CAN PRODUCT CO-CREATION WITH CONSUMERS HELP ORGANIZATIONS DELIVER AND PROMOTE SUSTAINABILITY?

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ABSTRACT

The increasing concern about sustainability has become as important as the search for competitive advantage in a society with fast changing demands. The following research seeks to understand the impact of the participation in co-creation activities on customers intention to become greener citizens (IERB), on customer loyalty towards greener brands and on willingness to pay for self-designed and sustainable products (WTP). Additionally, this study tries to understand which factors influence these relationships.

Based on the Experimental Vignette Method (EVM) method, 167 participants were induced into four different degrees of co-creation scenarios within a questionnaire. Afterwards, participants were tested for differences between their loyalty, WTP and IERB mean scores. The participants' gender, age, occupation, field of study and willingness to participate were also measured to understand where they had influence on these mean scores.

The results of this research suggest that co-creation participants are more willing to pay for sustainability and have higher intent to change their behaviors towards sustainability, over the consumers' that do not engage in co-creation activities. Additionally, customer tendency to be concerned for environmental issues was found to be a relevant moderator of the effect of co-creation in willingness to pay. Furthermore, the results show that women are more likely to intend to engage in responsible behaviors when compared to men and that younger generations are willing to participate in co-creation activities, motivated by their green predisposition.

The research adds to former literature by combining two different areas of study, innovation and behavior towards the achievement of bigger competitive advantages and greener citizens. More than expanding the academic knowledge, these results provide a better understanding on effects of co-creation in young generations. As such, these findings constitute a starting point on how to engage in co-creation activities and the consumers that can be chosen for these endeavors.

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LIST OF ABBREVIATIONS

B2B	Business to Business
B2C	Business to Consumer
EVM	Experimental Vignette Method
FMCG	Fast-Moving Consumer Goods
GP	Green Predisposition
IERB	Intention to Engage in Responsible Behaviors
OI	Open Innovation
SDGs	Sustainable Development Goals
WP	Willingness to Participate
WTP	Willingness to Pay

1 INTRODUCTION

"*Innovation- the heart of knowledge economy- is essentially social.*"

Malcom Gladwell

To fulfil its needs, Humanity has reached beyond nature's limit. The capitalistic society demand for finite resources has brought vast ecological implications, compromising the future of younger generations. While scholars and international organizations strive to implement sustainable practices along value chains to ensure prosperity and long-term growth, consumers are becoming increasingly concerned about the environmental impacts of their actions. Air pollution, climate change or resource scarcity are common concepts on todays' society and yet sustainable behaviors and green citizenship are as paramount now as they were a decade ago. Although customer awareness and concern towards sustainable issues are increasing, there is a clear gap between the customers' concern and their actual intention to become greener by developing a routine of responsible behaviors. As such, there is a demand for an understanding on how to foster responsible behaviors.

Whereas sustainability becomes a priority on societies' agenda, businesses are pressured to innovate their practices towards newer and greener products and services. The world is changing at its fastest pace due to increasing technology developments and consumer preference evolution, which leads to higher R&D expenses and shorter innovation cycles (Rubera, Chandrasekaran & Ordanini, 2015). As customers become increasingly eager for creative engagement, including customer's inputs in the innovation process arose as a possible solution to improve customer loyalty and WTP and avoid costly R&D endeavors, without compromising firms' performance (Mahr & Lievens, 2012; Roberts & Darler, 2017).

Co-creation activities may help firms to avoid low-value projects, create effective positioning for their products (Roberts & Darler, 2017) and increase brand value, willingness to pay and worth of mouth (Hair, Barth, Neubert, & Sarstedt, 2016). Although several studies address customer awareness, loyalty and responsible behavior and its drivers (Buerke, Straatmann, Lin-Hi, & Müller, 2016; Gopisetti, & Linganna, 2017; Young, Russell, Robinson & Chintakayala, 2018; Yusof, Manan, Karim & Kassim, 2015), there is lack of understanding on *how co-creation of sustainable products affects customer loyalty, WTP and IERB*. Future research also demanded investigation on *how the co-creation resultant variables of loyalty, IERB and WTP vary with demographic variables such as age, gender or educational background and whether customers' willing to participate in such activities is determined by these demographic factors and individual characteristics*.

This research paper helps to address these knowledge gaps by addressing the following questions: *1) understanding whether the participation in co-creation activities as co-producers/co-designers promotes loyalty, WTP and IERB, 2) investigating if factors such as age, field of studies, occupation, gender and nationality influence these dependent variables and 3) examine if customers are willing to participate in co-creation and the impact of demographic variables, social constructs and individual traits in willingness to participate*. Findings of this research will not only expand knowledge on the topics of co-creation and behavior, but might also be important for policy makers, such as governments and other institutions, that target responsible behaviors (United Nations, 2018).

The following chapter provides a theoretical background on the several variables of this study, with literature emphasis on co-creation in open innovation methods, sustainability and green citizenship. The insights from the relevant theory will be then used to formulate the research questions and hypotheses that will be addressed throughout the study. Afterwards, the methodology will be described in Chapter 3, including the research design, data collection and

analyses of this study, while ensuring reliability and validity of the findings. Subsequently, Chapter 4 will present to the reader the results of the study and a clear discussion of the research findings and its link to the previous literature is provided in Chapter 5. Lastly, an overview of the findings is provided in Chapter 6, with a section for limitations and implications and future research, concluding this paper.

2 THEORY AND HYPOTHESES

The following chapter is divided into 6 subchapters, providing an overview over the state-of-art literature on the relevant topics of open innovation methods, co-creation, sustainability, and green citizenship. Afterwards, the knowledge gaps are emphasized, and the Research Questions are derived. In the last subchapters the propositions and relevant hypotheses are highlighted (Table 1) and the conceptual framework outlined (Fig. 2, 3, 4, 5).

2.1 Open Innovation

Since the breakthrough research of Chesbrough (2003), Open Innovation (OI) became a buzz-word in businesses, helping companies throughout sectors to captivate new customers and guarantee competitive advantages (Lee et al., 2010). Opposite to utilizing and exhausting firms' capabilities and resources (i.e. closed innovation), OI involves the exchange of knowledge and ideas with different stakeholders outside the R&D department boundaries. These can entail other departments, universities, start-ups, suppliers, employees or even *customers* (West, Vanhaverbek & Chesbrough, 2006).

This new paradigm assumes that companies can and should use external sources of knowledge to advance new products and services to prevail in the long-term. According to West, Vanhaverbek and Chesbrough's (2006) innovative work, knowledge is broadly distributed throughout the market and, through OI, companies can access this knowledge and successfully leverage its R&D capabilities. Amongst its biggest advantages, OI enables the access to multiple market perspectives and expertise (Chesbrough, Vanhaverbeke & West, 2008), provides a better understanding of customers' needs (Moghaddam & Tarokh, 2012; Piller, 2010) and makes new technological solutions accessible (Westergren & Holmström, 2012). Because of its boundaryless characteristics, OI enables faster flow and exchange of knowledge through the market and to the organizations (Spithoven et al., 2013), allowing for

faster development and ready-to-market timings. It also involves lower development risks when compared to the traditional approach (i.e. closed innovation) and higher revenue streams (Faems et al. 2005; Faems et al., 2010; Miotti & Sachwald, 2003; Nieto & Santamaria, 2007; Vanhaverbeke, Van de Vrande & Chesbrough, 2008). The unstoppable technological shifts and the resulting competition changes have pressured companies to deliver innovations that most often do not match markets' needs, which invariably results in lower revenues (Greg, 2017). To succeed, companies must innovate their business models by first understanding their customers' needs.

Throughout the years, several companies used OI to leverage their businesses: General Electrics' First Build Project (Elmansy, 2016), Lego's Mindstorms project (Elmansy, 2016; ESADE, 2018), Telegram (APIUMHUB, 2018), Samsung Accelerator programs (Elmansy, 2016), Cisco Entrepreneurs in Residence Program (APIUMHUB, 2018) or Hewlett Packard and Peugeot Citroën Open Labs (APIUMHUB, 2018). In the FMCG markets, where these challenges are most precedent, companies have resourced mostly to the OI method of co-creation to ensure fast and creative solutions. The co-creation process is the core difference between OI and traditional approaches to innovation. Moreover, co-creation is proven to enhance business value by building a user-centered design process. Successful companies, such as Coca-Cola with its Accelerator Program, Nivea with its customer created B&W deodorant or Procter&Gamble Connect+Develop website, have integrated customers in their innovation process (APIUMHUB, 2018).

2.2 Co-creation

Besides the fast-technological changes of the XXI century, the search for solutions to the most common societal and environmental problems has become endless and complex (Rantala, Ukko, Saunila & Havukainen, 2018). At the same time, as companies and governments strive to succeed in problem-solving, the installed systems and procedures are obstacles to progress. Unsustainable value chains, unequal citizenship or lack of sustainability awareness, are some of the obstacles to engage societies and establish a greener world (ESADE, 2018). Due to its high influence and power over communities, companies have a special responsibility to help civilization moving forward, starting by addressing these problems.

