-Olkin (KMO) test results, the sample is adequate with a value of 0.873 (>0.50) (Kaiser, 1970), and it is suitable for further factor analysis with a significance level of 0.000 at the Bartlett's test (≤ 0.001) (Bartlett, 1950). Table 4.31 provides principal component analysis (PCA) results as well as reliability test results.

One item (CP7) has been observed not to load appropriately on the related factor and resulted in cross-loadings, which is consequently removed. However, one item (CP5<0.50) is kept although its loading is under the recommended threshold because the factor loading of this item is quite close to the threshold, and as a brand-new item, its loading being between 0.40 and 0.50 can be acceptable. The internal consistency of these final 12 items have been analyzed with reliability test. The Cronbach Alpha levels are in the acceptable range advised by Nunnally (1978) as in Table 4.31.

Table 4.31: Results of Exploratory and Confirmatory Factor Analyses (Study 3)

Construct	Items	Exploratory Factor Analysis		Confirmatory Factor Analysis	
		Factor loadings	Cronbach Alpha	Standardized loadings	P value
Contribution Perception	CP1	.813	.832	.791	***
	CP2	.788		.765	***
	CP3	.558		.641	***
	CP4	.675		.620	***
	CP5	.456		.546	***
	CP6	.623		.709	***
Satisfaction	Sat1	.913	.963	.913	***
	Sat2	.944		.984	***
	Sat3	.919		.947	***
Purchase Intention	Puint1	.771	.899	.747	***
	Puint2	.871		.945	***
	Puint3	.838		.922	***

*** $p \leq 0.001$

Table 4.32 provides correlations, average variance extracted (AVE) values, CR values. Based on these values, the variables are observed to be significantly correlated. They display acceptable CR values being over the related thresholds (CR>0.7). The AVE values are also in the acceptable range except for contribution perception. As it is a newly-developed variable, its AVE value is almost at the threshold of the recommended value (AVE>0.5), and its CR values are quite satisfactory, the variables can be accepted to show a significant discriminant validity.

Table 4.32: Correlation Matrix and Descriptive Statistics (Study 3)

	Contribution Perception	Satisfaction	Purchase Intention
Contribution Perception	(0.683)		
Satisfaction	.410**	(0.965)	
Purchase Intention	.680**	.452**	(0.875)
Mean	4.535	6.178	4.372
SD	1.236	1.110	1.469
CR	0.838	0.938	0.906
AVE	0.467	0.932	0.765

Notes: SD Standard Deviation, CR Composite Reliability, AVE Average Variance Explained

** $p \leq 0.01$. Numbers on diagonals indicate square root of AVE. No correlation is greater than the corresponding square root of AVE.

Table 4.33: Fit Indices of Measurement Model (Study 3)

Goodness of Fit Indices	Obtained Value	Reference Value
X^2/df	2.716	$2 < X^2/df < 5$
P value for model	0.000	≤ 0.001
Root Mean Square Error of Approximation (RMSEA)	0.075	RMSEA < 0.08
Comparative Fit Index (CFI)	0.967	$.90 < CFI < 1$
Tucker-Lewis Index (TLI)	0.949	$.90 < TLI < 1$
Incremental Fit Index (IFI)	0.967	$.90 < IFI < 1$
Relative Fit Index (RFI)	0.921	$.90 < RFI < 1$
Normed Fit Index (NFI)	0.949	$.90 < NFI < 1$

Notes: X^2 : 138.505, DF=51, $R^2_{\text{intention}}$: 0.465. Path coefficients are standardized.

Based on the model fit indices, the measurement model shows an adequate fit with the data. Amos results are used to test the proposed hypotheses (Table 4.34). Firstly, effect of contribution perception has been evaluated (H5). According to the test results, participants' purchase intention is positively affected by their contribution perception ($\beta = 0.548$, $p \leq 0.001$). Secondly, the relationship between satisfaction and purchase intention has been observed to support H6 ($\beta = 0.252$, $p \leq 0.001$).

