



The impact of perceived co-creation activities on brand image and purchase intention

Study based on generation Z: videogames

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Abstract

Nowadays, companies struggle to persist on the market due to high competition levels. To achieve competitive advantage companies are trying to pursue a strong brand image since positive brand image comes with many benefits for the companies and positively impacts consumers' behavioral intentions. Collaborating and co-creating with customers in the new development processes has been acknowledged as valuable strategy to understand the needs and desires of consumers. Thus, companies that co-create are being perceived as more customer oriented, more understanding of consumers' needs and desires by observing consumers.

However, little is known how co-creation impacts brand image. This thesis aims to understand how perceived co-creation activities affect brand image and consequently, purchase intention among non-participating consumers. The analysis was conducted using the method of structural modeling of partial smallest squares equations (Partial Least Squares Structural Equation Modeling, PLS-SEM). Results show that perceived co-creation activities have positive impact on brand image while brand image acts as a mediator for purchase intention.

Keywords: co-creation, co-production, value-in-use, brand image, purchase intention

Abstrato

Atualmente, as empresas lutam para persistir no mercado devido aos altos níveis de concorrência. Para alcançar vantagem competitiva, as empresas estão tentando buscar uma imagem de marca forte, uma vez que uma imagem de marca positiva traz muitos benefícios para as empresas e impacta positivamente as intenções comportamentais dos consumidores. Colaborar e cocriar com os clientes nos novos processos de desenvolvimento tem sido reconhecido como uma estratégia valiosa para entender as necessidades e desejos dos consumidores. Assim, as empresas que cocriam estão sendo percebidas como mais orientadas para o cliente, mais compreensivas das necessidades e desejos, pelos consumidores observadores.

No entanto, pouco se sabe como a cocriação impacta a imagem da marca. Esta tese tem como objetivo compreender como as atividades de cocriação percebidas afetam a imagem da marca e, conseqüentemente, a intenção de compra entre os consumidores não participantes. A análise foi realizada utilizando o método de modelagem estrutural de equações de mínimos quadrados parciais (Partial Least Squares Structural Equation Modeling, PLS-SEM). Os resultados mostram que as atividades de cocriação percebidas têm impacto positivo na imagem da marca, enquanto a imagem da marca atua como mediadora da intenção de compra.

Palavras-chave: cocriação, coprodução, valor em uso, imagem de marca, intenção de compra

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1. Introduction

Understanding customers' needs is one of the most essential prerequisites for companies to persist on the market and for launching the most successful product (Salehi et al., 2018) which is challenging for companies. Over 90% of companies report that their industry has become more competitive in the last three years (State of Competitive Intelligence, 2020), making companies constantly rethink and adapt their marketing strategies in order to either protect or fight for market share.

Consumers are overwhelmed with availability and diversity of choices (Luchs et al., 2016) making companies struggle to distinguish market offers due to incremental innovations in features and functionalities that yield low value to consumers (Van Dijk et al., 2014). Such challenges in innovating is making consumers, especially younger generations as generation Z, less loyal to brands (Francis & Hoefel, 2018). Some argue, consumers' low loyalty is making hard for companies to predict acceptance of products on the market (Kleinknecht & Van Der Panne, 2019).

For overcoming the challenges and obtaining a substantial market share, companies need to achieve competitive advantage. One way of achieving competitive advantage is pursuing a strong brand image (Panda et al., 2019). Brand image is defined by how consumers perceive the brand highlighting the associations consumers develop in minds. Such imaginary influences consumers' behavioral and purchase intentions (Lin & Chuang, 2018). Research has point to benefits for companies who have a strong brand image: larger margins, limited vulnerability to the crises on the market, higher customer loyalty and differentiation from competition (Keller, 2009; Webster & Keller, 2004). Companies lace great effort and investment into figuring out the ways to make brand image more positive and stronger through creating marketing campaigns that would raise brand awareness and aid in linking unique and strong brand associations in consumers' minds (Schnittka et al., 2012).

Innovative products can influence how consumers' perceive the brand since innovativeness is a major element of brand image consumers highly favor (Hubert et al., 2017). Innovative products are seen as more unique and more fitting to consumers' needs (Berraies & Hamouda, 2018). Having consumers' needs on a higher priority i.e., putting consumers' interests in the focus of creation of new value makes consumers consider user-driven companies as more innovative and more

understanding of consumer needs which positively impacts consumers' purchase intention (Fuchs & Schreier, 2011). As such, companies can enhance brand image by identifying synergetic effects from involving customers in the innovation process while launching more innovative products and thus, influence consumer purchasing behavior (Octavia et al., 2021).

Marketing is based, inter alia, on the final perception of the value that a customer creates but also deliver in a transactional relationship (Šonková & Grabowska, 2015). The concept of value has been present in marketing for a long time, but the concept's more intensive study and implementation in business have been associated to the last decade of the twentieth century (Gemser & Perks, 2015). During that time, companies recognized that consumer perceived value allows companies to gain a competitive advantage. By attracting and retaining consumers value created has a direct impact on the company's success (Srivastava et al., 2013).

Creation of the superior value for the consumer is the key element in establishing the success of the company (Jamal et al., 2011). Theory and practice acknowledge this in various ways and one of the responses is the value co-creation concept. In general, value co-creation is about understanding the preferences and needs of your customer. Mainly, co-creation activities are directed on long-term basis towards: building and strengthening customer relationships to keep customers loyal; providing value-added products and services that are difficult for competitors to duplicate; improving product development and service delivery processes to customers; increasing awareness of customer needs; reducing customer frustration (Nishikawa et al., 2017; Ramaswamy & Ozcan, 2018).

Co-creation of value has recently been popular concept for scholars to research in marketing and management domain because it comes with both benefits for customers and companies (Piligrimienė et al., 2015). Companies which co-create value may gain insights into consumers' current needs and desires, gather numerous and diverse ideas from customers allowing companies to respond faster to needs and launch products of perceived as of better quality - faster than the competitors (Dahl et al., 2015; Nishikawa et al., 2017; Schreier et al., 2012). As a result, companies that collaborate with customers i.e., participating customers that represent the mass market, are perceived by observing consumers as more customer oriented, more understanding of consumers' needs and desires (Fuchs & Schreier, 2011) and more sincere and authentic (Van Dijk et al., 2014). Customers are provided with more innovative products that better fits their needs (Dahl et al., 2015; Schreier et al., 2012) since companies generate larger amounts of ideas from the abundant source of variety of consumers' skills, knowledge, interests and expertise (Blazevic & Lievens, 2008).

Consequently, communicated co-creation may affect the observing consumers' purchasing behavior as well as willingness to recommend a product (Fuchs & Schreier, 2011).

Little is known how co-creation activities affect brand image. Knowing how to improve brand image is important to know for marketing researchers and managers since pursuing positive brand image generates competitive advantage (Reyes et al., 2018). Assumption that co-creation may have a positive impact on brand image, is derived from the fact that co-creation activities positively affects consumer perception of the company as well as brand authenticity (Van Dijk et al., 2014). Therefore, this thesis is investigating the impact co-creation activities on brand image. Before implementing co-creation as a strategy, companies need to understand what co-creation involves and on which co-creation activities want to focus and invest in if want to use it as to improve the brand image.

There are two aspects of co-creation of value: co-production and value in use (Ertimur & Venkatesh, 2010). Co-production implies that value is created during and as a consequence of, the development of new product and processes with customers, which requires both physical and mental involvement of participants in the value creation. Value-in-use implies that value is created during the process of customer consumption, and experience with the brand, creating tacit knowledge which is transferred to the company. Both dimensions are quite dependent on customers' value creation in the development process (Ertimur & Venkatesh, 2010; Vargo & Lusch, 2008). Co-production involves sharing knowledge, interaction, openness and mutualism between the company and customers, which consumers perceive as a positive activity recognizing the brand as more credible and sincere (Sloan et al., 2015; van Dijk et al., 2014), as a result this thesis is assuming that co-production has a positive impact on brand image. Value created in use is also assumed to have a positive impact on brand image since experiences and memories, relationship with the company, personalization customers have with the product and the brand is proved to influence the brand image (Lee et al., 2014; Vesanen, 2007).

Ranjan & Read (2016) proposed two dimensions of co-creation: Co-production (CP) and Value-in-use (ViU); containing activities such as knowledge sharing between customers and the company, relationship and interaction they develop, equity, experience they gain and personalization.

This thesis is trying to understand how those perceived activities can impact brand image and consequently, purchase intention among non-participating consumers in co-creation. Thus, the aim of the thesis is to investigate the impact of perceived value co-creation activities on *Purchase*

intention (PI) through the mediator Brand image (BI). Main purpose of thesis is understanding mentioned relationship does enhanced brand image explains higher purchase intention from co-created products? and how dimensions of co-creation influence brand image through the two distinct pathways: co-production and value in use?

Specifically, research questions of the study are:

RQ 1: Do perceived co-creation activities affect the firm's brand image?

RQ2: Is firm's brand image influenced by the co-creation activities presented in dimensions: a) co-production and b) value-in-use?

RQ3: Does brand image mediate the impact of perceived co-creation activities (presented in dimensions: a) co-production and b) value-in-use) on purchase intention?

2. Literature review

2.1. Co-creation

Despite the fact that over the decades consumers have been flooded with different choices of products and services, they appeared rather unsatisfied which in turn made companies yield less value (Prahalad & Ramaswamy, 2004a). This appeared to be a consequence of firms investing in diversification of their products and services without paying attention to the consumers' needs and desires (Prahalad & Ramaswamy, 2004b).

In 2004, Prahalad & Ramaswamy noted the emergence of an alternative strategy for value creation as an answer to the well-established company-centric system, a system that has been present over the last one hundred years. Prahalad & Ramaswamy coined the term Value Co-creation in the article *Co-opting Customer Competence*. They go on to refine the concept in a series of books and articles, initially focusing on co-creation between customers and enterprises. Prahalad & Ramaswamy explained the co-creation as the “process in which both parties (customers and the firm) systematically interact, learn, share information, and integrate resources to jointly create value”. Customer-centric system brought out the concept of co-creation of value which was initiated by companies starting to notice the customer as a valuable contributor of knowledge and shifting their perception of a customer as a passive to an active participant in the new product development.

The shift from passive to an active participant in the new product development was mainly due to the invention of internet which makes consumers engage directly with the company and interact with each other, creating communities and providing their skills, knowledge and opinions online (Prahalad & Ramaswamy, 2000). Not only did companies start to take into consideration a customer as a valuable assistant for the benefit of new product development, but also companies have seen that incorporating the customer in the designing process of a new product is enhancing the competitive advantage (Prahalad & Ramaswamy, 2000; Vargo & Lusch, 2004). Competitive advantage gained by user-driver firm comes from the fact that these companies can develop superior new products according to exactly what consumers really need and desire (Dahl et al., 2015; Nishikawa et al., 2013). Nowadays, more and more companies are implementing the co-creation activities and try to commit to actively including customers in company's innovation efforts (Cui & Wu, 2016; Hippel & Katz, 2002; Hoyer et al., 2010). Customers may be allowed to participate in the innovation process both in the early and late stages, for ideation and/or selection activities (Fuchs & Schreier, 2011). One of the first companies that were used as an inspiration to

other companies to begin perceiving customers as a collective crowd of individuals and use consumer base to push the innovations are Apache (software), Quirky (household products), Muji (furniture), Lego (toys) and Threadless (apparel) (Van Dijk et al., 2014; von Hippel, 2005).

Today, co-creation is a rapidly growing concept studied by numerous scholars. Whereas prior research relied on experimental and case study methodology to resolve new dimensions of the co-creation concept, more recent research has begun to propose various methods to measure the dimensions of co-creation concept (Gemser & Perks, 2015). Customer co-creation has gradually been conceptualized as a process in which customers actively and intentionally take part in a company's value creation system which was traditionally been performed by the company itself (Fuchs & Schreier, 2011; Mahr et al., 2014). Credit for this shift scholars in marketing and innovation management mainly give to the technological growth that gives consumers opportunity to be immensely informed (Prahalad & Ramaswamy, 2004a) of which consumers can take advantage for the use of sharing expertise with companies through firm-hosted communities and social media. This is especially present in relatively young industries such as the gaming industry where customer input is highly appreciated and sought after by developers through various game specific forums which are visited by the fans of those specific games. Grönroos (2011) argues that in fact, the company is not the one manufacturing the true value of the product or a service, rather the company only creates the potential value, while the true value is created by the consumer when they use the product or a service. On top of that, the outcome of changing the role of consumers is that consumers now autonomously seek to influence and become a part of the business system and in that way co-create new value since consumers are dissatisfied with the available choices. Nowadays, more and more consumers take part in the process of both defining and creating value making consumer co-creation experience the very basis of the value (Gemser & Perks, 2015).

Consumer base is usually an abundant source of a wide variety of skills, knowledge, expertise and interests which is beneficial for innovation activities (Blazevic & Lievens, 2008), as each individual consumer is different and owns various set of competencies. Additionally, customer collaboration i.e., co-creation allows firms to understand customers better, learn more about them and break the barrier of figuring out actual needs (von Hippel, 2001) and acquiring specific details about the needs and desires and translate it into product features (Gemser & Perks, 2015). Understanding customers consequently increases the likelihood of a consumers' purchase intent and improves company's performance. Moreover, Fuchs & Schreier (2011) found out that consumers consider firms that co-create as more innovative and more understanding of consumer needs. Fuchs &

Schreier (2011) claim that in this way, co-creation can indirectly affect the purchase intention among consumers and consumers' willingness to recommend a product.

2.1.3. Benefits of Co-creation

The main focus of the thesis is to understand how co-creation activities help companies increase positive brand image and consequently, purchase intention. Thus, it will be discussed how are co-creation activities beneficial to companies. Still, it is important to mention benefits customers gain from co-creation in order to understand why customers consider companies which use co-creation as strategy as being better than those which do not and why would that as a result, help companies improve brand image.