The concept of co-creation has emerged in literature since 2000 and involves the engagement of several different agents in the creation of a new product or services (Mahr, Lievens, & Blazevic, 2014; Nambisan & Baron, 2009). Moreover, this concept often includes activities for collaboration with users as innovators and prosumers (von Hippel, 2005) and users customizing products to their needs (e.g. Franke & Piller, 2004; Syam & Pazgal, 2013). Similar to open innovation, co-creation has been found paramount for companies to achieve competitive advantages by increasing customer satisfaction (Cossío-Silva et. al, 2016), customer loyalty (Yang, Chen, & Chien, 2014), willingness to pay (Franke & Piller, 2004) and word-of-mouth (Ferguson, Paulin, & Leiriao, 2007), among other important concepts. As such, it might be an important approach to shift towards a sustainable economy, once this challenge demands an original brand-consumer partnership. Today, customers are increasingly intending to become *prosumers* by co-producing of value instead of simple buyers, receivers or users of the value created by firms and, as such, are increasingly invited to participate in co-creation activities (Mooney & Rollins, 2008; Prahalad & Ramaswamy, 2004; Shaw & Ivens, 2002; Wind & Rangaswamy, 2001; Von Hippel, 2005).

Companies have seized this trend by including customers in the value chain through co-creation, either by allowing them to personalize the end offering (Nike's "ID", Converse campaigns or Starbucks' "My Starbucks Idea"), constructing a better brand image (Dove's "Speak Beautiful" campaign, Nike's "Chalkbot", Whirlpool's "Every Day, care TM Project) (Merz, Zarantonello & Grappi, 2018), increasing the customer awareness towards sustainability (Shelton Group's "Wasting Water is Weird" campaign) or help to create marketing campaigns (L'Oreal's You Make The 105 Commercial, FireFox's Flicks, MasterCard's Write a Priceless Ad, JetBlue's Travel Stories, McDonalds' Global Casting; Bughin et al., 2008; Weber et al., 2011).

2.2.1 Co-creation and Willingness to Pay

Previous studies have investigated the relationship between co-creation activities and identified it as drivers of a higher willingness to pay, once they increase the satisfaction associated with such the product related experiences (Chathoth et al., 2013, Chathoth et al., 2013; Chathoth et al., 2014; FitzPatrick et al., 2013; Franke & Piller, 2004; Tu et. al, 2018).

According to Prahalad and Ramaswamy (2004), co-creating value with customers changes the whole conventional wheel between supply and demand, and, as such, defines a new dimension of willingness to pay. Through the engagement in co-creation experiences, customers do not evaluate a given product and attribute a maximum value based on characteristics or utility (Homburg et al., 2005).

Contrary, in co-creation, customers are *creating* the maximum value they expect for such product or service. As such, if the final product fits the customers' expectations (Moon & Lee, 2014), the maximum value customers are willing to pay for the self-designed product is the higher when compared to another product which was not conceived according to the customers' desires (Franke & Schreier, 2010). Thus, the current focus of companies that engage in these

activities has shift from creating the most inventive characteristics to provide the best innovative environment and experience.

2.2.2 Co-creation and Loyalty

Loyalty has been one of the most important concepts for companies throughout sectors once it reflects their ability to retain customer and grow a big customer base (White & Schneider, 2000). Loyal customers and advocates translate in repeated purchases, great customer satisfaction (Cossío-Silva et. al, 2016) and word-of-mouth effect (Ferguson, Paulin, & Leiriao, 2007), by marketing the products of their favorite brand to people in their inner (Kandampully & Suhartanto, 2000) and, thus, increasing companies' market share (Chaudhuri, 1996; Moisescu & Bertoncelj, 2010). Previous literature on co-creation has shown that these two concepts (i.e. loyalty and co-creation) are tightly intertwined (Yang, Chen, & Chien, 2014). By providing customers with personalized experiences and moments close to the brands, companies adopt a customer centric strategy, as customers engage in personalized experiences and end up developing an emotional connection to the product and, consequently, to the brand (Yang, Chen, & Chien, 2014).

In recent years, several companies in the FMCG markets have adopted co-creation to enhance customer loyalty. The phone manufacturer Xiaomi used co-creation activities and its platform "MIUI Forum" to increase their competitive advantages and succeed in the mobile phone market (Ideas 4 All, 2018). Another example is DHL's workshops for co-creation which increased customer satisfaction and loyalty scores by 80 percent (Forbes, 2016). Although the advantages of using co-creation seem endless, sustainable product companies have yet to realize the full potential of using such activities to indorse their products, retain customers, increase brand value and at the same time, promote sustainability.

2.2.3 Co-creation and Willingness to Participate

According to the service-dominant logic (Vargo & Lusch, 2004), customers are important agents on the co-creators of value. As such, firms should include customer input on their innovation processes and facilitate the procedures in a way that customers easily customize the product/service as they see fit. During the past decade, customers have been consistent with this paradigm by being increasingly interested in participating in the buying process and valuing personalized and customizable products over the rest.

Previous scholars have studied the drivers of customers' willingness to participate in co-creation activities and found that factors such as the participants person-organization fit (i.e. similarity of values between the individual and the company) (Cable & DeRue, 2002, Nambisan & Baron, 2009) and the individual social constructs (Cable & DeRue, 2002; Greguras & Diefendorff, 2009; Yen, 2015) are determinant when regards to willingness to participate. Additionally, some authors have proposed that demographic variables might impact the participation in such activities (Klaus, 2016).

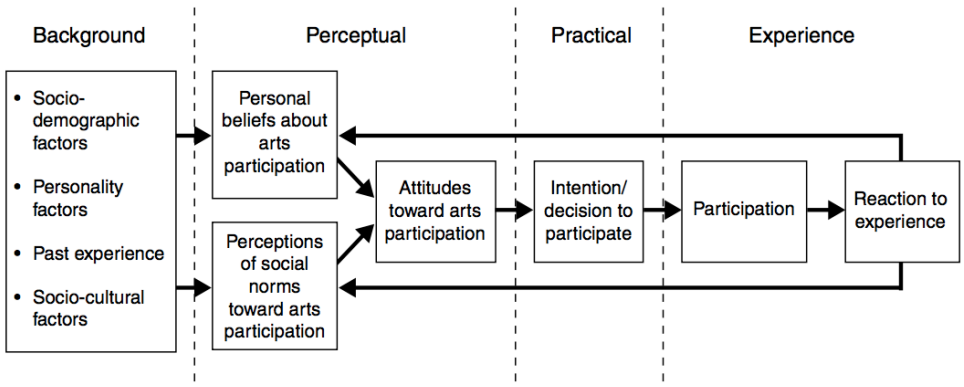

Figure 1: Behavioral Participation Model. Adapted from "A New Framework for Building Participation in the Arts" by K. McCarthy, K. Jinnett, 2001, Santa Monica, CA: RAND.

On a different context, the Participation Model described by Fig.1 emphasizes the same idea, that socio-demographic factors and personality traits together with past experiences and socio-cultural factors influence the individual's decision to participate in a specific activity

(McCarthy & Jinnett, 2001). In these areas of study (namely medicine trails or arts participation), several background socio-demographic factors such as education, nationality, occupation, age, gender and individual characteristics highly influence the outcome (i.e. to participate or not). Nevertheless, the impact of these variables in the context of participation in co-creation activities for sustainable products is still unknown and demands future research.

2.3 Fostering Sustainability

According to the Brundtland Commission's report (WCED, 1987, p.24), sustainability implies *"matching and fulfilling the present needs without compromising the future generations' ability to meet their own needs"*. Since the publication of this report multiple studies have tackled the problem of sustainability for today's society (Fuller & Ottman, 2004) and the importance of sustainable customer behavior (Minton & Rose, 1997).

More than addressing the imperative of sustainability, scholars have investigated the several advantages provided by including sustainability in businesses and societies. Additional to the increase of general well-fare, engaging in sustainability was found to be positively related to other benefits, such as competitive advantages (Peterson & Lunde, 2016), prevention of regulatory issues as a result of waste management practices, improved relationships with government, environmental, and community agencies (Rogers, 2016), attraction of top talent and investors, engagement in responsible innovation and creation of a legacy (EY, 2015), and increased productivity (EY, 2015).

2.3.1 Sustainable Citizenship and Intention to Engage in Responsible Behaviors

Sustainability challenges and its implications for citizenship are vast and yet, *sustainable citizenship* is so often difficult to achieve in modern societies. According to Kurian, Munshi and Bartlett, (2014) *citizenship* is considered a guide with the values and norms acceptable by a specific culture for a meaningful and active life in society. As such, *Sustainable citizenship*

refers to the particular set of values and norms defining the rights and duties of a life in community that foster growth and development of human competences, without disregarding the challenges of preserving technological, ecological, economic, cultural, and moral for future generations (De Young, 2015). Moreover, sustainable behaviors are the *responsible set of behaviors* that reflect the values which fall under the definition of sustainable citizenship as care for the environment, reducing consumption or consuming more ethically or creating equality and justice throughout individuals and cultures (e.g. Kurian & Wright, 2010).

Meaningful societal transformation starts with individual change as consumers are key to drive this change, because of their central role on sustainable production and development. Changes in consumer behavior, technological and organizational innovations, as well as an appropriate political and economic framework, are of major importance for sustainable development and responsible behaviors.

Currently, companies and organizations are becoming more attentive towards sustainable citizenship, mostly motivated by corporate environmental reporting or to demonstrate good environmental practices (Guckian et. al, 2017). In the last decade, some customers are following this trend by becoming more interested in some topics of sustainability, namely by sourcing of local goods and valuing eco-friendly characteristics (Bougherara & Combris, 2009; Falguera et al., 2012; Nuttavuthisit & Thøgersen, 2017) for which they are willing to pay a premium (Nielsen, 2015). Other initiatives such as the sharing/circular economy, particularly booming on the transportation sectors (car-sharing services), are also gaining supporters. The success of these initiatives and the increasing willingness to pay of customers regarding sustainability might mirror the individuals' intention to replicate the values of responsible behaviors (e.g. less carbon emissions or resources' management) (Al Mamun et. al, 2018).