Table 4.34: Standardized Estimates for the Structural Model (Study 3)

Hypothesis	Path	Standardized estimate	<i>t</i> value	Result
H5	Perceived Contr.→Purchase Intention	.548***	12.158	Supported
H6	Satisfaction→Purchase Intention	.252***	5.591	Supported

*** $p \leq 0.001$

Finally, participants have been categorized into two groups depending on their contribution perception: those ones (G1) whose contribution has been taken into account and those (G2) whose ideas are not used at the final design. In order to test the difference between these two groups in terms of their satisfaction with the final output and purchase intention, SPSS 26.0 has been used. Table 4.35 provides the results of the independent samples test between groups. Participants' satisfaction with the final design has been observed not to change according to the groups ($t(303) = 0.542, p > 0.05$), not supporting H7. However, there is a significant difference in terms of the participants' intention to purchase the product ($t(303) = 7.285, p \leq 0.001$). This supports H8 which argues that participants whose ideas are taken into account and perceive their contribution on the final design feel more satisfied and display more tendency to purchase the product.

Table 4.35: Results of Independent Samples *t* Test (Study 3)

	N	Mean	S	Df	<i>t</i> value	Sig.
Satisfaction (G1)	152	6.212	1.11815	303	.542	.589
Satisfaction (G2)	153	6.143	1.10472			
Purchase Intention (G1)	152	4.940	1.32841	303	7.285	.000***
Purchase Intention (G2)	153	3.808	1.38586			

*** $p \leq 0.001$, ns > 0.05

5. DISCUSSION

5.1. Discussion and Comments

Extant literature review and increasing practical occurrences of value co-creation paves the way to this study. Being a large, longitudinal and scenario-based study, this research aims to shed light onto consumer co-creation behavior during a new product development process (a headphones design) with its before and after attitudes and perceptions. The results of this research provide new insights about what type of consumers are more inclined to co-create, how their co-creation behavior affects their attitude towards buying the co-created product, and how they perceive this product and their contribution. These observations are made with three-stage field study as it would be closer to real-life applications where intention, behavior and post-behavioral evaluations do not occur at the same time but should be observed step by step.

According to the results, what motivates people to dive into a value co-creation activity is mainly their character (H1) and product involvement (H2). Lead-users (Von Hippel, 1989) are a consumer group who are known as being innovative, and generally get the credit in new product development. But extroverts and open customers with a high product involvement have similar personality traits as lead-users and can also provide an innovation potential. Moreover, conscientiousness and emotional stability are also effective personality traits in terms of participation intention. Conscientious people can be more inclined to take obligations to others seriously. On the other hand, emotionally stable people have a high self-confidence and are not easy to emotionally driven by innovative applications. They can better handle inertia which is the biggest deterrent in front of co-creation participation by this study's participants. Given that co-creation is naturally interactive and innovative, it is not surprising that consumers who are socially skillful and open-minded towards new people, new products, and new environments are expected to naturally tend to co-create more than other personality traits. Therefore, openness and extraversion are observed to have a stronger effect on participation intention than conscientiousness and emotional stability. These two strong predictors of co-creation intention are also accepted by previous studies in co-creation literature (Zeekaf, 2018; Faullant et al., 2016).

Being used by marketers in promotion of brands for two decades, celebrity endorsement is an effective tool in involving consumers into co-creation. This effect is supported with H3a that confirms a significant difference in participants' intention to co-create depending on whether they are invited by a celebrity endorser or a non-celebrity endorser. This finding is further enhanced with H3b, that replicates this difference even among participants from the celebrity group who do recognize him and who do not. And to our knowledge, the current literature has ignored this effect so far.

Co-creating behavior itself is a predictor of customers' intention to buy the product to be designed with their contributions (H4). Value co-creation behavior is a multi-dimensional construct and therefore provides a rich source of knowledge. Considering its sub-dimensions, customers' intention to buy the co-created product is affected by their behavior of information seeking, giving feedback, being advocate and tolerant. The role of advocacy stands out among others in predicting purchase intention. It embodies the attachment with the product emerged from involving into the design process. According to a fresh research by France et al. (2020), advocacy is the dominant co-creation behavior because it is especially associated with emotional value and consequently it results in emotional fulfillment and/or involvement.

The proposed impact of information sharing and helping behaviors haven't been observed. Information sharing is totally different from giving feedbacks here. It means providing fundamental information like demographics before starting value co-creation. Information sharing may not be impacting purchase intention as much as expected because the data have been collected through an online questionnaire and participants haven't come across several directives or pre-requisites before participating into co-creation. Helping behavior, on the other hand, is an unanticipated result just as it is in France et al.'s research (2020). Helping aims to measure participants' helping in usage of the product. As headphones are not too complicated to use by millennials as the participants of this study, it may be expected not to be a critical variable in value co-creation behavior.