In the modern world, customers are increasingly seeking to actively participate in the creation of services and products they use on the daily basis, therefore influencing the creation of better products for themselves (Prahalad & Ramaswamy, 2004a). Customers feel like they have a direct and personal impact on firm's product offering (Fuchs et al., 2010) and that co-creation helps developing products that fit their needs better. Franke & Schreier (2010) found that customers who involve themselves in the process of co-creation often experience psychological benefits such strong feeling of accomplishment as well as enjoyment. Moreover, co-creation creates trust and closeness between them and the company (Mahr et al., 2014).

When it comes to “observing” customers i.e. customers who do not participate in co-creation process, Schreier et al., (2012) found that non participating customers may favor products made by company that co-creates and are more likely to purchase its product and that observing consumers also consider firms that co-create as more innovative and better at understanding customer's needs. This happens because observing consumers believe that when there are more users in the process, there is a bigger chance at generating larger amounts of ideas due to various backgrounds and skills. Schreier et al., (2012) also states that observing consumers consider that participating consumers are less constrained by deadlines, goals and profits unlike companies which allows less restrictions when it comes to being creative and innovative. Additionally, Dahl et al., (2015) demonstrate that, on the basis on social identity theory, observing consumers prefer products from companies that co-create rather than designer-driven companies as a result of the consumer's enhanced identification with the company. Dahl et al., (2015) found that non-participating consumers feel psychologically empowered when seeing consumers being engaged in the process of design. Noted authors state that

if companies actively involve consumer base into business models, companies may activate similar identity-relevant attributions among observing consumers because observing users might experience social collectivity toward participating user and may feel like they also participated. The authors also claim that if observing users do not associate themselves with participating users or if company invites only selected consumers to co-create value, the effects are reduced.

When it comes to companies, companies mainly thrive to increase profits and overall business performance. In this regard, co-creation brings many benefits that may increase company's sales (Eisingerich et al., 2014), product purchase intention (Fuchs & Schreier, 2011) and increased brand loyalty (Dahl et al., 2015). Companies always seek to be competitive in the market and in order to accomplish this, companies need to innovate new products and come up with new ideas to stay relevant and interesting to the consumers (Eisend et al., 2016). Reason for that is that consumers highly value and demand practical and innovative products whereas companies find it difficult to follow consumers actual needs and desires. Therefore, companies that incorporate customers in business processes, may gain competitive advantage through gathering numerous and diverse ideas and gaining direct customer insights, and launching products faster on the market than the competitors (Dahl et al., 2015; Schreier et al., 2012). Numerous and diverse ideas companies gather from a pool of large number of consumers with diverse backgrounds, interests and competencies (Schreier et al., 2012). Customer collaboration provides advantages that reflect improvements that are made feasible and ensure greater value for customers by providing them with a better product. Growth strategy that is attributable to existing customers' recommendations, market knowledge acquired from consumers, and greater accessibility due to customers' ability to retain relationships are all examples of indirect benefits (Pilgrimienè et al., 2015). Finally, companies that involve consumers in the innovation process are perceived as more customer oriented and more understanding of customers' demands due to putting the customer interests in the focus (Fuchs & Schreier, 2011). Accordingly, nonparticipating customers perceive co-created products as products of much better quality (Nishikawa et al., 2017).

2.1.2. Co-creation dimensions

Ranjan & Read (2016) isolated two primary conceptual dimensions of value co-creation based on the extensive research of the literature: Co-Production and Value-In-Use. Co-production dimension covers aspects related to exchange of knowledge, interaction and equity and includes both mental

and physical participation in the development and delivery process while Value-In-Use dimension represents the idea that value always evolves and is determined by the user in the consumption of use. Both dimensions of co-creation show that the customer is an endogenous participant in the value creating process and diminishes the separation between the roles of the company and consumers; co-production being optional for consumers, while value-in-use implies that consumer is always a value co-creator regardless of whether consumer is participating in co-production process (Ertimur & Venkatesh, 2010; Vargo & Lusch, 2008).

2.1.2.1. Co-production

Co-production details the dimension of co-creation regarding to the collaborative aspect. Co-production considers collaboration with customers directly or indirectly during the process of designing a product (Ranjan & Read, 2016). Customers provide firms with knowledge and share information (Boselli, 2008). Consumers engage in interaction with the company by exchanging expertise and participate in activities and through collaboration and dialog, mutual resources are integrated into value design (Ballantyne & Varey, 2008). Additionally, co-production also involves an important component which is that customers feel a sense of ownership in the process, described as equity (Ranjan & Read, 2016). Co-production requires customers using their mental and physical efforts during the new development process through sharing knowledge, exchanging interaction and showing willingness to participate and collaborate (Ertimur & Venkatesh, 2010). Therefore, Ranjan & Read (2016) concluded elements of co-production dimension which can be grouped in three parts: *knowledge*, *equity* and *interaction*.

Sharing of *Knowledge* between the company and company's customer base is valuable to the company as the company is able to make more informed decisions due to unprecedented amounts of information and knowledgeable customers (Prahalad & Ramaswamy, 2004a). Customers can have innovative ideas and insights that firms often did not think of (Franke & Schreier, 2010) and when interacting with each other, company and customers exchange understanding about needs and solution requirements (von Hippel, 2005). The acquired relevant knowledge from customers often times describes the market demands and customer needs accurately (Hoyer et al., 2010) which is the most important thing company needs to know about its customers. Thus, knowledge sharing is the fundamental mechanism that entails sharing customers' knowledge, ideas, and creativity when expressing current and future needs (Zhang & Chen, 2008). By adopting the acquired novel

knowledge company can produce superior products which as a result builds competence in the process and co-creates value (Maglio & Spohrer 2008 as cited by Ranjan & Read, 2016). Moreover, products that closely match customer needs result in better outcomes and increases the likelihood of customer satisfaction and customer adoption (Henard & Szymanski 2001 as cited by Mahr et al., 2014) due to reconciliation, exchanged inventiveness and communication and evaluation of needs (Grover & Kohli, 2012). Thus, some of the activities that make up the *knowledge* are that the company is open to customers' ideas and proposals and customers are willing to share knowledge when developing a new product or improving the existing ones, that company ensures suitable environment and opportunity for customers to offer suggestions and that company gives enough information to customers (Ranjan & Read, 2016).

In the context of co-creation, *equity* refers to a consumer's desire and choice to participate and a company's willingness to share control in the interest of consumer empowerment (Hoyer et al., 2010). The degree to which external stakeholders might experience a feeling of ownership in the process is referred to as *equity* (Ranjan & Read, 2016). Moreover, companies putting customers in the center of new development as a business strategy (Prahalad & Ramaswamy, 2004b), and giving them opportunity to share control is also a part of equity. Co-creating involves joining customers' and companies interest and goals which result in realization of value and better resource integration (Grönroos, 2011). In short, *equity* is expressed in mutualism, openness, and non-command relationships which has also been identified as a key component of co-production (Arvidsson, 2011). *Equity* consists of activities such as that company has an insight in its customers' preferences and requirements and processes of company are aligned to them while also perceiving customers as equal and important when determining the final outcome of the processes (Ranjan & Read, 2016).

Interaction between the firm and its customers nowadays happens much more often than before. This happens due to customers who are today equipped with various technologies and online tools and thus, are keen to interact back and forth with companies and discuss about products and services and share knowledge, opinions, and reviews without the concern for social or geographic barriers. However, the *interaction* does not only occur between those two parties, but customers also like to interact with the whole community of consumers, professionals, and service providers. This allows for creating mutual value (Prahalad & Ramaswamy, 2004b; Ramaswamy & Ozcan, 2018). The dialogue that happens when a company is interacting with consumers to create new value involves listening to customers, learning, and mutually and equally trying to solve a problem. The dialogue takes place usually through various, often interactive communication channels that allows open access to company's information. This gives companies the chance to understand,

discuss and serve needs and also assess and adapt resource commitments (Mahr et al., 2014; Prahalad & Ramaswamy, 2004b). Thus, *interaction* is a key link between the two sides which are involved in co-creation. Activities that make up *interaction* are that company communicates and establishes interaction with customers while providing them with relevant information regarding to the processes, allows customers to play a proactive role during the interaction and to express requirements and preferences (Ranjan & Read, 2016).

2.1.2.2. Value-in-use

Even though interaction with the company produces value, the value can also be achieved during the consumption for which company's exchange and intervention is not necessarily required (Vargo & Lusch, 2004). Value-in-use is different from co-production, possession, and exchange in a sense that it considers that consumers have to learn how to use, fix and retain product proposition. Specifically, the reason why value is co-created in usage is because customers evaluate and estimate the value of a product based on the uniqueness of usage (Vargo & Lusch, 2004). Meaning, that the consumer's motivation, processes, actions, and performances which they gain, determine product's proposition besides its functional attributes. Moreover, customer's own meaning and assessment, context of use, experiences, characteristics, perceptions, and relational affect attaches value to the usage processes which also offer personalization. Thus, according to Ranjan & Read (2016), the crucial components of value-in-use dimension are: *experience, relationship* and *personalization*.

Building user *experiences* is really about the relationships that the customer has with the whole offering and not about the products. It entails concentrating on value-in-use rather than basic product attributes (Payne et al., 2007). Co-creation of value occurs during those experiences when customer uses a product or during the trying out of the product (Ranjan & Read, 2016) and it also joins customer's characteristics. Therefore, companies have to ensure the quality of experiences rather than only quality of the product. The root of unique value is the co-creation experience for every individual. To ensure the quality of experience companies have to seek to make the experience environment innovative enough to be suitable for fostering the diversity of co-creation experiences. And in the end, company's and customer's roles intertwine toward a unique co-creation *experience* (Prahalad & Ramaswamy, 2004b). Experience is important because it leaves customers with benefits such as self-progress and growth. *Experiences* make up of activities such as company providing an overall good and memorable experience for its customers, that it is possible for company's customers to improve processes by trying out new things and experimenting and that

depending on customer's individual participation the experiences in the processes may be different from other customers (Ranjan & Read, 2016).

Personalization of experience includes understanding and engaging consumers while applying specific traits and environment that is supportive of the customer's particular use procedures (Ranjan & Read, 2016). Personalization arises when the process of usage or the perceived use process is special and unique meaning that value depends on individual's various attributes and traits. Personalized concept pushes the bounds of actual consumer value and enables restructuring of future production of use and exchange value (Ranjan & Read, 2016). Depending on the way an individual chooses to interact with the experience environment that the company provides is reflected in a personalized co-creation experience therefore, it is important to construct appropriate environment which allows consumers to create personalized experience (Prahalad & Ramaswamy, 2004b). *Personalization* comprises of items such as that company tries to serve the individual needs of each customer, that the benefit, value or fun from the processes depends on the company's customers and individual customers involve themselves differently in the processes depending on customers' choices, or knowledge (Ranjan & Read, 2016).

Having close *relationship* with customers allows for more efficient joining of knowledge and mutual understanding for the use of achieving goals that would not be possible to accomplish on its own. As a result, reciprocated trust is developed which eases the process of sharing resources and allows successful communication. Trust decreases the necessity for formal interaction or for control which thereby, fosters better customer co-creation (Mahr et al., 2014). Collaboration and trust in customers gives customers opportunity to have a responsibility and participate in developing solutions and create value. To summarize, mutual needs and goals require collaboration and engagement which involves sharing resources between two sides which in turn, generates joint source of value. Activities which make up the *relationship* are that company's additional assistance is necessary for customers in order to enjoy fully the process, that customers feel attachment or relationship with the company, that there exists a group or a community of customers who share the same fondness of the company and that it is known because users spread a positive word about it on social networks (Ranjan & Read, 2016).

2.2. Brand Image

As previously discussed, research was shown that there exist plenty effects and benefits of co-creation such as that co-creative firms are perceived as being more customer-oriented, more understanding of customers' demands, and co-creative products are seen as more desirable and of better quality (Fuchs & Schreier, 2011; Nishikawa et al., 2017). Hence, companies which co-create value with customers and provide them with user-driven products have a better chance of having a positive image. Thus, this thesis will continue to be explaining how and why value co-creation might also have an impact on company's brand image. However, first it is important to define what brand image is and what it involves.

Brand image has been a relevant topic in marketing and consumer behavior research since early 1950s (Dobni & Zinkhan, 1990) when marketing managers recognized brand image importance regarding the achieving competitive advantage which is useful for increasing market share (Panda et al., 2019). Keller (2009) has defined brand image as “consumer perceptions of and preferences for a brand, as reflected by the various types of brand associations held in consumers' memory”. To conclude, consumers' brand associations, beliefs and ideas are what makes up the brand image which is created through nodes that are linked in consumers' memory (Aaker, 1991). Brand associations are dependent on the level of brand awareness (Keller, 2009). Aaker (1991) stated “brand associations are the category of brand's assets and liabilities that include anything “linked” in memory to a brand”. Thus, brand is much more than just a name or logo, symbol or a label on the packaging.

Brand is a company's promise that each purchase and consumption brings benefits and value to customers which makes brand also a relationship that involves trust (Wijaya, 2013). To sum up, brand image includes all the impressions and perceptions about the brand that lingers in the consumers' mind regarding the impression of the product's physical appearance, functional benefits, product's user, symbolic meanings, emotions, and imaginations of the product that could present human traits (Wijaya, 2013). Throughout time, the brand image evolves and varies according to how consumers perceive it. Customers build an impression of a brand based on their interactions and consumption experiences with it and overall associations and beliefs about the brand they collect over time (Lee et al., 2014). As brand image is associated with the reputation and credibility and in that way is a crucial part in brand development, brand image serves as a guideline to the customers to try the product and based on the experience, customers decide whether they will

switch to another brand or not (Wijaya, 2013). More specifically, after consumers had a specific experience and had a direct contact with the brand, customers form new meanings and feelings about the brand which strengthens the image of the brand. If the consumers had positive experiences based on the contact they had with the brand, that then creates good meanings and good feelings about the brand which eventually boosts the brand's position in the consumers' minds and hearts, making the brand more likely to be favored among all other brands which consequently aids in building customer loyalty (Wijaya, 2013). Because consumers' experiences with the brand, associations and perspectives of a brand dictate how strong the brand image is, companies compete and put effort into creating a favorable idea and associations to consumers about their offerings in order to build a positive brand image (Sallam, 2014).