Nevertheless, these advancements and initiatives fall short in results, as societies still struggle to implement sustainable behaviors as simple as, for example, the recycling of

disposals. Information technologies that allow for higher citizen awareness towards sustainability issues fail to incorporate sustainability behaviors in most of communities and societies, either because there are often misconceptions associated with green citizenship or because these polarized positions over sustainability and green behaviors are not being effectively addressed by relevant authorities and promoted by companies (Kurian, Munshi, & Bartlett, 2014). Because the concept of sustainable citizenship is locked tight with responsible consumption, which means sometimes abdicating extra comfort or luxuries in favor of the environment and future generations, individuals have associated it to discomfort and unpleasantness which can explain its low popularity (Gabrielson, 2008).

2.4 Limitations of Existing Studies

Even tough research is abundant, and it has been proven that sustainability impact on society is positive (Kilbourne, 2004), few studies provide solutions for implementing sustainable actions (Lunde, 2018), hence allowing the continuously demand, excessive production and consumption of goods and services, which cause most of the world's challenges. Sustainability is a paramount topic now more than ever, as challenges arise to a point of no return. The majority of the problems today's society is experiencing (i.e. climate change, resources' management, desertification, land degradation, loss of biodiversity, but also gender inequality or world hunger) can ultimately be due to human actions.

Societies must engage in powerful solutions to undo or prevent wrongful actions that cause these problems by enhancing sustainability throughout its different dimensions, from technological and economic to political and ethical (Elkington, 1994; Lim, 2016; Lunde, 2018). Sustainable development cannot be achieved without green citizenship and to succeed in finding the right solutions, cooperation between governmental institutions, companies and individuals is paramount. Although this is the biggest challenge of modern societies, by

becoming greener in the use materials and services, as well as engaging in sustainable innovations and responsible behaviors, communities are able to mitigate environmental impact and work towards the SDGs without disregarding industrial growth (Guckian et. al, 2017).

More than helping to address sustainability issues and the intention to change societal behaviors, the relationship this study tries to prove, co-creation engagement, has been related to increased firm performance (Moretti & Biancardi, 2017), lower risk since customers help organizations to avoid low-value projects (Roberts & Darler, 2017), enhanced unique brand experience (Ramaswamy & Ozcan, 2016), and increased willingness to pay (Hair, Barth, Neubert, & Sarstedt, 2016). Moreover, previous studies still focus on the capitalistic perspective associated with behaviors, disregarding measures such as the reduction of household waste or support for environmental policies (Jagers, Martinsson, & Matti, 2014; Wolf, Brown, & Conway, 2009).

More than changing towards green consumption, it is necessary to foster sustainable patterns of behavior that go beyond individual choices (Clayton et al., 2016). The upper-mentioned companies' initiatives and previous literature fail to address customer co-creation on its co-production/co-design dimension, especially when regarding consumer goods markets (Ramaswamy & Ozcan, 2016). This is clearly a gap, considering not only the advantages of co-creation for businesses but also the supposed willingness of younger generations of customers to be proactively engaged on the production and creation of goods and services, together with other stakeholders (Jaakkola & Alexander, 2014).

As such, this research paper tries to address the challenges of customer retention and loyalty, willingness to pay for sustainability and the need to foster responsible behaviors and, as result, cover these knowledge gaps, by answering to the following research question:

RQ: Does co-creation participation in sustainable products foster customers' willingness to pay, loyalty and intention to change towards responsible behaviors?

Additionally, although previous literature studies demographic effects on co-creation (Davidson & Freudenburg, 1996; Thøgersen & Ölander, 2006), it fails to understand whether differences in individuals, namely demographic variables as age, gender, nationality, occupation and academic field of studies, affect the relationship between co-creation and customer loyalty, WTP and IERB. Additional to try to prove a relationship between co-creation and the dependent variables of Loyalty, WTP and IERB, this research proposes to understand if the mean scores of these constructs vary in age, gender, occupation, nationality and academic field of studies. As such, this thesis proposes the following sub question:

SQ1: *How resultant variables from co-creation (i.e. customers' willingness to pay, loyalty and engagement in sustainable behaviors) vary with demographics such as age, gender and occupation?*

Moreover, previous literature has found that pro-environmental individuals possess different individual characteristics, such as different social constructs (Cialdini, 2003), personality traits (Markowitz et al., 2012). However, it is still not clear how the role of clear values concerning sustainability influence customer intention to engage in green citizenship. As such, this thesis proposes another sub research question, as follows:

SQ2: *Does pre-disposition for green citizenship moderate the relationship between the participation in co-creation activities and customers' willingness to pay, loyalty and intention to engage in responsible behaviors?*

To complete this study's main question, it is also important to understand if customers would be willing to participate in co-creation activities for sustainable products and whether their willingness to participate changes with specific individual traits, demographics and social

constructs. As mentioned earlier, previous studies mention demographic factors, such as age, gender, nationality should influence willingness to participate in environmental related activities (Klaus, 2016).

However, studies fail to address its influence on willingness to participate in co-creation activities for sustainable products. Additionally, although Agrawal and Rahman (2015) linked willingness to participate to some social constructs, variables such as occupation and academic field of studies are left aside of the research. The same happens to specific individual values of sustainability (i.e. Green Predisposition) and willingness to participate. Accordingly, this research tries to address these knowledge gaps by postulating the following sub question:

SQ3: *Are customers willing to participate in co-creation? If so, do the demographic variables, social constructs and individual traits influence willingness to participate?*

2.5 Research Propositions

2.5.1 Customers' willingness to pay for sustainability

As upper mentioned, customer willingness to pay refers to the maximum value consumers are prepared to pay for a given product or service (Homburg et al., 2005). Customer engagement through co-creation and its relationship with WTP has been a recurrent topic in service and hospitality related literature (Chathoth et al., 2013; Chathoth et al., 2014; FitzPatrick et al., 2013; Tu et. al, 2018). Similarly, previous research has proven that customer involvement in co-creation activities, especially when actively participating, increases the value customers are willing to offer for the self-designed services (Franke & Piller, 2004). However, there is no similar research for the impact of co-creation of sustainable products in customers' willingness to pay. To fill in this knowledge gap, Hypotheses 1 posits that the same phenomena might be expected for sustainable consumer goods (Fig.1).

Hypothesis 1: *Customer involvement in co-creation activities for sustainable products increases with the customers' willingness to pay for such products.*

2.5.2 Co-creation and customer loyalty towards sustainable products

Customer loyalty reflects the customer's specific preference for a brand or product, choosing it continuously in time in detriment of other competitors. According to previous literature (Oliver, 1997; Reichheld, 1996; White & Schneider, 2000), customer loyalty can also be defined as the continuous usage of the same products and brand to fulfill customer's satisfaction. Loyal customers are not only recurrent and faithful clients, they are also more likely to engage in word-of-mouth, recommending that brand to their friends and family (Kandampully & Suhartanto, 2000).

Loyalty and its different dimensions (i.e. Attitudinal and Behavioral) have been highly studied by researchers and academics due to its close link with customer satisfaction (Cossío-

Silva et. al, 2016), word-of-mouth (Ferguson, Paulin, & Leiriao, 2007; Kandampully & Suhartanto, 2000) market share (Chaudhuri, 1996; Moisescu & Bertoncelj, 2010) and source of competitive advantage (Chu, 2002). Therefore, it is important to foster activities that enhance loyalty.

As mentioned earlier, co-creation positive effects on customer's loyalty makes it one of the most accessible competitive advantages, hence contributing to the growth and survival of service firms (Reichheld, 2003). These studies, mostly conducted in B2B settings, tried to understand whether customer participation and involvement in firms' operations could increase loyalty (Yang, Chen, & Chien, 2014) and discovered that there is a positive link between the co-creation value added by the customer and its attitudinal and behavior loyalty. Hence, it is likely to expect that the same phenomenon takes place in B2C settings and that customer involvement in co-creation activities for sustainable products also enhances customer loyalty towards those products (Fig.2).

Hypothesis 2: *Customer involvement in co-creation for sustainable products increases customer loyalty towards sustainable brands.*

2.5.3 Customer intention to engage in sustainable responsible behaviors

Scholars (e.g. Schiffman & Kanuk, 2000) define involvement as a psychological state that demonstrates a person's level of attachment to a situation or object which results in a higher degree of awareness and cautiousness. Involvement in activities is often the easiest way to change mindsets and educate. Participation in such group activities requires transparency of information and corporate values, as well as motivates the pursue of a common vision.

According to the Theory of Planned Behavior (Ajzen, 1991), whenever participating and integrating a community, people often assimilate the morals of the community (e.g. its sustainable values). Assimilating values whenever participating in community activities enables change in the individuals' own mind-set and increases the intention to change ones'

attitudes to match the behaviors of the community. In an intuitive jump, this research expects that customer involvement in co-creation activities is positively related to their intention to change towards sustainable behaviors (Fig.3).

Hypothesis 3: *Customer involvement in co-creation activities for sustainable products increases customers' intention to engage in sustainable responsible behaviors.*

The process of customer involvement in co-creation activities is restrained by moderating factors that can affect its degree of intensity, hence the success and consequent results of the co-creation process.