After co-creating and seeing the final co-created product design, customers keep their purchase intention (H5). They also show a feeling of satisfaction most probably

because spending time with and effort for this design and completing the process give them feelings of achievement and attachment (H6). However, there is no detected difference between satisfaction levels of those whose ideas are reflected on the final design and those whose ideas are not (H7). In the area of co-creation of new products, satisfaction might derive from two sources: experience and expectation. In the former, it could be that the marketer incorporates enough good ideas from co-creators to develop a product that provides the experience that meets participants' expectations. Such comments by participants as:

“I am glad to be given a chance to give ideas in a new product development”

“I believe in this study and you will be successful as you have taken our ideas as customers”

also support that even being inside this co-creation experience makes participants satisfied no matter how much their expectations are met regarding the final design. Moreover, in the process of participating in co-creation, their expectations face the realities and limitations of trying to develop a new product And this results in lowered expectations that are more in line with what the marketer is able to produce. The below comments show it:

“It may not be possible to produce it with a price of TL250. A support can be asked from another company that is good at production like Huawei.”

In both instances, they became more likely to be satisfied and that is why satisfaction levels do not differ according to the final product design, and H7 is not supported. Despite this attitude, when it comes to action, participants whose ideas are not used, refrain from paying for the final product (H8). They do not want to put up with a cost of buying when the product does not meet their expectations.

5.2. Theoretical implications

This study provides three main contributions. First is the comprehensive observation and analysis of customers' value co-creation behavior with its pre- and

post- stages. This study unites these three stages of intention, behavior and post-behavioral perception in three consecutive and complementary studies. Current literature provides examples focusing on only one stage of this whole process. These researches mostly observe value co-creation either with intention to co-create or recent experiences of co-creation which are independent of their research. This study creates its own brand and observe both antecedents and outcomes together with the behavior itself in one single co-creation of a product design.

According to the results, what motivates people to dive into a value co-creation activity is mainly their character and product involvement. The extroverts and open customers display an intention to participate into co-creation in which they can express themselves and satisfy their intrinsically social motivations. Lead-users (von Hippel, 1989) are a consumer group who are known as being innovative, and generally get the credit in new product development. But extroverts and open customers with a high product involvement have similar personality traits as lead-users and can also provide an innovation potential. In order to grab consumer attention endorsers can be a good way. Being a popular marketing strategy for two decades, endorsers can be influential in terms of value co-creation communications as well. They have a positive impact on customers' intention to participate into co-creation. And to our knowledge, the current literature has ignored this relationship so far.

Following the first stage findings, value co-creation behavior itself has been observed which is rarely detected in the related literature. Being familiar and attached to the future product, customers display an intention to purchase that product. Value co-creation behavior is a multi-dimensional construct and therefore provides a rich source of knowledge. Considering its sub-dimensions, customers' intention to buy the co-created product is affected by their behavior of information seeking, giving feedback, being advocate and tolerant. The role of advocacy stands out among others in predicting purchase intention. The proposed impact of information sharing and helping behaviors haven't been observed. Information sharing is totally different from giving feedbacks here. It means providing fundamental information like demographics before starting value co-creation. Information sharing may not be impacting purchase intention as much as expected because the data have been collected through an online

questionnaire and participants haven't come across several directives or pre-requisites before participating into co-creation. Helping behavior, on the other hand, aims to measure participants' helping in usage of the product. As headphones are not too complicated to use by millennials as the participants of this study, it may be expected not to be a critical variable in value co-creation behavior. After co-creating and seeing the final co-created product design, customers keep their purchase intention. They also show a feeling of satisfaction most probably because spending time with and effort for this design and completing the process give them feelings of achievement and attachment. In addition to be the first study focusing on this stage, the originality here is the observation about how the final output is perceived by customers. The results show that if customers' contributions are embodied in the final product, they tend to buy it while their co-creations are not taken into account, they don't display a purchase intention. Observing and explaining customer perceptions after value co-creation behavior and recording impact of the perceived contribution on purchase intention is the second contribution of this study.

Finally, working on value co-creation in terms of customer perspective in new product development is another contribution of this study. New product development is traditionally a business-oriented topic. Customers' getting involved in companies' internal processes such as product development and innovation is critical despite less research on B2C than B2B. This study provides valuable insights in customer behavior and perspective in traditionally business-dominated research area.