Positive brand image is important because it comprises of the features and benefits associated with a brand that creates differentiation from the competition in the market (Webster & Keller, 2004). Brand image thus enables better distinguishment of a particular brand among other brands which is important because basic features and functional differences among brands are becoming insignificant nowadays (van Dijk et al., 2014). Brand image perceptions have significant role in building customer loyalty and encouraging consumer behavior (Keller, 1993). Positive image aids in achieving marketing and overall business goals. There are plenty benefits which result from a positive and successful brand image. According to Keller (2009) strong brand leads to high level of customer loyalty, larger margins, reduced vulnerability to the crises on the market, lower negative impact of price increases and higher positive impact of price decreases on customers, more effective marketing communication, ease of releasing new products under the same brand etc. Positive brand image can be initiated by creating marketing campaigns that aid in linking unique and strong brand associations in consumers' minds (Keller, 1993; Schnittka et al., 2012). According to Wijaya (2013) there are several elements that comprise the brand image: brand identity, brand competence and benefit, brand behavior and attitude, brand association and brand personality. By measuring and evaluating brand image elements, decision-makers are able to see how strong the brand image is based on how powerful and positive these dimensions are in the consumers' mind (Wijaya, 2013). Brand behavior and many other factors can define and improve brand image and consequently increase positive behavioral intentions. For example, corporate social responsibility leads to a positive brand image as well as (Maheshwari & Kumar, 2013), unique personality, perceived quality (Aaker 1996), perceived trustworthy (Hanaysha et al., 2014) etc.

2.2.1. Co-creation Dimensions & Brand Image

Research has shown that co-creation has positive effects on consumer loyalty towards the company; that consumers have a stronger relationship with the company that co-creates and that they are more likely to show trust and support a desired brand image (Füller, 2010). Moreover, companies which empower consumers draw out positive intentions toward products also among non-participating customers (Fuchs & Schreier, 2011). Among all stated positive impacts co-creation has on the company, there is one that is not as discussed as much as the rest and that is impact of co-creation on the brand image. The assumption that co-creation positively impacts the brand image comes from the fact that consumers have positive attitudes towards the company that co-creates than the company that use the traditional innovation strategy (Fuchs & Schreier, 2011; Van Dijk et al., 2014). In addition, Hubert et al., (2017) claim that brand innovativeness is a key element of brand image because company's innovativeness is a trait that consumers value in companies with positive effect on consumers behavioral intention. Earlier research showed that perceived brand innovativeness leads to more positive consumers' attitudes about a brand (Boisvert & Ashill, 2011). Perceived brand innovativeness includes further to the research and development, consumers' perceptions and subjective evaluations of a brand's innovativeness (Hubert et al., 2017). Concerning innovativeness, involving customers in the creation of new products usually leads to more innovative and profitable new products (Franke et al., 2006) and consumers consider companies that co-create as companies that are able to better innovate new products and possess higher innovation skills while co-created products are evaluated much better as they are seen as more innovative, unique and more suitable to needs (Schreier et al., 2012). As a result being perceived as innovative is as competitive advantage since it affects consumer's purchase intention and consumer perception is something companies seek to influence in a positive way (Schreier et al., 2012). Furthermore, co-creation with customers has a positive effect on firm's reputation (Fuchs & Schreier, 2011) and leads to creating positive brand and behavioral perceptions among non-participating consumers (Nishikawa et al., 2013; Schreier et al., 2012). Van Dijk et al. (2014) have also shown that the awareness of co-creation activities has an impact on perceptions of brand personality and behavioral intentions among those consumers which did not participate in the co-creation process which is notable for this study since brand personality is one of the dimensions of brand image. As consumers nowadays do not favor commercialized brands i.e., brands which are profit-oriented and which aim is solely on financial gain, but rather brands that appear as a part of community and which are seen as sincere friends, co-creation is assumed to have an impact on brand authenticity because co-creation is based on interaction, establishing and maintaining open

dialogue with customers and understanding consumers needs and desires. According to Van Dijk et al. (2014) brand sincerity perception is enhanced when co-creation activities are expressed to the wider target population.

Brand sincerity perception is important since relationships with sincere brands are based on trustworthiness, which in turn, makes the relationship with the brand gradually stronger and deeper. Van Dijk et al. (2014) furthermore proved that co-creation has an impact on consumers' perception when it comes to familiar brands and that brands that incorporate authentic collaboration with consumers are valued much more. Therefore, it can be assumed that co-production dimension positively affects brand image since interaction and customer collaboration is favorable among consumers. When it comes to knowledge sharing between the customers and brands, brands are sending the message that they value customers opinions and knowledge through communication with them during the new process development, and as such are seen as more credible which leads to greater customer satisfaction and greater value of the company's offering. Thus, knowledge sharing builds relationships and makes trust stronger among community members and is a potential factor when it comes to impacting customer perceptions of brand (Sloan et al., 2015). Moreover, as equity is expressed in openness, non-command relationships, mutualism, joining both customers' and company's goals and interest which is highly favorable among consumers as previously discussed, co-production dimension is assumed to have a positive impact on brand image.

Positive experiences that occur when customers use a product or try the product and come in the contact with the brand impacts the overall brand image positively (Lee et al., 2014; Sallam, 2014; Wijaya, 2013), personalization of value and memories and building one-to-one relationship and understanding each individual's needs are shown to have an influence on positive perception on products and better experience with the brand (Vesanen, 2007) thus, value-in-use dimensions is assumed to have positive impact on brand image, too.

Taking into consideration the literature discussed above, following hypotheses were developed:

H1: Perceived co-creation activities positively influence *Brand image*

H1a: Perceived co-production *activities* have a significant positive effect on firm's *Brand image*

H1b: Perceived value-in-use *activities* have a significant positive effect on firm's *Brand image*

2.2.2. Brand Image & Purchase Intention

Brand image concept has gained the recognition of importance when research supported its vital role in purchasing decisions among consumers (Malik et al., 2012). Research has shown that brand image has positive impact on customer satisfaction and is an important driver of customer loyalty (Zhang, 2015) which consequently impacts perceived quality and customers' willingness to pay (Ogba & Tan, 2009). Johar & Sirgy (1991) have demonstrated that the feelings, ideas and attitudes about the brand may impact purchasing decision. With the increasing number of products entering the market (Zhang, 2015) and with less noticeable product differentiation (van Dijk et al., 2014), consumers are no longer making purchasing decision solely on the product itself but rather on the other factors such as brand image. Consumers are even more likely to show the preference for the brand if the brand image is compatible with their self-concept (Zhang, 2015).

Purchase intention represents customer's likelihood and willingness to buy a certain product. Buying process requires a lot of effort and time to make a decision based on the information that is available. Purchase process involves consumers identifying their needs, collecting available information, considering alternatives and finally, deciding to make a purchase (Sallam, 2014). Purchase intention depends on perceived benefits and value that consumer may gain from purchasing decision. During the process of purchase decision making, brand image plays an important role. If the brand information is positive, then that might affect perceived quality and value which may lead to higher willingness to purchase. Hence, brand products which are familiar and have a positive brand image result in higher sales. This happens because strong brand image lowers consumer's perceived risks and/or increases perceived value (Wang & Tsai, 2014).

Lin & Chuang (2018) proved this assumption that brand image does affect and is a key factor of consumers' purchase intention. On top of that, Fuchs & Schreier (2011), demonstrated that co-creation has a positive impact on the purchase intention among consumers.

Accordingly, following hypotheses are proposed:

H2: *Brand image* impacts *Purchase intention* directly

H3: *Brand image* mediates the impact of perceived co-creation activities on *Purchase intention*

H3a: *Brand image* mediates the impact of *co-production activities* on *Purchase intention*

H3b: *Brand image* mediates the impact of *value-in-use activities* on *Purchase intention*

3. Methodology and Research Framework

3.1. Objectives & Research approach

Prior to explaining the research approach, it is important to repeat and bear in mind the main objective of this thesis. First, this study aims to understand how perceived activities of co-creation impact *brand image* (H1). Activities of co-creation include knowledge (sharing), interaction, equity, relationship, personalization, and experience. According to Ranjan & Read (2016), those activities are a part of two main dimensions that make up co-creation, named *co-production* and *value-in-use*. Thus, goal of this study is to understand how those perceived activities affect *brand image*. Second goal is to evaluate and measure the impact of brand image on *purchase intention* as a consequence of *co-creation activities* impacting *brand image*. Third goal is to find out if *brand image* mediates the impact of perceived *co-creation activities* on *purchase intention*. Lastly, as additional analysis insight, the impact of *co-creation activities* on *purchase intention* through *brand image*, as well as the impact of *brand image* on *purchase intention*, is greater among players than nonplayers. Equally as important, the goal is to find out and understand which activities have the most impact on *purchase intention* mediated by *brand image* and this was shown using Importance-Performance Map Analysis (IPMA).

The first necessary step needed to be done in order to define the research problems and to find connections between underlying variables was to review existing literature, i.e., the secondary data. Reviewing existing literature was the introduction for hypotheses development as well as for creating the conceptual framework.

Exploratory research method was implemented for the collection of primary data. The research instrument was a structured survey questionnaire designed on the basis of searching secondary data and adopting the survey statements from the following authors and their articles: *Value co-creation (VCC)* statements from Ranjan & Read (2016), *Brand Image (BI)* statements from Ansah (2021) and Martínez Salinas & Pina Pérez (2009) and *Purchase Intention (PI)* statements from Xu et al., (2020) and Zhao et al., (2019). The research instrument in its integral form can be found in the appendices.

Respondents are presented with the video game company in the survey since co-creation is a relevant aspect in the video game industry. Its detailed characteristics are explained in the next subchapters. The research model of this thesis is presented in Figure 1, where the measurement

models of co-creation dimensions are formatively specified, along with the measurement models of *Brand image* and *Purchase intention* being reflectively specified.¹ The structural model was created according to already mentioned roles of variables.

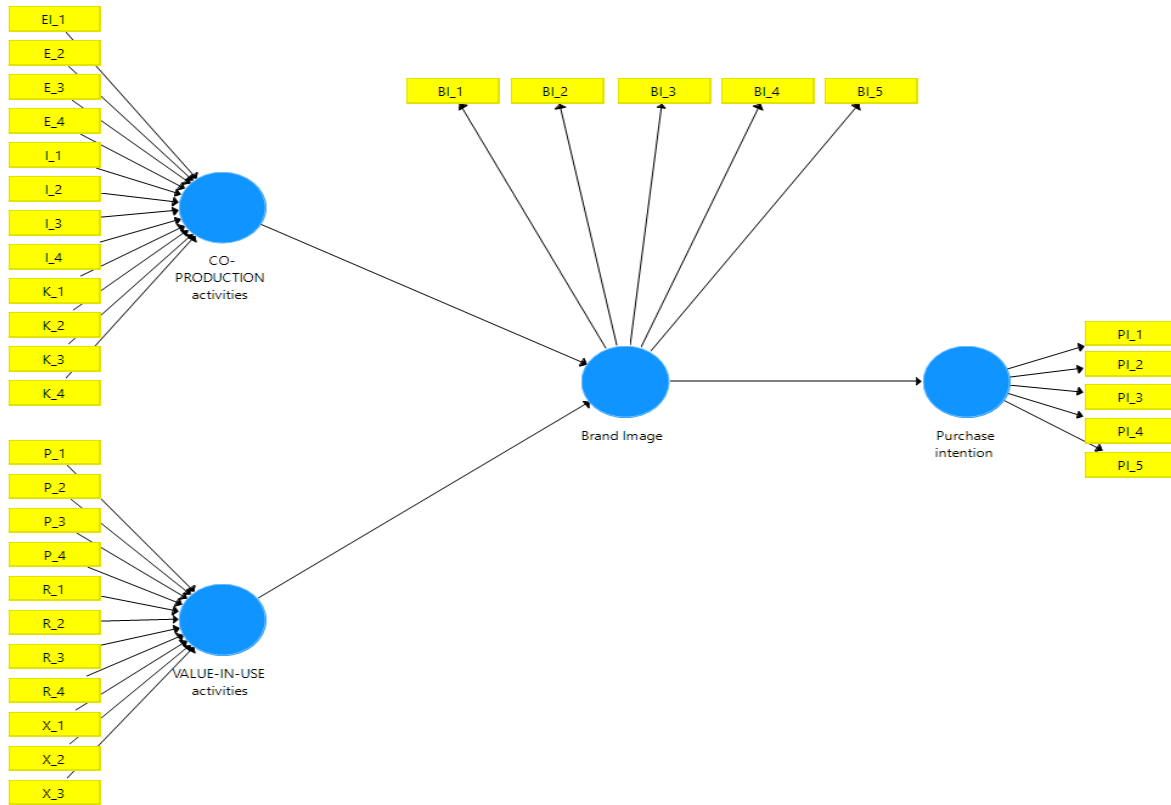


Figure 1. Proposed research model

Table 1² shows the overview of variables and their roles in the model. The measures were based and adapted from the literature.

Measures

CONSTRUCT	ITEMS (LIKERT SCALE 1 TO 7 WHERE 1 REPRESENTS STRONGLY DISAGREE AND 7 STRONGLY AGREE)
CO-PRODUCTION	<p>K1 - EA Games is open to players' ideas and suggestions about its existing games (products) or towards developing new products and services</p> <p>K2 - EA Games provides sufficient illustrations and information to players</p>

¹ "Formative" and "reflective" specified constructs are terms from used sources: Hair et al. (2017), Hair et al. (2018), Memon et al. (2020) and Sarstedt (2019). Formative items create construct and items are not changable. Reflective items are reflexion of construct and can be changed.