2.5.4 Green Predisposition

Nowadays, the busy, unbalanced work-life pushes consumers to spend less time with shopping behaviors (Ackerman & Gross, 2003). Considering buying a greener alternative is often not the priority, either because consumers do not value environmentally friendly products over non-environmental ones, or because they perceive environmentally friendly products to be less effective (Luchs et al., 2010) and costly (Mintel, 2009). Fortunately, not all customers are the same and there are individual characteristics that explain a consumer's intent to be more concerned about the environment and considering greener alternatives (Haws, Winterich & Naylor, 2014). The tendency to express concern on sustainability matters will be further on addressed as Green Predisposition of a consumer, a set of individual characteristics that result on a specific awareness and worry for sustainability.

According to Haws, Winterich and Naylor (2014), a high propensity to be concerned about environmental matters strongly and positively relates to the value attributed to the environmental characteristics of a product, increasing the overall preference of such brand. As a higher preference and identification with the product often translates into a higher willingness to pay, it is expected that Green Predisposition moderates the relationship between Co-creation and WTP for sustainable brands and sustainable self-designed products (Fig 2).

Hypothesis 4a: *Green Predisposition moderates the relationship between Co-creation activities and Customer WTP.*

Previous psychology literature (Bardi & Schwartz, 2003; Feather, 1995; Schwartz & Sagiv, 1995), posits consumers often mimic behaviors to match their value system. Moreover, people often behave in ways that express, promote or communicate their values to the remaining society, mostly because value-consistent action is rewarding (Bardi & Schwartz, 2003). As such, it is plausible to conclude that customers remain loyal to a specific sustainable product in the long-run, if they perceive it to be consistent with their value system.

Additionally, according to the Theory of Planned Behavior (Ajzen, 1991), it is also plausible to believe that consumers not only adapt their consumption behaviors but also routines and overall behaviors to match their responsible values and their Green Predisposition. Hence, it is expected that Green predisposition not only influences but also enhances customer loyalty and IERB, as consumers try to remain faithful to a sustainable product or behavior that represents their ethics and value system (Fig, 3 and 4).

Hypothesis 4b: *Green Predisposition moderates the relationship between Co-creation activities and Customer Loyalty for sustainable products.*

Hypothesis 4c: *Green Predisposition moderates the relationship between Co-creation activities and IERB.*

Additionally, the following research aims to understand what the role of demographic variables is on the relationship between co-creation and customer loyalty, WTP and IERB. According to previous studies mentioned above, it is expected that consumers' scores of Loyalty, WTP and IERB vary according to social constructs (Cialdini, 2003), demographics (Davidson & Freudenburg, 1996; Thøgersen & Ölander, 2006) and individual characteristics (Markowitz et al., 2012). In the following analyses, age, field of studies, nationality, gender

and occupation will be included in the models as control variables, to study their effect on influencing the scores of Loyalty, WTP and IERB. As such, these results are expected to answer sub question 1 of this thesis.

2.5.5 Willingness to Participate

As mentioned earlier, previous studies have found that demographic factors, such as age, gender and nationality, can influence of the variability on customers' desire to engage in co-creation activities (Klaus, 2016). Moreover, as previously mentioned, millennials are eager to be involved in more than just the buying process (Mooney & Rollins, 2008; Prahalad & Ramaswamy, 2004; Pew Research Centre, 2010; Shaw & Ivens, 2002; Wind & Rangaswamy, 2001; Von Hippel, 2005). Accordingly, this research posits that customers with a younger age are more willing to participate in co-creation activities than its older peers.

Hypothesis 5a: *The demographic variable age negatively influences customers' willingness to participate in co-creation activities for sustainable products.*

Another demographic factor interesting to address is gender. Previous gender studies have found that women tend to be more engaged than men in regard to participation in several activities linked to sustainability (Brough, 2017). As such, this research expects that women are more willing to participate in co-creation activities than men.

Hypothesis 5b: *The demographic variable gender positively influences customers' willingness to participate in co-creation activities for sustainable products.*

Although sustainability is a current topic, it is more addressed in some countries than in others. Since the UN SDGs were defined, countries all over the world strive to meet these goals by engaging in policies, regulations and activities that promote the 17 requirements. This research expects that individuals whose country is performing better in the SGDs ranking (see

Appendix 8.4) are more aware towards sustainability and, as such, more willing to contribute and engage in co-creation activities.

Hypothesis 5c: *The demographic variable nationality positively influences customers' willingness to participate in co-creation activities for sustainable products.*

Moreover, prior research as discover a link between social constructs and co-creation (Agrawal & Rahman, 2015; Meuter et al., 2005). One of these constructs might be the academic field of study. According to the Participation Model (Fig.1), participation is determined by personal characteristics but also the environment and awareness towards the subject in which individuals are asked to engage in. Because the environmental dimension is vital and a great part of sustainable development, it is an intuitive jump to say that young generations who have an academic background in Natural Sciences tend to be more aware of sustainability matters than Social Sciences students and, thus, are more willing to participate in co-creation activities.

Hypothesis 6a: *The social constructs academic field of study received is a negative influencer of customers' willingness to participate in co-creation activities for sustainable products.*

Participation in co-creation activities can be time and energy consuming (Bosmans, 2006; Pham, 1998; Schreier, Fuchs & Dahl, 2015). As such, factors of occupation (i.e. employed or student) in young generations might be a constraint for their participation in co-creation activities. Students often have more time and willingness to engage in new activities than employed people. Accordingly, this research posits the following hypothesis:

Hypothesis 6b: *The social construct occupation is a positive predictor of customers' willingness to participate in co-creation activities for sustainable products.*

Furthermore, the research studies of Greguras and Diefendorff (2009) and Yen (2015) found a link between individual characteristics and willingness to participate. Moreover, the

Participation Model (Fig. 1) defends that personal beliefs about the topic of participation as well as the individual own personality effect customers' decision to engage in participation activities (McCarthy & Jinnett, 2001). As such, this research tries to extent this premise by postulating that the individuals' green predisposition is one of the individual personality characteristics that positively influence the customers' willingness to participate in co-creation activities for sustainable products (Fig. 5).

Hypothesis 7: *Individual green predisposition is a positive predictor of customers' willingness to participate in co-creation activities for sustainable products*.

Table 1 Description of Hypotheses (own illustration)

Hypotheses		**Direction**
Hypothesis 1	Customer involvement in co-creation activities for sustainable products increases customers' willingness to pay for such products.	+
Hypothesis 2	Customer involvement in co-creation for sustainable products increase customer loyalty towards sustainable brands.	+
Hypothesis 3	Customer involvement in co-creation activities for sustainable products increases customers' intention to engage in sustainable responsible behaviors	+
Hypothesis 4a	Green Predisposition moderates the relationship between Co-creation activities and Customer WTP.	+
Hypothesis 4b	Green Predisposition moderates the relationship between Co-creation activities and Customer Loyalty for sustainable products.	+
Hypothesis 4c	Green Predisposition moderates the relationship between Co-creation activities and IERB.	+
Hypothesis 5a	The demographic variable age negatively influences customers' willingness to participate in co-creation activities for sustainable products.	-
Hypothesis 5b	The demographic variable gender positively influences customers' willingness to participate in co-creation activities for sustainable products.	+
Hypothesis 5c	The demographic variable nationality positively influences customers' willingness to participate in co-creation activities for sustainable products.	+
Hypothesis 6a	The social constructs academic field of study is a negative influencer of customers' willingness to participate in co-creation activities for sustainable products.	-
Hypothesis 6b	The social construct occupation is a positive predictor of customers' willingness to participate in co-creation activities for sustainable products.	+
Hypothesis 7	Individual green predisposition is a positive predictor of customers' willingness to participate in co-creation activities for sustainable products.	+

2.7 Conceptual Framework

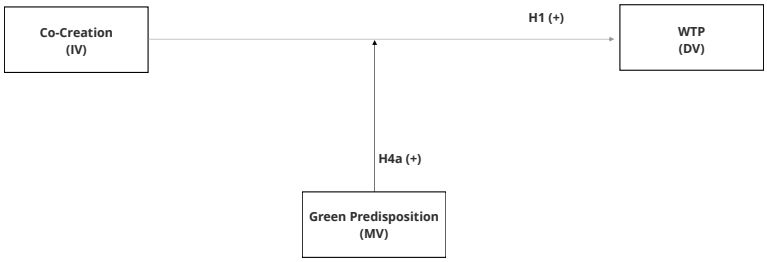

Figure 2: Conceptual Framework - Model 1(own illustration)

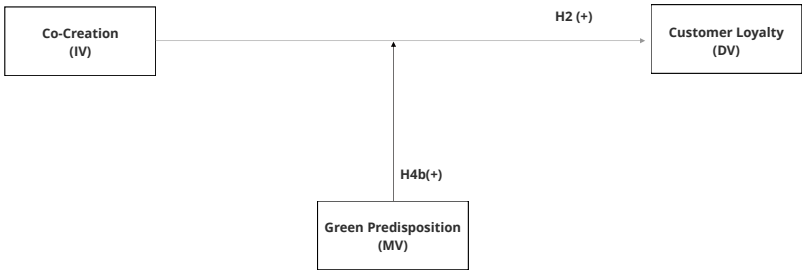

Figure 3: Conceptual Framework - Model 2 (own illustration)