5.3. Managerial implications

Value co-creation leads to better products/services, better matching needs, realizing personal traits and even monetary or psychological rewards on customer side. On the other hand, co-creating with customers means enriching sources of knowhow, a longer relationship with customers, decrease in expenditures, better innovation capacity and empowering brand images on company side. Therefore, involving customers into new product development and innovation processes becomes inevitable for firms nowadays. It may be hard to organize and direct a huge number of individual customers to a shared objective, to motivate them to stick to this objective for a long

time, and to foresee their perceptions of the cocreated product/service. At this point this study provides several managerial implications.

Regarding the pre-co-creation stage, executives shall be aware that celebrity-endorsers are especially important to grab attention of customers but not enough for keeping them during the whole co-creation process and direct them for purchases. If they catch the right customers who are extravert and open, the process will flow without additional motivators as those people are already intrinsically motivated to be a part of co-creation process. Value co-creation opportunities will raise customers' purchase intentions and further support their loyalty. As customers seek information and give feedback, they should be supported with information about co-creation process and given opportunities and tools to share their comments. After then, they become advocates and tend to tolerate if any problem occurs. As advocacy is a strong co-creation behavior and adds to brand value (France et al., 2020), managers should focus on intrinsic motivations such as engagement or extrinsic motivations. And the last but not the least, managers should find ways that will cover as many customers' contributions as possible because this perception affects their buying intention of the co-created product.

5.4. Limitations of The Study and Future Research Directions

This study provides further research implications with its limitations. Two personality traits, i.e. extraversion and openness to experience, are determinant in value co-creation participation. In terms of personality traits, there can be potential research in order to involve more customers such as introverts or emotional ones into co-creation process. The non-significant factors (personal interaction and responsible behavior) can be further studied. This study limits its scope with new product development. But the three-stage process can be applied in terms of new service development which is a recent research area.

Considering the non-significant difference of satisfaction between groups in the last stage, consumers' satisfaction with the co-created product and with the experience on the way can be studied separately. Finally, because of multi-staged nature of this study, the number of variables observed here are limited. Further research can enrich

this literature by duplicating these stages with different antecedents such as perceived costs and benefits as well as outcomes such as brand loyalty and trust. Especially, consumers' reactions to the product of a co-creation process needs further studies.

Post-co-creation stage stands out as a needed and promising research area. Both consumer perceptions and company outcomes are worth working on. The multi-staged approach can be further applied by researchers in other contexts such as consumers' online buying behavior. Consumers can be observed in terms of their intentions, behaviors and post-behavioral reactions. Loyalty development may be analyzed step-by-step with this method. Accordingly, researchers may work with the same sample in all three stages and apply different analyses like test-retest method.

5.5. Conclusion

This thesis aims to improve our understanding of value co-creation in new product development. A longitudinal and empirical research was carried out in three stages. The results show that extraverted and open consumers with a high involvement are willing to participate into co-creation activities of firms. Using celebrity endorsement can be an efficient tool to involve consumers into their co-creation activities. When consumers display co-creation behavior, they feel attached to the co-created product and intend to buy it. Even after coming across the co-created product and realizing whether their contributions are reflected on the output, their intention to buy it never stops. But those consumers whose contributions are seen on the co-created product are more inclined to purchase the product than those whose ideas are not taken into account during the product development.

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BIOGRAPHY

Mevlûdiye GÜZEL, who was born on October 26th, 1984 in Ankara, graduated from Oruç Reis Anatolian High School in 2002. She got her bachelor's degree on Interpreting and Translation in English from Faculty of Letters at Istanbul University in 2006. At the same time, she received pedagogical formation in English Language Teaching from Hasan Ali Yücel Faculty of Education from the same university. Mevludiye GUZEL studied Business Administration at Institute of Social Sciences of Gebze Technical University and received her master's degree in 2013. Her master dissertation focuses on consumers' online behaviors and specifically online shopping. Immediately after her graduation, she started her doctoral study at the same institute in 2013. She studied again consumers' online behaviors and specifically value co-creation for her doctoral thesis. She graduated and received her PhD degree in 2020. Having initiated her career in international relations in the field of commerce and water transportation, Mevludiye GUZEL switched to international relations office of Gebze Technical University in 2008. She has been still working there for twelve years and as the office manager for two years. She is an expert of Erasmus Exchange Program and several national and international exchange programs. She is also working as a mentor for international mobilities, joint programs and EU-funded projects.