² Note: all tables are in Appendix: Tables

	K3 - Players gladly share their own ideas and suggestions with EA Games in order to help it improve its games (products), services and processes further
	K4 - EA Games provides suitable environment and opportunity to players to offer suggestions and ideas
	E1 - EA Games has an easy access to information about preferences of their players
	E2 - The processes at EA Games are aligned with players' requirements (i.e. the way they wish them to be)
	E3 - EA Games considers members' role to be as important as its own in the process
	E4 - I believe that EA Games players share an equal role in determining the final outcome of process
	I1 - During the process with EA Games, players can conveniently express their specific requirements
	I2 - EA Games communicates to its players the relevant information related to the processes
	I3 - EA Games allows sufficient players' interaction in its business processes (product development, marketing, assisting other customers, etc.)
	I4 - In order to get maximum benefit from the process (or games/services), EA Games players have to play a proactive role during interaction (i.e., players have to apply their skill, knowledge, time, etc.)
	In general, EA Games offers appropriate knowledge, equity and interactions value to players
VALUE IN USE	P1 - The benefit, value, or fun from the process (or, the games) depends on the EA Games players and the usage condition
	P2 - EA Games tries to serve the individual needs of each of its players
	P3 - Different EA Games players, depending on their choice, or knowledge, involve themselves differently in the process (or, with the games)
	P4 - EA Games provides an overall good experience, beyond the “ functional ” benefit
	X1 - EA Games provides a memorable experience for its players (i.e., the memory of the process lasted for quite a while)
	X2 - Based on the nature of EA Games players' individual participation, their individual experiences in the process might be different from other customers
	X3 - It is possible for EA Games players to improve the process by experimenting and trying new things
	R1 - EA Games' s additional assistance is necessary for players to fully enjoy the process (or, the games/service)
	R2 - I feel an attachment or relationship with the EA Games
	R3 - There is usually a group, a community, or a network of players who are a fan of EA Games
	R4 - EA Games is known because its players usually spread positive word about it in their social networks
	In general, EA Games offers appropriate personalization, experience and relationship value to players

<i>BRAND IMAGE</i>	Bi1 - I think that EA Games and their employees are trustworthy
	Bi2 - EA Games takes social responsibility seriously
	Bi3 - EA Games has a reputation for quality
	Bi4 - EA Games has a personality that distinguishes itself from competitors
	Bi5 - EA Games does not disappoint its players
	Overall, the EA Games has a good brand image
<i>PURCHASE INTENTION</i>	Pi1 - I would probably play games from EA Games
	Pi2 - I would consider playing EA Games if I need/desire a product of this type
	Pi3 - I can see myself playing games from EA Games in future
	Pi4 - The possibility of me playing EA Games is high
	Pi5 - I would recommend EA Games to other people
	Overall, I intend to play EA Games in the future

Measurement constructs were adapted according to Ranjan & Read (2016) who identified two dimensions (CP & VIU). From the article by (Ranjan & Read, 2016), all items constructing formative measurement models that were used in the original article were applied, but without the intermediary variables specified in that article. Since respondents were students, some of whom were users (players) and some were not, and since they did not participate in co-creation of value but only participated in identifying possible "consequences" through the "evidence" of such an approach, it was decided that all items directly define individual dimensions without intermediate variables.

3.2. Data collection

For the purpose of the thesis quantitative research method is conducted. Thus, the structured questionnaire was the main research instrument which was distributed on the sample size of 157 participants. The questionnaire is focused on examining the effects of co-created value activities on brand image and purchase intention. The questionnaire was distributed using online methods in order to generate the most effective distribution of the questionnaire and to acquire a larger sample of participants. The online survey, which was constructed on online platform Qualtrics, was chosen as an appropriate tool for data collection due to its numerous advantages.

According to Evans & Mathur (2005) web survey's most valuable benefits are speed, global reach and flexibility. By global reach they highlight the possibility of reaching a wide sample of respondents all over the world, eliminating the geographical borders which give the opportunity to reach a large number of respondents in a quickest way possible. Moreover, speed is also a major advantage of an online survey as it allows prompt acquirement of the respondents, collection of information and an immediate insight of results. Online surveys are also very flexible since they can be distributed throughout various channels for example, e-mail, social media, messaging apps and video meetings. It is also possible to manipulate with a survey with the help of various features that online platform like Qualtrics offers, such as adding videos, images, questions randomization, questionnaire completion requirement etc. In addition, web surveys are cost efficient.

However, Evans & Mathur (2005) also state that there exist some negative aspects of online survey such as respondent's lack of online experience/expertise, unclear answering instructions, privacy issues, low response rate, perception as junk mail etc. Since it was decided that population of interest are students from which the sample will be formed, there is an assumption that they are all familiar with internet and use it on daily basis. Therefore, due to the need to acquire a large sample of respondents in a set time frame, it was decided that the best tool to test and reach this sample was through an online survey on the Qualtrics platform.

The data collecting was carried out in the period starting from April 5th up until to April 20th of 2022. The survey has been distributed to the respondents who were mainly undergraduate students of two faculties of economics, one in Zagreb and the other in Dubrovnik in Croatia. Choosing these two cities allows for better coverage of both south and the central Croatia. The detailed characteristics of respondents will be described in the following subchapter.

3.3. Respondent profile

The G* Power software³ was utilized according to which the required minimum sample size for this study was 77 respondents. This sample size was obtained using the mentioned program according to the instructions of Memon et al. (2020) while the actual number of respondents of the survey was 157. However, 10 respondents were cleaned out because they were outliers and invalid after the data check meaning that there were 147 valid responses therefore satisfying the needed sample size.

³ G*Power is a tool to compute statistical power analyses for many different *tests, including defining appropriate sample size*. G*Power software is used according Memon et al. (2020)

The sample consisted of 70.1% (103) of female respondents, and 29.9% (44) of male respondents. When it comes to education, 88.4% of respondents finished high school, 8.2% Bachelor's Degree and 3.4% Master's Degree.

Criteria for participating in the study for respondent profile was that respondents fit in the generation Z. All respondents met this criterion, giving that all of the respondents were born between 1995 and 2010. It is important to describe the characteristics of generation Z and how it connects to this study. Generation Z is a demographic born between 1995 and 2010 (Francis & Hoefel, 2018), although the timeframe is not clearly defined. Generation Z grew up surrounded by smartphones and other digital technology, therefore being stereotyped as young people who spend most of their time utilizing accessible mainstream technology. This notion largely affects their consumer behavior and pushes companies to invent new, innovative ways of interacting with this population. Generation Z are considered to be informed consumers and will frequently explore and evaluate alternatives prior to making a purchase. They are less loyal to individual companies who choose to instead shop around for the greatest value and highly value brand ethics. They are the most inclined of all generations to purchase items through social networks. Although it would be expected from this generation to shop exclusively online, they actually prefer to shop in stores. They desire personalized shopping experiences that can be adapted to their specific tastes. As customers, Generation Z have high standards, both in terms of service and product quality (Francis & Hoefel, 2018).

This generation is more likely to engage in social media, video games, and digital entertainment, being the generation that has emerged as the high-potential profile of consumers and is targeted by marketers of the gaming industry (Tong et al., 2021). It is the generation that indulges the most in video games, where 68% of Gen Z males agree that gaming is an important part of their identity (*From Nerdy To Norm*, 2018). Authors Jasrotia et al. (2022) found out that construct of engagement is significant in influencing the purchase decisions of online video games when it comes to Generation Z customers. It is crucial to mention that Generation Z would describe their generation as the most creative and entrepreneurial (*Stat of the Week*, 2021) which is important for brands in order to start implementing personalization, customization and co-creation as their marketing strategy.

3.4. Category identification & Co-creation in the Video game industry

The dissertation is testing the impact of perceived co-creation activities on brand image and purchase intention while using video game company as a context, EA Games. The reason for this is because value co-creation is highly relevant in the video game industry, since being an industry that is highly profitable and growing. Online communities thrive in the video game industry which gives gaming companies access to the vast pool of knowledge and innovative capabilities of their consumers. Therefore, a large video game brand, EA Games was shown to the participants of the survey in the form of imagery containing logo and portfolio of video games. EA Games is a well-known video games company which develops and delivers video games, content and online services for Internet-connected consoles, mobile devices, and personal computers. Considering that EA Games is a company that is operating for 39 years, it was very present in generation Z while they were growing up. EA is recognized for a portfolio of brands such as EA SPORTS™ FIFA, Apex Legends™, The Sims™, Battlefield™, Madden NFL™, Need for Speed™, Titanfall™ and F1™ (Arts, 2022). Besides, EA Games was one of the first companies that produced a user-generated video game called Spore in 2008 which entirely focused on allowing players to use their own creativity for making gaming experience better (Arts, 2009) which as a result, mirrored the concept of co-creation, the concept this thesis is about.

Video game industry fosters open innovation, making it ideal for a variety of co-creation possibilities in value creation with many gamers being able to quickly recognize potential problems and suggest additional features or improvements to the game. Specialized communities have emerged, contributing to the co-creation of value with other gamers, with the game acting as a facilitator. Few game producers have recently begun to follow suit by allowing for more value co-creation choices through game tweaks and community engagement (Jasrotia et al., 2022). Yeh (2010) suggests that players show higher acceptance of a co-created video game due to ability of customization of the content, interaction and complementarity influence of players which stimulates satisfying and beneficial interaction between the players within online communities.

3.5. Survey flow

Even though EA Games is a company that is 39 years old and it is an ever present brand during growing up of Z generation, respondents did not necessarily have to encounter EA Games in the past or be a user, giving that only co-creation activities perception was being tested. When starting the survey, respondents first encountered the imagery of EA Games brand together with its description as well as the display of portfolio of games which composed the background of imagery in order that respondents who have never encountered the company's products experience some stimuli. Survey consisted of two blocks of statement. The first block contained twelve statements regarding the Co-production activities – knowledge (K1, K2, K3, K4), equity (E1, E2, E3, E4) interaction (I1, I2, I3, I4) and one general statement of this dimension. Second block contained eleven statements about Value-In-Use activities – personalization (P1, P2, P3, P4), experience (X1, X2, X3), relationship (R1, R2, R3, R4) and one general statement representing this dimension. Following blocks contained six statements referring to *Brand Image* and six statements representing *Purchase Intention*. which also offers an expression of a neutral attitude towards the statement. Following that, respondents were asked about their relationship with EA Games – whether they are players or not, and will they play EA Games in the near future. Lastly, they were asked questions regarding the demographics such as gender, age, and education (See Appendix 1).

3.6. Method

To test the hypotheses, the survey questionnaire method is used as a research instrument, through which respondents will express agreement with statements related to the variables that will represent indicators of measurement models. Using the method of structural modeling of partial smallest squares equations (Partial Least Squares Structural Equation Modeling, PLS-SEM), the analysis was conducted. PLS-SEM relies on nonparametric procedure for testing the significance of model connections via the Bootstrapping procedure. The analysis was performed through the SmartPLS software package 3.3.3.

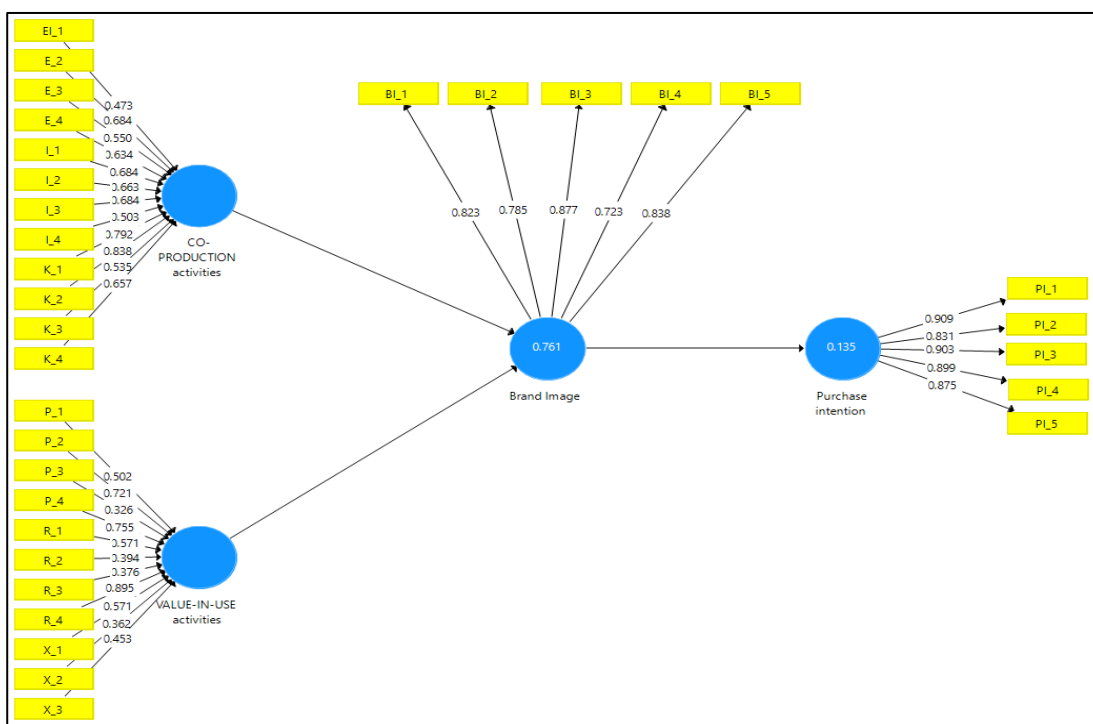
H1 and H3 as well as their (sub) hypotheses and H2 and additional hypothesis - H4 (The impact of co-creation activities on *Purchase intention* through *Brand image*, as well as the impact of *Brand image* on *Purchase intention*, is greater among players than nonplayers of videogames) is tested at a significance level of 5%. After testing each sub-hypothesis, the overall conclusion about the basic

hypothesis H1 were made as follows: hypothesis H1 will be accepted in full if all sub-hypotheses (H1a, H1b) prove significant, that is, partially accepted if any of the sub-hypotheses do not prove significant. Same approach is also for H3 (unlike H2 and H4 which have no sub-hypothesis). Hypothesis H1, H2 and H3 were tested with Bootstrapping procedure. Hypothesis H4 was tested with Multi Group Analysis (MGA) to test if there is significant difference among players and nonplayers. In the end, Importance-Performance Map Analysis (IPMA) will be conducted in order to understand and identify the importance and performance of individual activities to be able to provide guidance to managers.