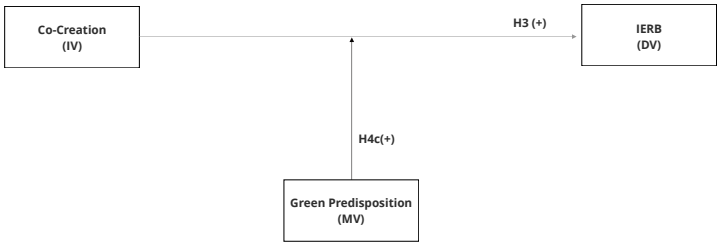

Figure 4: Conceptual Framework - Model 3 (own illustration)

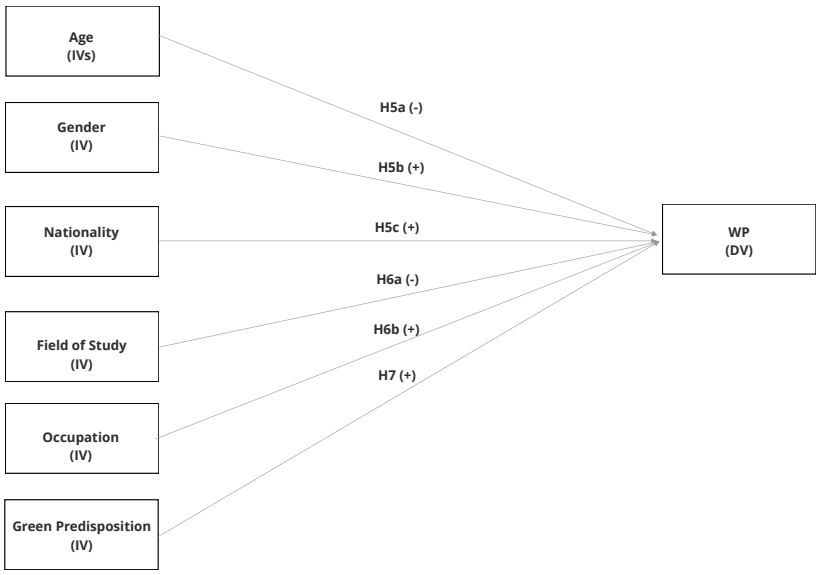

Figure 5: Conceptual Framework - Model 4 (own illustration)

3 METHODOLOGY

The following chapter describes the analytic procedure of this research by first explaining the context of the study, followed by the procedure used to construct the research questionnaires including the several constructs and items used, as well as a simple description of the sample. Finally, the methodology chapter describes preparation of data for analysis (i.e. data cleaning and reliability analysis).

3.1 Context

The underlying research concerns the understanding on whether consumer behavior changes whenever the subject is included in the co-creation of specific products – sustainable *FMCG* market products. The young generations are ever-more aware of the sustainability imperative hence, are the ones from which a high degree of sustainable behaviors is expected. However, only some act on the values and morals transmitted throughout institutions, governments and organizations.

The relevance of this study is justified by the literature gap between co-creation of sustainable consumer goods and its impact on the intention of engaging in responsible behaviors, especially on young generations. Several studies described the effects of co-creation in service markets, as specific brands have chosen to include customer input along the value chain or in the personalization of a finished product. Nevertheless, a huge question mark remains on the effects of co-creation in sustainability and responsible behaviors. Hence, the main goal of this study is to prove a positive relationship between the empowerment of customers through co-creation and WTP, loyalty and IERB, moderated by their green predisposition in their sustainability choices of behavior.

3.2 Procedure

To deliver a broad insight into the research questions, primary research was conducted, based on quantitative data analysis of distributed questionnaires. As mentioned in *Research Propositions*, this research is mostly based on the study of behaviors, which might arise difficult moral and ethical issues, as well as several perception biases. As such, the *Experimental Vignette Method* was a suitable methodological approach, as it allows for experimental control over the manipulated independent variables (i.e. co-creation). *EVM* is proven to be a useful quantitative scientific method to exercise control of independent variables to gather evidence regarding causation by allowing researchers to only include the relevant factors in the research questions which increases the control over the results and facilitates the hypotheses testing (Aguinis & Bradley, 2014). Moreover, this method is particularly useful whenever the research hypotheses entail experimentally manipulate sensitive topics in an ethical manner, which is the case of sustainable and responsible behaviors.

To test the defined hypotheses, EVM method was the most suitable as it focuses testing hypotheses by inducing explicit responses to hypothetical scenarios. The EVM was applied using between-subjects design with four scenarios in two different studies - Study 1 and Study 2, reflecting no co-creation and co-creation scenarios, respectively (see Appendix 8.1 for a detailed description of the vignettes). In both studies, the key idea is to determine whether the co-creation process enhances customers' willingness to engage in the co-creation of a sustainable product (i.e. bamboo toothbrushes) in the form of resource integration either by investing time, providing ideas, or expressing needs and wants to create the ideal product. Additionally, the study aims to determine if the participation in a creation process increases customers' propensity to engage in sustainable practices, loyalty towards the brands which promote sustainability and willingness to pay for sustainable products. Participants were randomly assigned into one of the 4 scenarios in order to ensure validity and reliability of the

data collected, as well as for comparison purposes. All the questionnaires were constructed and distributed through the *Qualtrics* software.

Study 1 – No co-creation

In Study 1, participants were presented with a description of a sustainable product (i.e. a bamboo-based toothbrush) and asked to determine its value when compared to a non-sustainable toothbrush, a manual plastic-based brush. Moreover, the participants were questioned about their perceived loyalty towards this sustainable product, their willingness to pay for it and if this awareness changed their sustainable action intentions. This group of people will act as a control group by providing the baseline answers that will be compared afterwards with the responses from Study 2, where the independent variable of co-creation is manipulated.

Study 2- Co-creation

The main objective of study 2 was to understand if different co-creation levels would influence participants' sustainable behaviors and willingness to pay for sustainability. To test this possibility, the questionnaire addresses three different scenarios where co-creation levels were exploited in three different levels (i.e. low, medium, high).

Scenario 1: Low Co-creation. In the first scenario, participants were presented with a fictitious call for involvement in the design of a new version of a sustainable product: a bamboo toothbrush. Customers engaged in the creation process by deciding on the five most relevant features for a new version of the sustainable brush. Their choice was limited by two pre-defined sets of features with a total of ten options (i.e. five sustainable vs. five individual preferences). They were not involved in the manufacturing, marketing decisions or other remarks along the process.

Scenario 2: Medium Co-creation. Similar to the low-creation scenario, the participants were informed that they would be selected for creating a new version of the sustainable bamboo

brush: Earth First. In the medium co-creation scenario, respondents were asked to co-create by providing several suggestions regarding the design, manufacturing processes and materials used in the production of the new product. These suggestions aim to enhance the sustainability of the product itself as well as the attractiveness of this product to the general costumer. As these are open questions, the necessary involvement is higher than the first scenario.

Scenario 3: High Co-creation. In the last scenario respondents were requested to create a new version of the sustainable bamboo brush. They were first presented with the *medium co-creation phase* where they had the same task as the medium co-creation group. Afterwards, they were presented with a video of a Nike's campaign, which targeted gender equality and equal opportunities that served as inspiration for the development of an appealing proposal of a marketing campaign idea, based on the suggestions mentioned in the *medium phase*. These phases require a long-term vision of the product as well as a broad perspective of its potential customers and, thus, a higher involvement.

3.3 Instruments and measures

The measurement items of each variable are validated instruments used in previous conceptual papers and adapted for the context of this research (Appendix 8.2). For the moderating variable of Green Predisposition, the customers were inquired about their sustainability awareness and propensity to engage in responsible behaviors prior to the whole questionnaire process, using a Green Scale, measured with six items (e.g. It is important to me that the products I use do not harm the environment; Haws, Winterich & Naylor, 2014). Customer loyalty was measured by respondents' intentions towards a sustainable product (i.e. bamboo toothbrush) using six items (e.g. If available, I will buy with this brand the next time I need a toothbrush.), adapted from Bobâlcă, Gătej, & Ciobanu (2012). For willingness to pay customers were inquired about their desire to acquire the product they designed over other

products and assessed through a two-item scale adapted from Breidert, Hahsler & Reutterer (2006) (e.g. Below which price would you say you would not buy the product because you would start to suspect the quality?). For Intention to Engage in Responsible Behaviors, a twenty-six-item scale adapted from Chen, Chen, and Tung (2018), was used to understand if the respondents' intention of future behaviors was influenced by the co-creation tasks (e.g. I plan to buy green products in the future.)

All the other items were scaled using a seven-point, disagree-agree and dissatisfaction-satisfaction, Likert-type scales (1 "strongly disagree/dissatisfied" to 7 "strongly agree/satisfied"). In the end of the questionnaire, all respondents filled an extra set of questions about their demographics describing their age, gender, nationality, studies background and occupation. To eliminate non-response items (Albaum et al., 2011), the mandatory responses were constructed, hampering participants to proceed to next questions without responding to all previous items.

3.4 Sample

To conduct this research, the target group considered relevant consisted on university students and recent graduates. This group includes mostly Millennials and young generations, which are most willing to participate and engage in creation (Guzmán & Kennedy, 2016; Vaux Halliday & Astafyeva, 2014) and most aware of sustainability values (Joseph, Bock, & Lu, 2013; Nielsen, 2015; Vermillion & Peart, 2010). As recent graduates and young adults they are also forming their individual life routine and consumption habits, which allows them to take sustainability aspects in consideration in their daily activities.

As such, the data used in this research was collected through an opportunity sampling method (Burns & Burns, 2013), by the distribution of a 5-10 minutes online survey via e-mail to the students and staff of the university setting of the Maastricht University, Nova University

and HSG/FHS St. Gallen from October 18th to November 5th, 2018. To guarantee a sufficient number of respondents, the questionnaire was also distributed through social media platforms related to the upper-mentioned universities (i.e. Facebook and Instagram).

Through the use of these distribution techniques, 312 were collected of which 167 were valid questionnaires used for this analysis. After importing the surveys into SPSS, the data was checked for missing or wrong entries and a descriptive analysis was conducted (Appendix 8.3). From this analysis, a total of 89 women (53.3%) and 78 men (46.7%) had participated in the survey. From these respondents, the majority were students (62.9%) and recent graduates (35.9%). Most of the respondents include the following nationalities: 55.7% Portuguese, 10.8% Swiss and 33.5% of other nationalities, with predominance of Dutch (4.8%), German (4.8%) and Danish (4.2%). Valid respondents' average age ranged from 18 and 30 years old and the majority of the respondents were between 21-23 years old (47.3%). Additionally, the respondents' field of studies was also collected with a majority of Business and Economics or Finance (71.9%) followed by Engineering (6%).

All participants were randomly allocated to one of four scenarios including 31.7% of no co-creation scenario (i.e. control group), 33.5% low co-creation scenario, 18% medium co-creation scenario and 16.8% high co-creation scenario. Hence, the data collected allows for co-creation investigation.

3.5 Analytical strategy

3.5.1 Data Cleaning

Although non-response items were eliminated by the use of mandatory responses (Albaum et. al, 2011), non-responsive items could still be possible if participants close the questionnaire before completing it. From the collected data of 312 questionnaires, missing values were found in 100 subjects because they did not complete the survey until the end and

45 did not match the target sample, hence they were excluded. Moreover, the items for the Likert scale of satisfaction were automatically recoded by *Qualtrics* from 57 "Strongly dissatisfied" to 63 "Strongly satisfied". To ensure all items were measured coherently, these items were recoded into the same variables from 57 to 1 "Strongly dissatisfied" to 63 to 7 "Strongly satisfied".

To simplify the analysis, a new variable was computed. The variable "*Co-creation"* which returns "0" if the participant was allocated to the control scenario of no co-creation and "1" if the participant was allocated to one of the four co-creation scenarios. For the Model 4 analysis, the variables Nationality and Field of Studies were recoded into dummy variables. For Nationality, the variable returns "1" if the participant's country is on the 20 top SGDs ranking and "0" if otherwise (see Appendix 8.4) . For Field of Studies, the new variable returns "1" if the participant's academic background relates to Natural Sciences, "2" if Social Sciences and "3" to others. Additionally, since the constructs were measured by a multiple set of data items (Appendix 8.1), composite scores were calculated for the constructs of Green Scale, Loyalty, WTP and Intention for Responsible Behaviors in order to facilitate its comparison between the different IV levels. These composites were computed by the mean score of each of its corresponding items, according the unit-weighted method (Bobko et. al, P., 2007).

3.5.2 Reliability tests

To ensure reliability of this research, the Cronbach's alpha coefficient was calculated for all the different scales of the constructs used. According to Burns and Burns (2013), the Cronbach's alpha coefficient is the most often used measure to determine internal consistency by evaluating the commonness of the items that constitute the construct scale. The reliability of the data is assessed as good if the Cronbach's alpha is between 0.7 and 0.8 and very good if between 0.8 and 0.9. The reliability test was conducted separately for each level of the IV (i.e.

EVM=1, 2, 3, 4), except for the moderating variable, once they are not applied to the control group (i.e. EVM=2,3,4). The results summarized in Appendix 8.5.

For the construct Green Scale, the Cronbach's alpha values ranged between 0.85 to 0.887 which is considered as a very good measure. Customer Loyalty scale values for the Cronbach's alpha ranged between 0.928 to 0.954 which is considered as excellent. Customer Willingness to Pay scale Cronbach's alpha ranged from 0.855 to 0.975, hence considered excellent. Finally, the Intention for Responsible Behaviors Cronbach's alpha ranged from 0.875 to 0.937, hence with an excellent strength of association. Since all the Cronbach's alpha calculated were above 0.7, all the scale constructs are adequate and reliable for analysis (Burns & Burns, 2013).

4 RESULTS

This chapter includes an extended descriptive analysis of all the model variables followed by the hypotheses testing of the main and moderating effects. All statistical analysis was conducted using IBM SPSS Statistics version 25 software. For a complete description of the analysis see Appendix 8.7 and 8.8.

4.1 Descriptive Analysis

Firstly, to have a better understanding of the model variables, an analysis of the descriptives was conducted. All the variables of the model were tested for its mean, median, variance and standard deviation (Table 3).

Green Scale Score, Loyalty Score, Intention to Engage in Responsible Behaviors and maximum WTP were tested according to the different groups: the control group and the co-creation group (C=1, EVM=2,3,4) to understand the main differences of the samples of these groups. On a preliminary result, the control group has lower average scores than the co-creation group for the variables of Loyalty (Mean $_{C=0}$ = 5.3805, SD $_{C=0}$ = 1.12536; Mean $_{C=1}$ = 5.4371, SD $_{C=1}$ = 1.26043) and IERB (Mean $_{C=0}$ = 5.5871, SD $_{C=0}$ = .70146; Mean $_{C=1}$ = 5.6768, SD $_{C=1}$ =.59726). Although, for Green Predisposition (Mean $_{C=0}$ = 5.4119, SD $_{C=0}$ = .86701; Mean $_{C=1}$ = 5.2237, SD $_{C=1}$= .86701) and WTP (Mean $_{C=0}$ = 6.4726, SD $_{C=0}$ = 7.08871; Mean $_{C=1}$ = 6.4647, SD $_{C=1}$ = 5.57418), the results of the control group are slightly higher than the ones of the co-creation participants, the amount of variation in WTP is significantly higher for the control group (i.e. SD $_{C=0}$ > SD $_{C=1}$). Regarding the additional variable of Willingness to Participate, it appears that young generations are highly willing to engage in such co-creation activities (Overall$_{Mean}$=5.3832, SD= 1.5239).

Most of the results are a preliminary indication of consistency with the defined hypotheses. Loyalty and IERB average scores are higher for the co-creation group, which is

consistent to the expectation that co-creation participation is positively related to customer loyalty and intention to engage in responsible behaviors (Hypotheses 2 and 3).

Table 2 Descriptive Analysis Results (adapted SPSS output)

Descriptive Analysis			
Variable	**Co-creation level**	**Statistic**	**Value**
Green Scale Score	The respondent was allocated to C=1	Mean	5.2237
		Std. Deviation	.95571
	The respondent was allocated to the control group.	Mean	5.4119
		Std. Deviation	.86701
	All respondents were assessed.	Mean	5.2834
		Std. Deviation	.93003
Loyalty Scale Score	The respondent was allocated to C=1	Mean	5.4371
		Std. Deviation	1.2604
	The respondent was allocated to the control group	Mean	5.3805
		Std. Deviation	1.1253
	All respondents were assessed.	Mean	5.4192
		Std. Deviation	1.2160
Intention to Engage in Responsible Behaviors Scale Score	The respondent was allocated to C=1	Mean	5.6768
		Std. Deviation	.59726
	The respondent was allocated to the control group	Mean	5.5871
		Std. Deviation	.70146
	All respondents were assessed.	Mean	5.6483
		Std. Deviation	.63144
WTP Score	The respondent was allocated to C=1	Mean	6.4647
		Std. Deviation	5.5742
	The respondent was allocated to the control group	Mean	6.4726
		Std. Deviation	7.0887
	All respondents were assessed.	Mean	6.4672
		Std. Deviation	6.0739
Willingness to Participate	The participant was allocated to **EVM= 1**, the no co-creation.	Mean	5.4528
		Std. Deviation	1.5636
	The participant was allocated to **EVM= 2**, the low co-creation level.	Mean	5.3393
		Std. Deviation	1.4178
	The participant was allocated to **EVM= 3**, the medium co-creation level.	Mean	5.5333
		Std. Deviation	1.6554
	The participant was allocated to **EVM= 4**, the high co-creation level.	Mean	5.1786
		Std. Deviation	1.5647
	All respondents were assessed.	Mean	5.3832
		Std. Deviation	1.5239

4.2 Multiple Regression Analysis

To ensure Multiple Regression tests can be used, the assumptions for additivity, normality, linearity and multicollinearity were tested (Burns & Burns, 2013). Additivity refers to the amount of cases included for analysis. According to Burns and Burns (2013) additivity is assumed if the research considers 15 times more cases than the number of IVs. Since the following research reflects five IV's, it is required a minimum of 75 cases, that is fulfilled by the 167 cases used in the analysis. Normality was checked by histograms for each of the dependent variables (loyalty, IERB and WTP) and only WTP challenged this assumption- because normality cannot be assumed for WTP bootstrapping method was used further on. To assess multicollinearity, Pearson correlations were conducted for all the IVs of the model, and all correlations were below the critical level of 0.9 (Burns & Burns, 2013). To test linearity scatter plots were conducted and linearity was assumed.

After analyzing the relevant requirements, three models of Multiple Regression Analysis were conducted, one for each dependent variable. The aim of this analysis is to investigate the main effect of the potential relationship between Co-creation on the dependent variables of loyalty, IERB and WTP, as well as the moderating effect of Green predisposition on the previous relationships.