3.7. Construct Measures

The dimensions extracted from VCC activities representing model's independent variables can be seen below and are: Co-Production (CP) which consists of items as follow: knowledge (K1, K2, K3, K4), equity (E1, E2, E3, E4) interaction (I1, I2, I3, I4) and Value-in-Use (V-i-U) which covers personalization (P1, P2, P3, P4), experience (X1, X2, X3), relationship (R1, R2, R3, R4) adapted from Ranjan & Read, (2016). Brand Image holds the role of a mediator with its items being adapted from Ansah (2021) and Martínez Salinas & Pina Pérez (2009). Lastly, Purchase Intention is the one representing the model's dependent variable. The primary goal is to check validity of proposed model. Main results of model are shown in Figure 2 based on SmartPLS software.

Figure 2. Research model - results



4. Analysis and Results

For assessment of the proposed model primarily is conducted CCA (confirmatory composite analysis) which is appropriate for PLS procedure as explorative approach by its nature.⁴ The results of CCA are shown in Table 2. Results clearly indicate reasonability for further assessment of proposed model.

After confirmatory composite analysis further assessment of the model⁵ continues with the evaluation of its reflective measurement models, where Tables 3 and 4 show that the criteria of Internal consistency reliability, Convergent validity and Discriminant validity are met for both reflectively specified measurement models, given that Cronbach's alpha and Composite reliability values exceeded the recommended one of 0.70, the Average Variance Extracted (AVE) value exceeded 0.50 and that the Heterotrait-monotrait ratio (HTMT) between *Brand image* and *Purchase intention* shows a value less than 0.85.

Regarding the evaluation of formative measurement models, redundancy analysis was performed for both formative models, where Figures 3 and 4 (in Appendix: Figures 3 and 4) show that the resulting path coefficients between the formative constructs⁶ and their global item exceeded the 0.70 threshold, so it can be concluded that the convergent validity criterion for these constructs is satisfied. Also, Tables 5 and 6 indicate that the collinearity problem between the indicators of formative constructs does not exist, while Tables 7 and 8 shows that all outer loadings of formative indicators are significant at the 5% significance level, when referring to outer loadings' p values and confidence intervals, given all values of outer loadings fall within the upper limits of the confidence interval that exceed the recommended threshold of 0.50⁷.

⁴ According to Hair, Howard & Nitzl, C. (2020).

⁵ The model assessment in this thesis has been done according to Hair et al. (2017)

⁶ For the purpose of this study, two global items for co-creation activities dimensions were constructed. For CP: *In general, EA Games offers appropriate knowledge, equity and interactions value to players* and for ViU: *In general, EA Games offers appropriate personalization, experience and relationship value to players*

⁷ Bootstrapping procedure found that most outer weights of formative indicators turned out to be insignificant, in which case Hair et al. (2017) recommend looking at the significance of outer loading values of formative indicators, and to check if each outer loadings has a value of at least 0.50. For those indicators whose outer loadings did not reach this value, according to Sarstedt et al. (2019), it is necessary to look at the confidence intervals provided by the bootstrapping procedure, and to see if the upper limit included and the recommended threshold. If that is the case, it can be concluded that the value of outer loading less than 0.50 threshold is not significantly different from it.

The structural model assessment began by checking the existence of a collinearity problem between latent variables, where the VIF values in Table 9 shown that this problem is not present here.

In order to test the set hypotheses, the results of the bootstrapping procedure at the level of the structural model were checked and displayed in Table 10. Since p values shown are below the significance level of 5% and confidence intervals do not contain zero, the first three hypotheses are accepted to be true. In other words, the dimensions of perceived co-creation activities impact *Brand image* directly (H1a and H1b), so it is concluded that there is a direct impact of perceived co-creation activities on *Brand image* in general (H1). In addition to this model examining the mediating role of the *Brand image* variable, *Brand image* has been shown to have a direct impact on *Purchase intention* (H2). Further, due to the evidence that *Brand image* does mediate the impact of perceived co-creation activities dimensions on *Purchase intention* (H3 and H3b), it is concluded that perceived co-creation activities influence *Purchase intention* through *Brand image* (H3).

Looking at the R^2 values shown in Table 11, it is clear that this model explains a large amount of *Brand image* variance, while these values are being rather low when it comes to the amount of variance explained in the *Purchase intention* variable. However, before concluding that the model does not explain a significant amount of dependent variable's variance, it should be noted that this research's sample contained both EA Games players and nonplayers, and that it is necessary to consider whether there may be a difference in the amount of *Purchase intention* variance explained when comparing those two groups of respondents, which will be done later via Multigroup analysis. Regarding the effect sizes f^2 shown in Table 12, there is a strong effect of *Value in use activities* on *Brand image*, while the effect of *co-production activities* on *Brand image* is of medium strength, where the latter strength is being also true for the effect of *Brand image* on *Purchase intention*. In order to gain insight into the model's predictive power, the Blindfold procedure was performed with number 6 being the omission distance (D). The results are presented in Table 13, from which it is clear that Q^2 values are greater than zero, meaning the model has a predictive power that is especially pronounced when referring to the *Brand image* variable.

As mentioned before, it will be checked whether there are differences in results, when taking into account the perceptions of players and nonplayers in the sample. To do this, it is necessary to conduct the multi group analysis (MGA). However, that should be preceded by a three-step procedure of the measurement invariance of the composite model (MICOM), where according to Hair et al. (2018), meeting the first two criteria (Configural invariance and Composite invariance) is sufficient to run the Multigroup analysis. Since the same questionnaire, algorithm, optimization

criteria, as well as the specification of measurement models were used for both groups of players, Configural invariance criteria is met. The second step of the MICOM procedure is shown in Table 14, where due to this study's exploratory character it was run at the 1% significance level (Hair et al., 2018). As p values proved to be higher than the level mentioned, it can be concluded that Composite invariance criteria has been achieved and that Multigroup analysis can be performed.

In addition, due to gaining a deeper insight into the results obtained, following hypothesis was developed:

H4: The impact of co-creation activities on *Purchase intention* through *Brand image*, as well as the impact of *Brand image* on *Purchase intention*, is greater among players than nonplayers of videogames.

Table 15 shows the results of Multigroup analysis indicating that there is a significant difference in model's relationships depending whether players or nonplayers' perceptions are observed.⁸ According to path coefficients' p values that are lower than the significance level of 5%, those differences are present in the impact of *Brand image* on *Purchase intention*, as well as in the impact of *Value-in-us activities* on *Purchase intention* via *Brand image*. Figures 5 and 6 show the path coefficients between variables depending on players' status, which show that the bond between *Brand image* and *Purchase intention*, as well as that of *Value-in-us activities* with *Purchase intention* through *Brand image* being stronger when observing players. *Value-in-use activities* have a bigger impact on players since they had experience and relationship with the brand unlike nonplayers. *Co-production activities* had no impact on players because they did not participate in new product development, same as nonplayers. Accordingly, the last hypothesis of this model H4 is also accepted as true.

⁸ After dividing the sample into the groups depending on players' status, the group "Players" contained 65 respondents, while the group "Nonplayers" contained 82 respondents.

Figure 5. Videogame players path coefficients

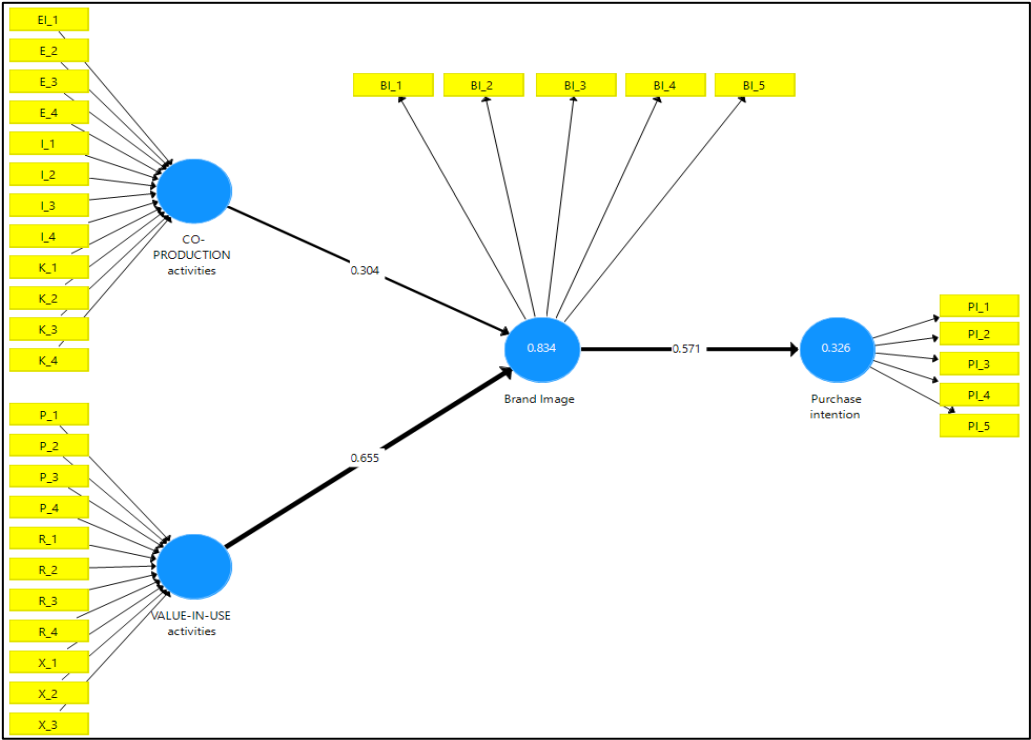
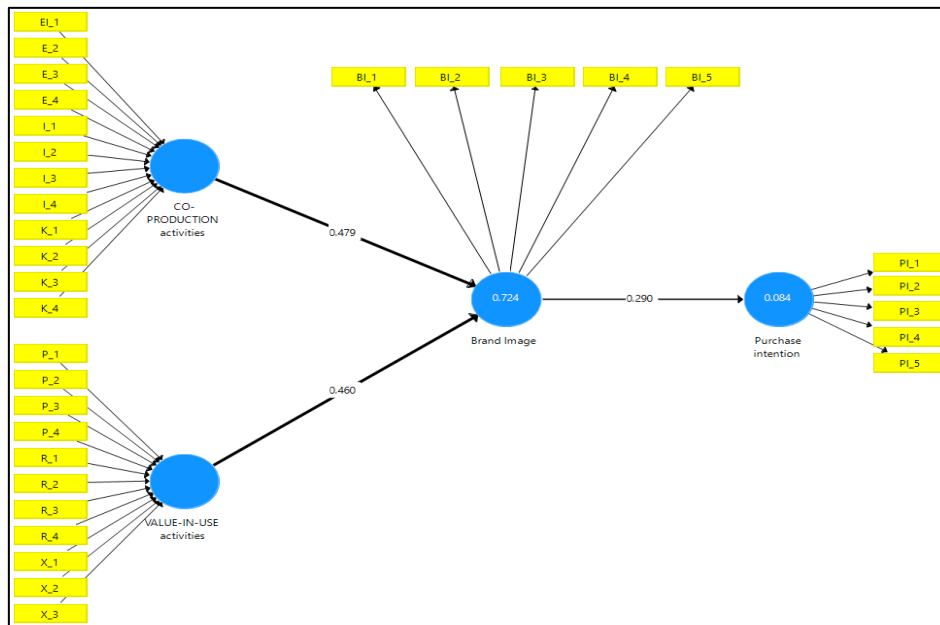
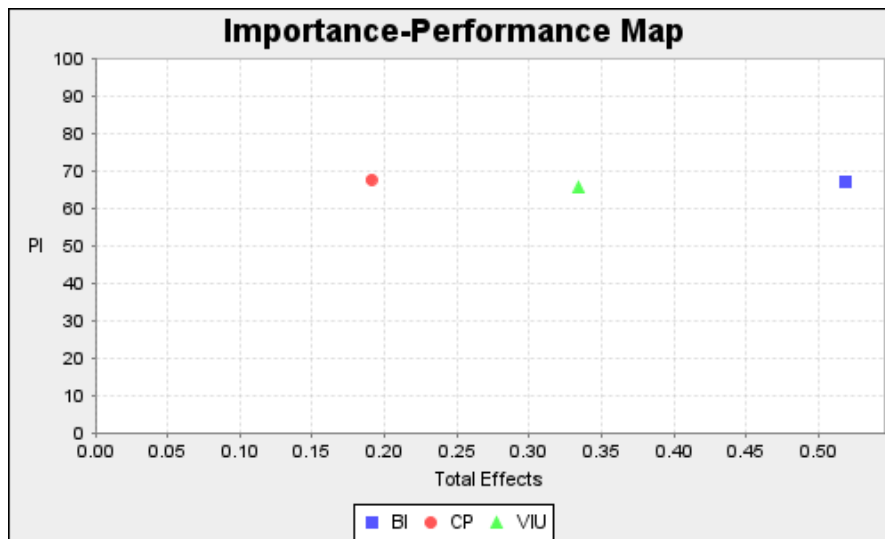


Figure 6. Videogame nonplayers path coefficients



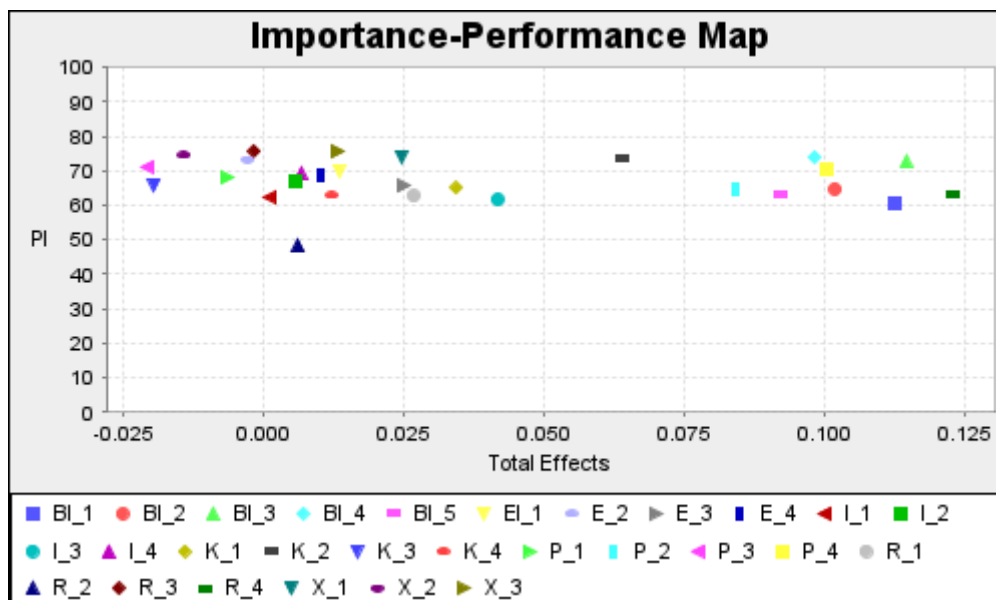
Finally, to consider the importance of exogenous constructs in the formation of the target endogenous construct, an Importance-performance map analysis (IPMA) was conducted. In this analysis, importance is the one that mirrors the overall effects of the constructs through their average latent variable scores (Hair et al., 2017). The aim of this analysis is to identify the importance and performance of individual constructs in order to provide guidance to managers on which construct is most important, which will then indicate the performance of that construct that needs to be focused on for potential improvement. Figure 7 shows that *Brand image* has the greatest effect in shaping *Purchase intention* but given the emphasis here on the impact of co-creation activities, the *Value-in-us activities* construct has greater importance to *Purchase intention* than *Co-production activities* does. On the other hand, Table 16 shows that the VIU construct has slightly lower performance than the CP construct, which implies that a one-unit increase in VIU’s performance from 65,617 to 66,617 would increase the performance of PI by 0.334 points. That is, if EA Games managers want to increase consumers' purchase intentions, they should focus more on the performance of *Value-in-us activities*. The same logic can be applied to construct's indicators, so the IPMA analysis at the level of indicators is presented accordingly in Figure 8.

Figure 7. IPMA analysis- constructs



The indicator R_4 (*EA Games is known because its players usually spread positive word about it in their social networks*; which belongs to the VIU construct) proves to be the most important one for the target end construct, since its effect of 0.123 is the largest in relation to the others. However, Table 17 shows that the performance of this indicator is notably weaker than of those that are located higher in the map shown. This would mean that if managers wanted to improve purchase intention, their focus should be more on the R_4 indicator, because a one-unit increase in R_4's performance, raises PI's performance by R_4's importance value (0,123), after which managers should focus on remaining important indicators. With this, the evaluation of the model in the thesis is concluded.

Figure 8. IPMA analysis- indicators



5. Findings and Discussion

Previous research has shown that including and engaging with customers in new product development and innovation processes provides companies with many benefits such as customer loyalty (Füller, 2010), it encourages consumers' positive intention towards co-created products among both participating and non-participating customers (Fuchs & Schreier, 2011), better perception of the products due to understanding customer needs and desires (Dahl et al., 2015; Nishikawa et al., 2013).

Based on study it can be stated that enhanced brand image explains higher purchase intention for co-created products and that dimensions of co-creation positively influence brand image through two distinct pathways: co-production and value in use; what implicate that main purpose of the thesis was reached. Additionally, customers perceive companies which co-create value with customers as more innovative which consequently leads to increase of the likelihood of purchase intent and company performance (Fuchs & Schreier, 2011). To further analyze and understand co-creation advantages, thesis aimed to understand how co-creation of value with customers would benefit companies in terms of brand image. The main finding of the thesis is that co-creation activities, which are divided in Co-Production and Value-In-Use dimensions, indeed impact the consumers' perception of brand image, more for users than nonusers of the brand's products. Specifically, co-creation activities affect mostly those consumers who have made some contact with the company, in this case, customers who regularly play video games of this company that co-creates value with customers. In other words, the research questions have been answered such that: the perceived co-creation activities affect the firm's brand image, firm's brand image is influenced by the co-creation activities presented in both co-production and value-in-use dimensions and that brand image mediated the impact of perceived co-creation activities which are presented in both dimensions on Purchase Intention. Additionally, another finding of this thesis is that Value-In-Use activities have greater impact on users i.e., players than nonusers i.e., nonplayers and this is due to the fact that players had experience and contact with the brand unlike nonplayers. In accordance with all results previously explained, all the hypotheses can be considered as proved. Lastly, Importance-Performance Map analysis was conducted in order to show which co-creation activities are the most important for increasing the consumers' purchase intention concluding that focus should be more on the performance of Value-In-Use activities.

5.1. Academic implications

Giving that co-creation nowadays is becoming increasingly relevant and favored with number of companies recognizing the importance of involving customers in the process of innovation and new product development, it is important to educate both companies and consumers what actually co-creation involves. This thesis is mainly inspired by the article by Ranjan & Read (2016) which at the time, was one of the first scholarly effort that suggested a thorough multidimensional theoretical nature of value co-creation. The subject of the study in that article was to examine how dimensions Co-production and Value-in-use i.e., the items that are the main components of Value co-creation, affect customer satisfaction of participating users in the process of creating new value.

This thesis extends the literature by drawing out these dimensions and applying them in order to understand how those perceived activities which belong to those dimensions impact brand image, among non-participating consumers, while brand image acts as a mediator for purchase intention. While Ranjan & Read (2016) made a valuable contribution to the research, but thesis additionally points to the importance of which of those activities are the most important, i.e., have the most impact on brand image in order for companies to understand to where should they direct their efforts and resources.

As the thesis is testing the impact of perceived co-creation activities on brand image and purchase intention using a video game brand, due to the increasing presence of co-creation in video game industry, it is important to understand how generation Z appreciate co-creation activities. Generation Z was the one to test in this case, as this generation is the one that is most likely to engage in and be in contact with video games (Tong et al., 2021). Overall, the thesis provides important implications for academia in the terms of initiating a new perspective on how co-creation activities affect the image of the brand which then, acts as a mediator for purchase intention when it comes to generation Z's perspective.

5.2. Managerial implications

This study identified that companies that include customers in co-creation indeed have positive effects on brand's image and consequently, purchase intention. Moreover, the thesis provides valuable insight regarding which exactly co-creation activities have the biggest importance and have the most impact. Therefore, the approach allows for managers to better allocate resources and

efforts on those co-creation activities that have the biggest return on investment. In the study that is the case with the dimension Value-In-Use and its item “EA Games is known because its players usually spread positive word about it in their social networks” which has more significant importance and lower performance than the average. It implies spreading the positive word about the brand on social networks, meaning that users belonging to generation Z, highly value the opinions of other users on social media. This calls for companies and managers putting effort in creating online communities where the users can discuss, share opinion and knowledge about the brand with each other. Doing so, companies improve the relationship with customers by allowing them to comment and respond on their own platforms. In comparison, for example the item “I feel an attachment or relationship with the EA Games“, which implies attachment of respondent to the brand, has significant below average both importance and performance and investing in this indicator will only impact purchase intention slightly meaning that it is not as important for players whether they feel attachment or relationship with the brand.

According to demonstrated, it is evident that this is an effective managerial tool for successful brand managing and allocation of company resources in long-term period. The evidence was also found which indicates that there is a significant difference in impact of value-in-use activities on purchase intention through mediator brand image being stronger among players than nonplayers. Which provides insight to managers when deciding whether to point their efforts of activities such as to users or nonusers of the brand.

6. Limitations & Further Research

Although the findings of this thesis are important and significant, it comes with some limitations for which future research is encouraged. To start with, the study was executed with only one product category. Video game brand was chosen as a subject for testing since co-creation concept is very present in this industry. Thus, it is needed to investigate if the same effect would occur with other product categories, maybe with some products and brands for which co-creation is not common. As such, managers should take into consideration that same effect on brand image might not occur with different brands in different industries.

Second, only one generation was used as a sample, generation Z and because of this the results should be taken into consideration as only indicative and not representative. Moreover, generation Z might be biased and positively evaluate statements about perceived co-creation activities of video

game brand EA Games as it might stimulate positive associations and bring out nostalgia since it is assumed that this generation grew up playing and is fond of EA video games. Therefore, it would be encouraged to test these hypotheses on different generations or also test the same generation with different brand from different industry.

Third, all respondents were from two universities in one country, Croatia, hence, further investigation should test the hypothesis across different cultures and not only focus on university students.

Fourth, the method that was used in the study is only of exploratory nature and thus, results should be further analyzed and confirmed also with conclusive research. Furthermore, relatively small sample is tested even though it is validated with a software, but it is suggested to test it on a much larger sample.

To sum up, it is encouraged to further research and investigate the co-creation activities and their impacts, as it is a very relevant topic.

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Appendices

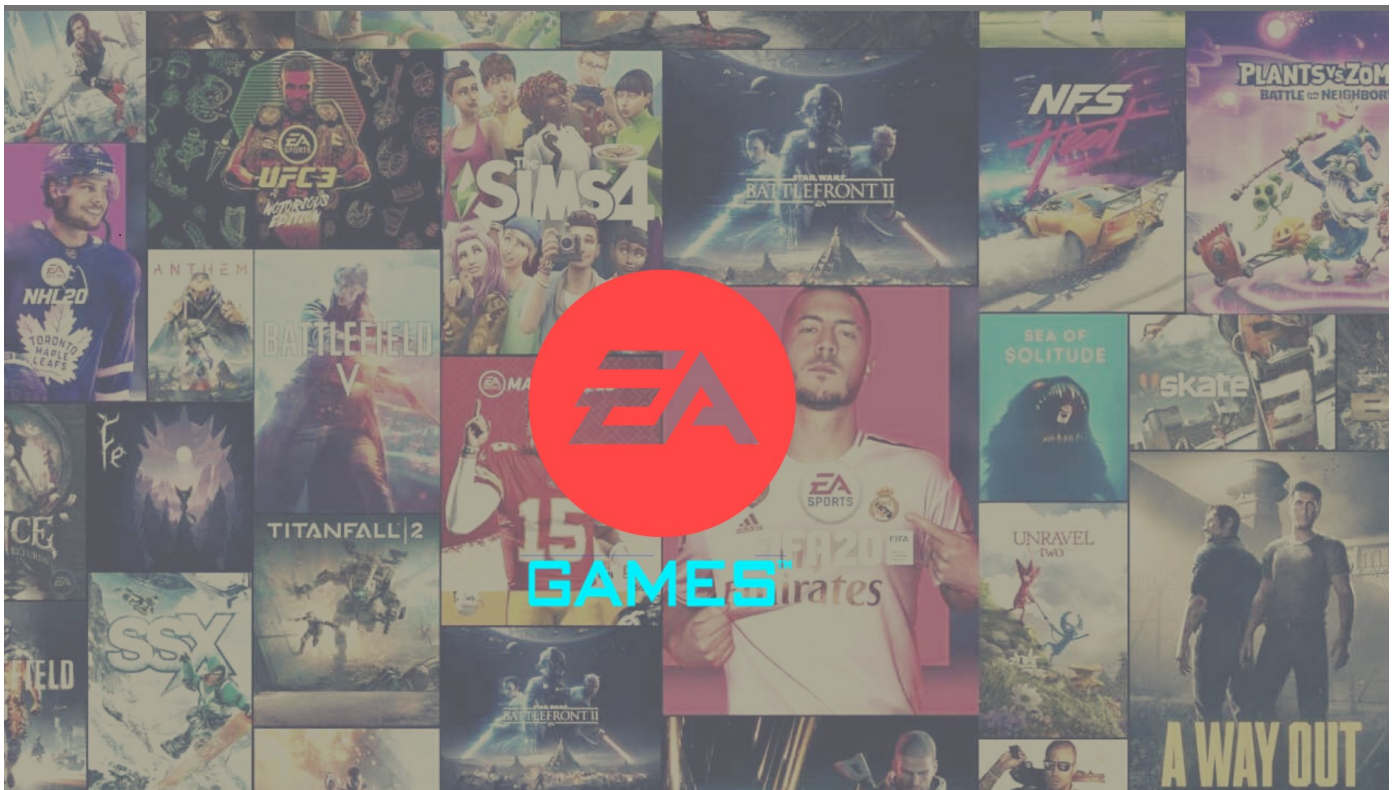
Appendix 1. - Research Instrument - Questionnaire

EA GAMES KEIPXR - Research Instrument: Questionnaire

Electronic Arts Inc. is a company which develops and delivers video games, content and online services for Internet-connected consoles, mobile devices and personal computers. EA is recognized for a portfolio of brands such as EA SPORTS™ FIFA, Battlefield™, Apex Legends™, The Sims™, Madden NFL, Need for Speed™, Titanfall™ and F1™.

Below you will see an image taken from EA web page. Please, observe it thoroughly.