4.2.1 Model 1: Co-creation and WTP

Table 3 Multiple Regression, Model 1: Co-creation and WTP (adapted SPSS output)

Model Summary: Co-creation and WTP						
R	R-sq	MSE	F	df1	df2	p
.3085	**.0952**	35.0716	**2.0770**	8	158	**.0410**

Model 1	coeff	se	t	p
constant	.4850	3.2953	.1472	.8832
Co-creation	.2620	1.0026	.2613	.7942
GP	.5086	.5263	.9663	.3354
Int_1	**-3.5704**	1.1137	**-3.2060**	**.0016**
Gender	1.2284	.9343	1.3148	.1905
Occupation	.3468	.5658	.6139	.5402
Age	.7620	.6025	1.2647	.2078
Nationality	.0168	.0112	1.4957	.1367
Field of Studies	-.1354	.1953	-.6936	.4890

4.2.1.1 Main Effect

Firstly, this research investigates the relationship between the participation in co-creation activities and the customers' highest valuable attributed to the sustainable product – willingness to pay score. According to the model summary, this model is significant ($F(8,158)= 2.0770$, $p=.0410 <.05$) and explains $R^2=9.52\%$ of the variability of the customer WTP score.

The results shown in Table 3 indicate that there are no significant main effects. Co-creation was found to be not significant when predicting the WTP scores as $t(158)= .2613$ and $p= .7942 >.05$. Hence, hypothesis 1 cannot be supported. Additionally, according to these results Green Predisposition does not impact directly the WTP scores as $t(158)= .9663$ and $p= .3354>.05$.

Moreover, none of the covariates was found to be significant influencers of customers WTP as Gender – $t(158)=1.3148$, $p=.1905> .05$; Occupation- $t(158)=.6139$, $p=.5402 >.05$; Age – $t(1158)=1.2647$, $p=.2078> .05$; Nationality – $t(158)=1.4957$, $p=.1367>.05$ and Field of Studies – $t(158)=-.6936$, $p=.4890>.05$. These results indicate that, for this sample, differences of Gender, Occupation, Age, Nationality and Field of Studies are not significantly to explain the different scores of WTP.

4.2.1.2 Moderating Effect

As shown by Table (3), only the indirect effect of the interaction between Green Predisposition and Co-creation participation added significant change to the model, as t(158) = -3.2060, p = .0016< .05 and *b*= -3.55704, R^2change= 5.89%. Therefore, it is expected that higher values of an e interaction between GP and Co-creation lead to a lower WTP and, hence, affects the strength of the relationship between Co-creation and WTP, supporting hypothesis 4a. This interaction effect is represented in Fig. 6.

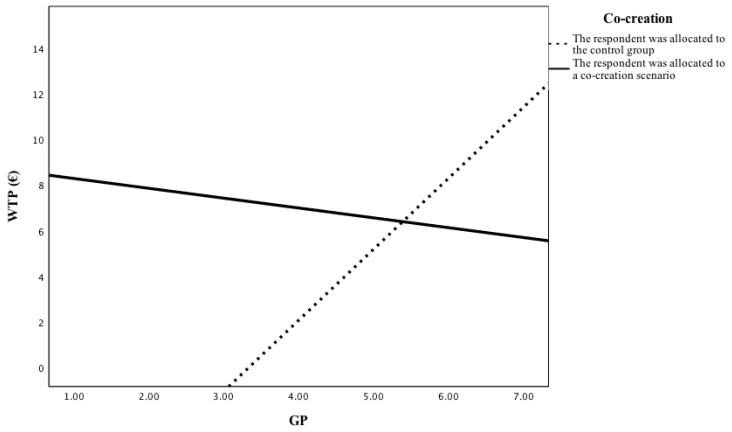

Figure 6: Interaction effect of Model 1 (adapted SPSS output)

To fully understand the interaction relationship between Co-creation and Green Predisposition, the simple slopes were calculated and analyzed (Table 4). For values of GP 1SD (.93) below the mean score (i.e. GP_{score}< 4.3534), the interaction effect is significant with t (158) = 2.3924, *p*=.0179<.05 and *b*= 3.5826. Meaning that for lower GP scores, Co-creation is a positive predictor of WTP (Equation 2). Therefore, it is possible to say that, for the people who have engaged in the co-creation scenario, WTP is higher than the WTP of people who did not participate on co-creation activities.

Table 4 Simple Slopes Analysis: Conditional effects of Co-creation (adapted SPSS output)

Conditional effects of the focal predictor at values of the moderator(s):				
GP	Effect	se	t	p
-.9300	**3.5826**	1.4975	2.3924	**.0179**
.0000	.2620	1.0026	.2613	.7942
.9300	**-3.0586**	1.3833	-2.2111	**.0285**

$$\boldsymbol{For\ lower\ values\ of\ GP: WTP(Y) = 3.5826 * Co - creation * GP + \varepsilon} \quad \textbf{(1)}$$

For values of GP 1SD (.93) above the mean score (i.e. GP_{score}> 6. 2134) the interaction effect is significant with t (158) = -2.2111, *p*=.0285<.05 and *b*= -3.0586. As such, for higher GP scores, Co-creation is a negative predictor of WTP, contrary to the lower scores of GP (Equation 3). This implicates that for the participants who have scored higher on GP and engaged in the co-creation scenario are willing to pay less when compared to the ones that have participated on co-creation activities. For participants on the average score of GP, the effect of the interaction is non-significant as t(158)= .2613 and *p*=.7942>.05, which indicates that for participants with GP_{score}=5.2834 there is no significant interaction effect.

$$\boldsymbol{For\ higher\ values\ of\ GP: WTP(Y) = -3.0586 * Co - creation * GP + \varepsilon} \quad \textbf{(2)}$$

4.2.2 Model 2: Co-creation and Loyalty

Table 5 Linear Regression, Model 2: Co-creation and Loyalty (adapted SPSS output)

Model Summary: Co-creation and Loyalty						
R	R-sq	MSE	F	df1	df2	p
.5113	**.2614**	1.1476	**6.9904**	8	158	**.0000**

Model 2	Coeff	se	t	p
constant	**5.3348**	.5961	8.9496	**.0000**
Co-creation	.1894	.1814	1.0443	.2979
GP	**.6137**	.0952	6.4464	**.0000**
Int_1	.2401	.2015	1.1920	.2350
Gender	.2105	.1690	1.2454	.2148
Occupation	.1206	.1022	1.1804	.2396
Age	-.0481	.1090	-.4410	.6598
Nationality	-.0018	.0020	-.9028	.3680
Field of Studies	.0444	.0353	1.2567	.2107

4.2.2.1 Main Effects

The first model addresses the relationship between the participation in co-creation activities and the customers' loyalty score. The model is significant as F(8,158)= 6.9904, p=.0000 <.05 and R^2= 26.14%, which indicates that 26.14% of the variability of Loyalty is explained by the model. According to the results, only Green Predisposition is a significant predictor of customer loyalty as t (158) = 6.4464 p = .0000 **<** .05 and b**=** .6137. This indicates that, for this sample data, loyalty scores are only predicted by the customers predisposition to be green. As customers have a higher tendency to be concerned with environmental issues and sustainability, their loyalty towards sustainable products that transmit these values increases as follows:

$$\boldsymbol{Loyalty(Y) = 5.0771 + .6238 * GP + \varepsilon} \quad \textbf{(3)}$$

Co-creation was found to be non-significant, hence not a predictor of loyalty, since t(158)= 1.0443, p=.2979> .05. Per se, customer involvement on co-creation activities does not explain the variability on their loyalty scores. As such, hypothesis 2 is not supported by this model. Interestingly, only the direct effect of Green Predisposition, and not its moderating effect, was significant for this dependent variable. This implies that only the main effect of the hypothesis 4b is supported. Moreover, the covariates of age, gender, occupation, nationality and field of studies were not relevant predictors or influencers of loyalty since its p_{values}>.05.

4.2.2.2 Moderating Effect

Based on Table 5, the interaction effect between Co-creation and customer Loyalty is barely not statistically significant as t (158)= 1.1920 and p=.2350 >.05. As mentioned before, GP holds a statistically significant direct effect on customer loyalty. Nevertheless, there is no statistically significant moderation effect in the relationship between Co-creation and loyalty and hypothesis 4b is not supported entirely by this model.