Whether you are a user of EA Games or no, your perception of it is important. It is not necessary to know in detail what EA Games does, but we are interested in your opinion and perception which you will express by evaluating the statement on a scale from 1 to 7 where 1 represents Strongly Disagree and 7 Strongly Agree.



Please, can you express your opinion (scale 1 to 7 where where 1 represents Strongly Disagree and 7 Strongly Agree.

MODEL "KEI - PXR"	
<i>Likert scale 7 6 5 4 3 2 1</i>	
K1	K1 - EA Games is open to players' ideas and suggestions about its existing games (products) or towards developing new products and services
K2	K2 - EA Games provides sufficient illustrations and information to players
K3	K3 - Players gladly share their own ideas and suggestions with EA Games in order to help it improve its games (products), services and processes further
K4	K4 - EA Games provides suitable environment and opportunity to players to offer suggestions and ideas
E1	E1 - EA Games has an easy access to information about preferences of their players
E2	E2 - The processes at EA Games are aligned with players' requirements (i.e. the way they wish them to be)
E3	E3 - EA Games considers members' role to be as important as its own in the process
E4	E4 - I believe that EA Games players share an equal role in determining the final outcome of process
I1	I1 - During the process with EA Games, players can conveniently express their specific requirements
I2	I2 - EA Games communicates to its players the relevant information related to the processes
I3	I3 - EA Games allows sufficient players' interaction in its business processes (product development, marketing, assisting other customers, etc.)
I4	I4 - In order to get maximum benefit from the process (or games/services), EA Games players have to play a proactive role during interaction (i.e., players have to apply their skill, knowledge, time, etc.)
KEI_G	KEI - In general, EA Games offers appropriate knowledge, equity and interactions value to players
<i>Likert scale 7 6 5 4 3 2 1</i>	

P1	P1 - The benefit, value, or fun from the process (or, the games) depends on the EA Games players and the usage condition
P2	P2 - EA Games tries to serve the individual needs of each of its players
P3	P3 - Different EA Games players, depending on their choice, or knowledge, involve themselves differently in the process (or, with the games)
P4	P4 - EA Games provides an overall good experience, beyond the “ functional ” benefit
X1	X1 - EA Games provides a memorable experience for its players (i.e., the memory of the process lasted for quite a while)
X2	X2 - Based on the nature of EA Games players' individual participation, their individual experiences in the process might be different from other customers
X3	X3 - It is possible for EA Games players to improve the process by experimenting and trying new things
R1	R1 - EA Games’ s additional assistance is necessary for players to fully enjoy the process (or, the games/service)
R2	R2 - I feel an attachment or relationship with the EA Games
R3	R3 - There is usually a group, a community, or a network of players who are a fan of EA Games
R4	R4 - EA Games is known because its players usually spread positive word about it in their social networks
RG	PXR - In general, EA Games offers appropriate personalization, experience and relationship value to players

Brand image

B1.	Bi1 - I think that EA Games and their employees are trustworthy	7 6 5 4 3 2 1
B2.	Bi2 - EA Games takes social responsibility seriously	7 6 5 4 3 2 1
B3.	Bi3 - EA Games has a reputation for quality	7 6 5 4 3 2 1
B4.	Bi4 - EA Games has a personality that distinguishes itself from competitors	7 6 5 4 3 2 1

B5.	Bi5 - EA Games does not disappoint its players	7 6 5 4 3 2 1
BG	BiG - Overall, the EA Games has a good brand image	7 6 5 4 3 2 1

Purchase intention

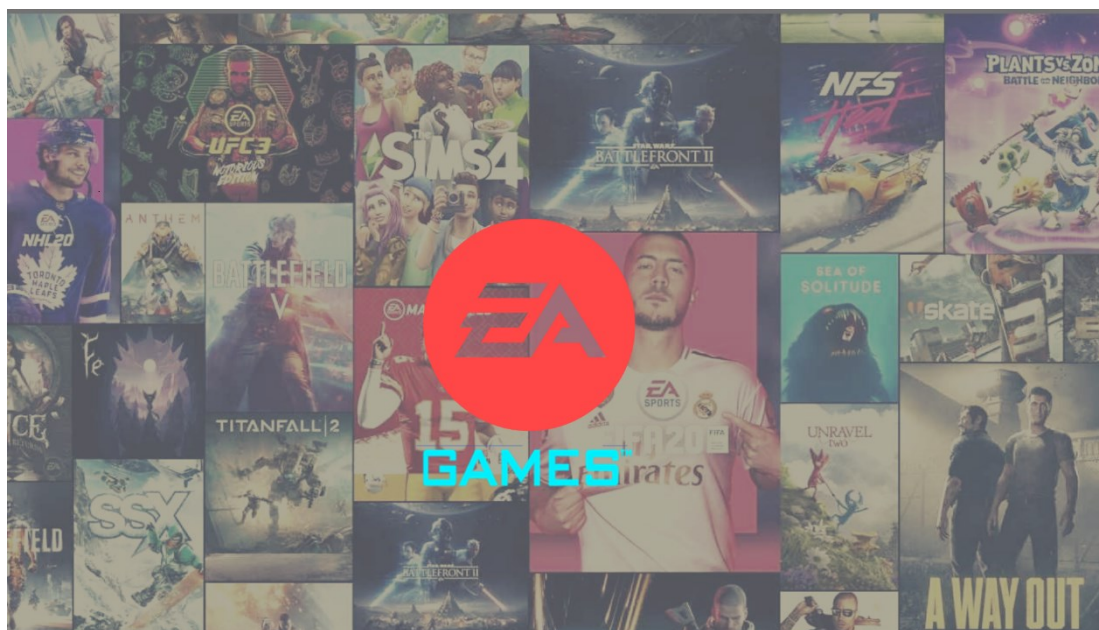
PI1	Pi1 - I would probably play games from EA Games	7 6 5 4 3 2 1
PI2	Pi2 - I would consider playing EA Games if I need/desire a product of this type	7 6 5 4 3 2 1
PI3	Pi3 - I can see myself playing games from EA Games in future	7 6 5 4 3 2 1
PI4	Pi4 - The possibility of me playing EA Games is high	7 6 5 4 3 2 1
PI5	Pi5 - I would recommend EA Games to other people	7 6 5 4 3 2 1
PIG	PiG - Overall, I intend to play EA Games in the future	7 6 5 4 3 2 1

Relation with EA Games

1 - I am an active player of EA Games
2 - I am a passive player of EA Games - (play games of EA Games up to 6-7 times a year)
3 - I heard about or have seen EA Games but I am not a player
4 - I never heard about or have seen EA Games

Will you play EA Games in the near future (next or in next two years)?

1-For sure I will NOT
2-Very probably I will NOT
3-Probably I will NOT
4-I don't know / I am not sure
5-Probably I will
6-Very probably I will
7-For sure I will



Can you evaluate this advertisement?

1-I dislike a lot
2-I dislike it
3-More or less disagree
4-I neither like it nor dislike it
5-I like it a little bit more than I dislike it
6-I like it
7-I like it a lot

DEMOGRAPHICS

Gender

male

female

How old you are?

Age: _____ YEARS

Education

High School
Bachelor's Degree
Master's Degree

Appendix 2: - Tables

Table 1: Construct Measurement

Role	Variables	Items	Scale	Scholars	Cronbach α
Independent variable	VCC activities (co-production & value-in-use)	23	Likert 7 Scale	(Ranjan & Read, 2016)	
Mediator	Brand Image	5	Likert 7 Scale	Ansah (2021) Martínez Salinas & Pina Pérez (2009)	0.868
Dependent variable	Purchase Intention	5	Likert 7 Scale	Xu et al., (2020) Zhao et al., (2019)	0.930

Table 2. Results of Confirmatory composite analysis

Outer loadings	BI	PI
BI_1	0.823	
BI_2	0.785	
BI_3	0.877	
BI_4	0.723	
BI_5	0.838	
PI_1		0.909
PI_2		0.831
PI_3		0.903
PI_4		0.899
PI_5		0.875

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	2.5%	97.5%
AVE							
BI	0.657	0.656	0.038	17.212	0.000	0.578	0.726
CP							
PI	0.781	0.777	0.033	23.844	0.000	0.713	0.840
VIU							

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	2.5%	97.5%
CR							
BI	0.905	0.904	0.015	60.317	0.000	0.872	0.930
CP							
PI	0.947	0.945	0.010	95.927	0.000	0.925	0.963
VIU							

C's alpha	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	2.5%	97.5%
BI	0.868	0.866	0.023	37.318	0.000	0.816	0.906
CP							
PI	0.930	0.929	0.013	69.561	0.000	0.900	0.952
VIU							

HTMT	Original Sample (O)	Sample Mean (M)	2.5%	97.5%
PI -> BI	0.388	0.393	0.242	0.554

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	2.5%	97.5%
BI_1 <- BI	0.823	0.818	0.034	24.532	0.000	0.754	0.878
BI_2 <- BI	0.785	0.782	0.048	16.373	0.000	0.664	0.858
BI_3 <- BI	0.877	0.875	0.022	39.655	0.000	0.826	0.912
BI_4 <- BI	0.723	0.720	0.050	14.542	0.000	0.613	0.809
BI_5 <- BI	0.838	0.835	0.030	27.762	0.000	0.769	0.889
PI_1 <- PI	0.909	0.910	0.016	56.460	0.000	0.871	0.935
PI_2 <- PI	0.831	0.830	0.037	22.385	0.000	0.746	0.891
PI_3 <- PI	0.903	0.901	0.026	34.504	0.000	0.835	0.941
PI_4 <- PI	0.899	0.895	0.027	33.085	0.000	0.830	0.938
PI_5 <- PI	0.875	0.874	0.023	37.500	0.000	0.821	0.913

Table 3. Internal consistency reliability and convergent validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
BI	0.868	0.877	0.905	0.657
CP		1.000		
VIU		1.000		
PI	0.930	0.953	0.947	0.781

Table 4. Discriminant validity using HTMT ratio

	BI	PI
BI		
PI	0.388	

Table 5. CO-PRODUCTION activities indicators' VIF values

	VIF
CP_G	1.000
EI_1	1.594
E_2	2.698
E_3	3.012
E_4	2.395
I_1	2.488
I_2	2.014
I_3	1.594
I_4	1.549
K_1	2.839
K_2	2.375
K_3	3.003
K_4	1.843

Table 6. VALUE-IN-USE activities indicators' VIF values

	VIF
VIU_G	1.000
P_1	1.726
P_2	1.825
P_3	1.498
P_4	1.694
R_1	1.550
R_2	1.367
R_3	1.438
R_4	1.836
X_1	1.839
X_2	1.760
X_3	1.520

Table 7. CO-PRODUCTION activities indicators' significance

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
CP_G <- CO-PRODUCTION activities_G	1.000	1.000	-0.000	1.000	1.000
EI_1 -> CP	0.470	0.458	-0.012	0.292	0.640
E_2 -> CP	0.648	0.628	-0.019	0.518	0.766
E_3 -> CP	0.517	0.495	-0.021	0.331	0.699
E_4 -> CP	0.610	0.590	-0.020	0.442	0.759
I_1 -> CP	0.580	0.554	-0.025	0.406	0.735
I_2 -> CP	0.664	0.642	-0.022	0.517	0.800
I_3 -> CP	0.529	0.513	-0.016	0.390	0.684
I_4 -> CP	0.512	0.499	-0.014	0.339	0.702
K_1 -> CP	0.831	0.805	-0.026	0.747	0.919
K_2 -> CP	0.765	0.746	-0.019	0.666	0.866
K_3 -> CP	0.540	0.520	-0.020	0.361	0.715
K_4 -> CP	0.815	0.790	-0.025	0.732	0.905

Table 8. VALUE-IN-USE activities indicators' significance

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
VIU_G <- VALUE IN USE <- activities_G	1.000	1.000	-0.000	1.000	1.000
P_1 -> VIU	0.424	0.415	-0.008	0.231	0.586
P_2 -> VIU	0.540	0.527	-0.014	0.372	0.686
P_3 -> VIU	0.386	0.377	-0.009	0.225	0.545
P_4 -> VIU	0.582	0.565	-0.018	0.432	0.727
R_1 -> VIU	0.570	0.554	-0.016	0.409	0.722
R_2 -> VIU	0.355	0.348	-0.007	0.186	0.526
R_3 -> VIU	0.494	0.486	-0.008	0.319	0.677
R_4 -> VIU	0.954	0.932	-0.022	0.932	0.986
X_1 -> VIU	0.619	0.606	-0.013	0.457	0.757
X_2 -> VIU	0.402	0.390	-0.011	0.184	0.587
X_3 -> VIU	0.443	0.429	-0.014	0.235	0.613

Table 9. Inner VIF values

	BI	CP	PI	VIU
BI			1.000	
CP	2.005			
PI				
VIU	2.005			

Table 10. Bootstrapping results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	2.5%	97.5%
BI -> PI	0.367	0.375	0.066	5.573	0.000	0.234	0.489
CP-> BI	0.300	0.319	0.065	4.635	0.000	0.152	0.408
VIU -> BI	0.634	0.627	0.063	10.027	0.000	0.509	0.748
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	2.5%	97.5%
CP-> BI -> PI	0.110	0.121	0.036	3.086	0.002	0.049	0.177
VIU -> BI -> PI	0.233	0.234	0.043	5.371	0.000	0.150	0.321

Table 11. R square values

	R Square	R Square Adjusted
BI	0.761	0.758
PI	0.135	0.129

Table 12. Effect sizes f^2

	BI	CP	VIU	PI
BI				0.156
CP	0.189			
VIU	0.839			
PI				

Table 13. Blindfold results

	SSO	SSE	Q ² (=1-SSE/SSO)
BI	735.000	394.303	0.464
CP	1.764.000	1.764.000	
VIU	1.617.000	1.617.000	
PI	735.000	666.181	0.094

Table 14. Composite invariance assessment

Players vs. Nonplayers	Original Correlation	Correlation Permutation Mean	1.0%	Permutation p-Values
BI	0.996	0.999	0.995	0.026
CP	0.694	0.829	0.651	0.034
VIU	0.914	0.925	0.842	0.328
PI	0.995	0.996	0.980	0.231

Table 15. MGA analysis

	Path Coefficients-diff (Players - Nonplayers)	p-Value original 1-tailed (Players - Nonplayers)	p-Value new (Players - Nonplayers)
BI -> PI	0.281	0.017	0.033
CP-> BI	-0.175	0.900	0.199
VIU -> BI	0.195	0.077	0.153
	Specific Indirect Effects-diff (Players - Nonplayers)	p-Value original 1-tailed (Players - Nonplayers)	p-Value new (Players - Nonplayers)
CP-> BI -> PI	0.034	0.359	0.717
VIU -> BI -> PI	0.240	0.003	0.006

Table 16. Latent variables performances

	LV Performances
CP	67.673
BI	67.085
PI	66.132
VIU	65.617

Table 17. Manifest variables performances

	MV Performances
R_3	75.737
X_3	75.624
X_2	74.603
X_1	74.150
BI_4	74.036
K_2	73.696
E_2	73.243
BI_3	72.676
PI_2	72.449
P_3	71.202
P_4	70.748
EI_1	70.068
I_4	69.274
E_4	68.707
P_1	68.027
PI_1	67.234
I_2	67.120
K_3	65.760
E_3	65.646
K_1	64.966
BI_2	64.739
PI_5	64.512
P_2	64.512
PI_3	63.605
R_4	63.152
BI_5	63.039
K_4	62.925
R_1	62.698
I_1	62.358
I_3	61.678
PI_4	60.998
BI_1	60.771
R_2	48.413

Appendix 3: - Figures 3 and 4

Figure 3. Co-production activities redundancy analysis

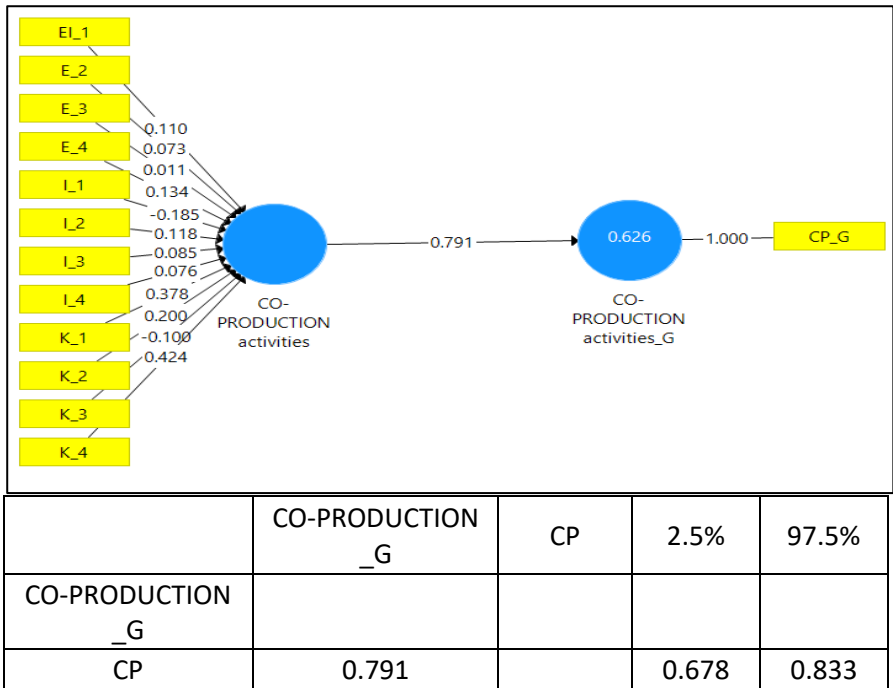
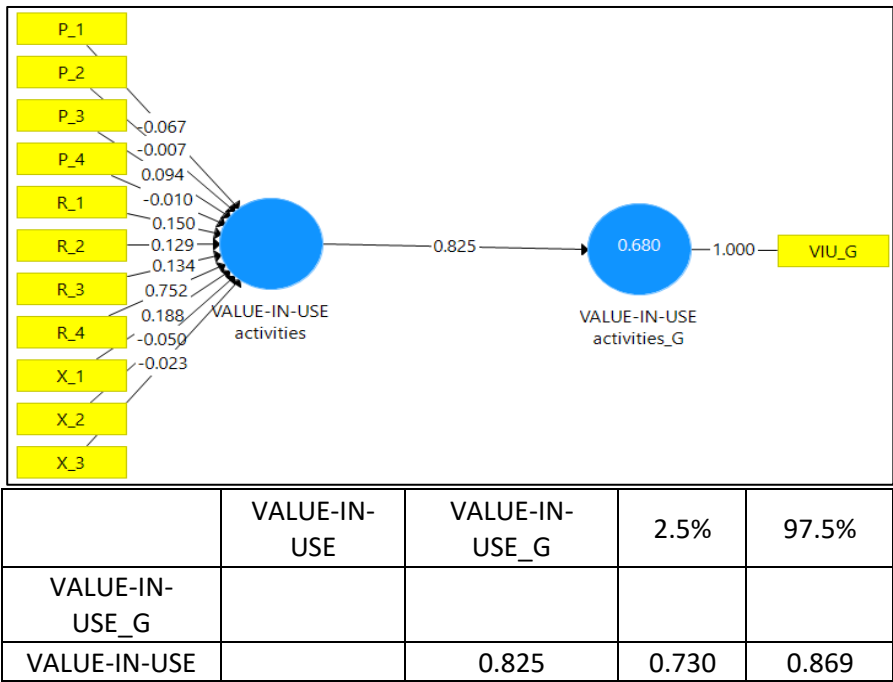


Figure 4. Value-in-use activities redundancy analysis



Appendix 4. - Crosstabs

Knowledge, Equity and Interaction Values

Mean value on scale 1 - 7 where 1 represents <i>Strongly Disagree</i> and 7 <i>Strongly Agree</i> .	Total	Relation with EA Games		Gender	
		Players	No players	Male	Female
K1 - EA Games is open to players' ideas and suggestions about its existing games (products) or towards developing new products and services	4.90	4.88	4.91	4.55	5.05
K2 - EA Games provides sufficient illustrations and information to players	5.42	5.38	5.45	5.09	5.56
K3 - Players gladly share their own ideas and suggestions with EA Games in order to help it improve its games (products), services and processes further	4.95	4.98	4.91	4.86	4.98
K4 - EA Games provides suitable environment and opportunity to players to offer suggestions and ideas	4.78	4.80	4.76	4.82	4.76
E1 - EA Games has an easy access to information about preferences of their players	5.20	5.48	4.99	5.09	5.25
E2 - The processes at EA Games are aligned with players' requirements (i.e. the way they wish them to be)	5.39	5.48	5.33	5.32	5.43
E3 - EA Games considers members' role to be as important as its own in the process	4.94	4.95	4.93	4.91	4.95
E4 - I believe that EA Games players share an equal role in determining the final outcome of process	5.12	5.06	5.17	5.02	5.17
I1 - During the process with EA Games, players can conveniently express their specific requirements	4.74	4.78	4.71	4.59	4.81
I2 - EA Games communicates to its players the relevant information related to the processes	5.03	4.98	5.06	4.77	5.14
I3 - EA Games allows sufficient players' interaction in its business processes (product development, marketing, assisting other customers, etc.)	4.70	4.72	4.68	4.64	4.73
I4 - In order to get maximum benefit from the process (or games/services), EA Games players have to play a proactive role during interaction (i.e., players have to apply their skill, knowledge, time, etc.)	5.16	5.37	4.99	5.16	5.16
KEI - In general, EA Games offers appropriate knowledge, equity and interactions value to players	5.11	5.05	5.16	4.70	5.28

Personalization, Experience and Relationship Values

Mean value on scale 1 - 7 where 1 represents <i>Strongly Disagree</i> and 7 <i>Strongly Agree</i> .	Total	Relation with EA Games		Gender	
		Players	No players	Male	Female
P1 - The benefit, value, or fun from the process (or, the games) depends on the EA Games players and the usage condition	5.08	5.20	4.99	4.93	5.15
P2 - EA Games tries to serve the individual needs of each of its players	4.87	5.12	4.67	4.77	4.91
P3 - Different EA Games players, depending on their choice, or knowledge, involve themselves differently in the process (or, with the games)	5.27	5.23	5.30	5.11	5.34
P4 - EA Games provides an overall good experience, beyond the " functional " benefit	5.24	5.43	5.10	5.27	5.23
X1 - EA Games provides a memorable experience for its players (i.e., the memory of the process lasted for quite a while)	5.45	5.72	5.23	5.32	5.50
X2 - Based on the nature of EA Games players' individual participation, their individual experiences in the process might be different from other customers	5.48	5.60	5.38	5.36	5.52
X3 - It is possible for EA Games players to improve the process by experimenting and trying new things	5.54	5.55	5.52	5.52	5.54
R1 - EA Games' s additional assistance is necessary for players to fully enjoy the process (or, the games/service)	4.76	4.66	4.84	4.61	4.83
R2 - I feel an attachment or relationship with the EA Games	3.90	4.75	3.23	4.52	3.64
R3 - There is usually a group, a community, or a network of players who are a fan of EA Games	5.54	5.82	5.33	5.70	5.48
R4 - EA Games is known because its players usually spread positive word about it in their social networks	4.79	4.63	4.91	4.30	5.00
PXR - In general, EA Games offers appropriate personalization, experience and relationship value to players	4.93	4.89	4.96	4.73	5.02

Brand Image

Mean value on scale 1 - 7 where 1 represents <i>Strongly Disagree</i> and 7 <i>Strongly Agree</i> .	Total	Relation with EA Games		Gender	
		Players	No players	Male	Female
Bi1 - I think that EA Games and their employees are trustworthy	4.65	4.69	4.61	4.25	4.82
Bi2 - EA Games takes social responsibility seriously	4.88	4.98	4.80	4.77	4.93
Bi3 - EA Games has a reputation for quality	5.36	5.52	5.23	5.20	5.43
Bi4 - EA Games has a personality that distinguishes itself from competitors	5.44	5.65	5.28	5.30	5.50
Bi5 - EA Games does not disappoint its players	4.78	4.75	4.80	4.16	5.05
BiG - Overall, the EA Games has a good brand image	5.50	5.58	5.44	5.30	5.59

Purchase - Playing Intentions

	Total	Relation with EA Games		Gender	
		Players	No players	Male	Female
Pi1 - I would probably play games from EA Games	5.03	5.89	4.35	5.39	4.88
Pi2 - I would consider playing EA Games if I need/desire a product of this type	5.35	6.00	4.83	5.43	5.31
Pi3 - I can see myself playing games from EA Games in future	4.82	5.83	4.01	5.43	4.55
Pi4 - The possibility of me playing EA Games is high	4.66	5.86	3.71	5.36	4.36
Pi5 - I would recommend EA Games to other people	4.87	5.52	4.35	4.89	4.86
PiG - Overall, I intend to play EA Games in the future	4.63	5.75	3.74	5.25	4.37

Relation with EA Games

	Total	Relation with EA Games		Gender	
		Players	No players	Male	
1 - I am an active player of EA Games	12.2	27.7	0.0	20.5	
2 - I am a passive player of EA Games - (play games of EA Games up to 6-7 times a year)	32.0	72.3	0.0	52.3	
3 - I heard about or have seen EA Games but I am not a player	49.0	0.0	87.8	27.3	
4 - I never heard about or have seen EA Games	6.8	0.0	12.2	0.0	
	Total (N)	147	65	82	44
	Percentage (%)	100.0	44.2	55.8	29.9

Relation with EA Games

	Total	Relation with EA Games		Gender	
		Players	No players	Male	
Players	44.2	100.0	0.0	72.7	
No players	55.8	0.0	100.0	27.3	
	Total (N)	147	65	82	44
	Percentage (%)	100.0	44.2	55.8	29.9

Will you play EA Games in the near future (next or in next two years)?

	Total	Relation with EA Games		Gender	
		Players	No players	Male	
1-For sure I will NOT	3.4	0.0	6.1	0.0	
2-Very probably I will NOT	11.6	0.0	20.7	2.3	
3-Probably I will NOT	14.3	0.0	25.6	13.6	
4-I don't know / I am not sure	23.8	16.9	29.3	11.4	
5-Probably I will	25.2	33.8	18.3	31.8	
6-Very probably I will	7.5	16.9	0.0	18.2	
7-For sure I will	14.3	32.3	0.0	22.7	
	Mean (M)	4.35	5.65	3.33	5.18
	Total (N)	147	65	82	44
	Percentage (%)	100.0	44.2	55.8	29.9

Evaluation of visual

	Total	Relation with EA Games		Gender	
		Players	No players	Male	
2-I dislike it	2.7	1.5	3.7	2.3	
3-More or less disagree	8.8	9.2	8.5	4.5	
4-I neither like it nor dislike it	15.6	12.3	18.3	22.7	
5-I like it a little bit more than I dislike it	18.4	15.4	20.7	20.5	
6-I like it	43.5	41.5	45.1	36.4	
7-I like it a lot	10.9	20.0	3.7	13.6	
	Mean (M)	5.24	5.46	5.06	5.25
	Total (N)	147	65	82	44
	Percentage (%)	100.0	44.2	55.8	29.9

Education

		Total	Relation with EA Games		Gender	
			Players	No players	Male	
High School		88.4	87.7	89.0	90.9	
Bachelor's Degree		8.2	4.6	11.0	6.8	
Master's Degree		3.4	7.7	0.0	2.3	
		Total (N)	147	65	82	44
		Percentage (%)	100.0	44.2	55.8	29.9