4.2.2.3 Model 3: Co-creation and IERB

Table 6 Linear Regression, Model 3: Co-creation and IERB (adapted SPSS output)

Model Summary: Co-creation and IERB						
R	R-sq	MSE	F	df1	df2	p
.6722	**.4519**	.2296	**16.2843**	8	158	**.0000**

Model 3	coeff	se	t	p
Constant	5.2293	.2666	19.6127	**.0000**
Co-creation	**.1794**	.0811	**2.2119**	**.0192**
GP	**.4234**	.0426	**9.9425**	**.0000**
Int_1	-.1556	.0901	-1.7267	.0862
Gender	**.1532**	.0756	**2.0272**	**.0443**
Occupation	.0379	.0457	.8297	.4079
Age	.0548	.0487	1.1248	.2624
Nationality	.0003	.0009	.3253	.7454
Field of Studies	.0091	.0158	.5781	.5640

4.2.2.4 Main Effects

Lastly, the third multiple regression addresses the relationship between the participation in co-creation activities and the customers' intention to change towards responsible sustainable behaviors (IERB). The model is significant (F(8,158)= 16.2843, p=.0000 <.05) and explains R^2=45.19% of the variability on IERB scores. The model reflects the significance of the variables of Co-creation, Green Predisposition and Gender as predictors of the customers' intention to engage in sustainable responsible behaviors as such:

$$\boldsymbol{IERB(Y) = 5.2293 + .1794 * Co - creation + .4234 * GP + .1532 * Gender + \varepsilon} \quad \textbf{(4)}$$

Co-creation was found to be a significant predictor of IERB as t(158) = 2.2119, p = .0192**<** .05 and b**=** .1794. For these results, it is concluded that the customers who engage in co-creation activities, score higher on IERB scores and, as such, hypothesis 3 is supported. Green Predisposition direct effect on IERB scores was also found significant, as t (158) = 9.9425, p = .0000 **<** .05 and b**=** .4234, which indicates that customers with a higher tendency to be concerned with environmental issues score higher IERB scores compared to the customer with lower GP. The covariate Gender was also found to be statistically significant to predict

IERB scores, as t (158) =2.0272, p = .0443 **<** .05 and b**=** .1532. According to these results, women (Gender=1) score statistically significant higher scores than men (Gender=0) in IERB.

However, the covariates of occupation, age, nationality and field of studies were not statically significant predictors of the IERB scores as $t_{occupation}(158)$ =.8297, p = .4079**>** .05; $t_{age}(158)$ =1.1248, p = .2624**>** .05; $t_{nationality}(158)$ =.3253, p = .7454**>** .05 and $t_{fieldofstudies}(158)$ =.5781, p = .5640**>** .05, respectively.

4.2.2.5 Moderating Effect

Based on the results of Table 6, the interaction effect between Co-creation and Green Predisposition is barely not statistically significant as t (158)= -1.7267and *p*=.0862>.05. Although, as mentioned above there is a direct effect of GP in IERB, there is no statistically significant moderation effect in the relationship between Co-creation and IERB and hypothesis 4c is not supported entirely by this model.

4.3 Linear Regression Analysis: Model 4

To answer the third and last sub question and understand the role of personal characteristics in customers' willingness to participate in co-creation activities, a linear regression model was conducted (See Appendix 8.8).

The model for linear regression was found significant as F(6,160)= 2.439 and *p*=.028<.05 although it only explains 4.9% of the variance of customers' willingness to participate (adjsR^2=4.9%). According to the results, Age, Field of Studies, Gender, Nationality and Occupation are not significant predictors of willingness to participate as $t_{age}(160)$=-.151, p=.880>.05; $t_{fieldofstudies}(160)$= 1.549, p=.123>.05; $t_{gender}(160)$=1.00, p=.319>.05 ; $t_{nationality}(160)$=-1.468, p=.144>.05; $t_{occupation}(160)$= .467, p=.641>.05, respectively (Table 7). As such, both hypotheses 5a, 5b, 5c, 6a and 6b are not supported by this analysis. The only predictor of willingness to participate in co-creation activities is customers Green Predisposition as t(160)=

3.205, p=.002<.05 and b=.418. As such, it is expected that for this sample, participants with higher Green Predisposition will be more willing to participate in co-creation activities than participants with low Green Predisposition scores, thus supporting hypothesis 7.

$$\boldsymbol{Willingness\ to\ participate = 2.408 + .418 * GP + \varepsilon} \qquad \textbf{(6)}$$

Table 7 Linear Regression Model 4 (adapted SPSS output)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.408	1.165		2.066	.040
	Field of Studies R	.390	.252	.128	1.549	.123
	Gender	.234	.234	.077	1.000	.319
	GP	**.418**	.130	.255	**3.205**	**.002**
	Nationality R	-.375	.256	-.116	-1.468	.144
	Occupation	.067	.143	.042	4	.641
	Age	-.023	.154	-.014	-.151	.880
a. Dependent Variable: WP						

5 DISCUSSION

The aim of this master's thesis was to answer one important question "*Does participation in co-creation activities as co-producers/co-designers promote loyalty, WTP and IERB?"* followed by three distinct sub questions*: 1) How resultant variables from co-creation (i.e. customers' willingness to pay, loyalty and engagement in sustainable behaviors) vary with demographics such as age, gender and occupation? 2) Does pre-disposition for green citizenship moderate the relationship between the participation in co-creation activities and customers' willingness to pay, loyalty and intention to engage in responsible behaviors? And 3) Are customers willing to participate in co-creation? If so, do the demographic variables, social constructs and individual traits influence willingness to participate?*

To better grasp the concepts and constructs involved in these questions an overview of the relevant academic literature was conducted in chapter two. First, the sense of sustainability imperative is outlined followed by an overview of the meaning of green citizenship and what responsible behaviors entail. Afterwards, the state-of-art research on open innovation methods advantages for businesses and co-creation methods was outlined, as well as the relevant practices performed in the markets. In the end of the second chapter, the research propositions are outlined and described in Table 1.

Furthermore, the conceptual framework was developed in this chapter, including the four models to be addressed during the following analysis, with the aim to facilitate reading and comprehension. The hypotheses were tested with questionnaire data of 167 participants that were allocated to different scenarios of co-creation and to a control group of no co-creation. The hypotheses were assessed by multiple regression analyses utilizing the Process macro for SPSS and a summary of results is provided in Table 8.

Table 8 Summary of the results (own illustration)

Hypotheses		**Result**
Hypothesis 1	Customer involvement in co-creation activities for sustainable products increases customers' willingness to pay for such products.	Not Supported
Hypothesis 2	Customer involvement in co-creation for sustainable products increase customer loyalty towards sustainable brands.	Not Supported
Hypothesis 3	Customer involvement in co-creation activities for sustainable products increases customers' intention to engage in sustainable responsible behaviors	Supported
Hypothesis 4a	Green Predisposition moderates the relationship between Co-creation activities and Customer WTP.	Supported
Hypothesis 4b	Green Predisposition moderates the relationship between Co-creation activities and Customer Loyalty for sustainable products.	Only Main Effect Supported
Hypothesis 4c	Green Predisposition moderates the relationship between Co-creation activities and IERB.	Only Main Effect Supported
Hypothesis 5a	The demographic variable age negatively influences customers' willingness to participate in co-creation activities for sustainable products.	Not Supported
Hypothesis 5b	The demographic variable gender positively influences customers' willingness to participate in co-creation activities for sustainable products.	Not Supported
Hypothesis 5c	The demographic variable nationality positively influences customers' willingness to participate in co-creation activities for sustainable products.	Not Supported
Hypothesis 6a	The social constructs academic field of study is a negative influencer of customers' willingness to participate in co-creation activities for sustainable products.	Not Supported
Hypothesis 6b	The social construct occupation is a positive predictor of customers' willingness to participate in co-creation activities for sustainable products.	Not Supported
Hypothesis 7	Individual green predisposition is a positive predictor of customers' willingness to participate in co-creation activities for sustainable products.	Supported

The first hypothesis of this research posited that customer involvement co-creation activities for sustainable products increases customers' willingness to pay for such products. This models also fails to explain the direct and positive effect of customer participation in co-creation activities for sustainable products and customers' willingness to pay for such products. According to the multiple regression analysis of this sample of participants, there is no significant direct relationship between co-creation participation and customers' willingness to pay, which refutes previous studies, namely Chathoth et al. (2013), Chathoth et al. (2014), FitzPatrick et al. (2013) and Tu et. al (2018). An explanation for this non-significant result can be found in previous literature on the influence of prior knowledge on the specific product co-created before the co-production/co-design and decision on defining its value (Ajzen et al., 1996; Hanley & Munro, 1992). According to these authors, the shortage and inadequacy of information prior the decision-making process, as well as a misunderstanding on the utility of the product, influences the value the consumer intents to attribute to a product. When customers have prior knowledge on the brand and product they are considering buying, the value they are willing to pay for this product is often more faithful to the actual perceived value attributed to

that product. As such, the participants' WTP value in this research might be influenced by their prior knowledge on sustainability related matters and on the specific product they were asked to consider (i.e. sustainable bamboo toothbrush).

Furthermore, the multiple regression analysis conducted for the second hypothesis fails to explain the relationship between customer involvement in co-creation for sustainable products and customer loyalty towards sustainable brands. According to the results, the direct effect of co-creation participation on customer loyalty was found not significant, contradicting Yang, Chen and Chien (2014). A possible explanation might be the time and energy deployed in the process and possible mental exertion resultant from the engagement in complex co-creation activities and constant consumers' creativity (Dellaert & Stremersch, 2005; von Hippel, 2001; Franke & Schreier, 2010). Choice Task Complexity Theory (Bettman et al., 1990; Johnson & Payne, 1985) posits that a higher number of cognitive steps necessary for consumer decision and a complex co-creation activity is often associated with a high process effort which, in turn, might lead to lower value attributed to the brand, likelihood of engaging on another similar experience of co-creation and lower likelihood of buying a similar product (Bosmans, 2006; Pham, 1998; Schreier, Fuchs & Dahl, 2015).

In further studies, a measure of complexity of the task should be included in the model to better determine if there is a relationship between these two variables. Additionally, this non-significance might be explained by the contributions of Stokburger-Sauer, Scholl-Grissemann, Teichmann and Wetzels (2016), which concluded that there is a curvilinear relationship between co-creation and loyalty, instead of the linear relationship posited by this research. In future research, it might also be interesting to study the role of co-creation in customer loyalty according to different models other than the linear. Another explanation is that the small effect size associated with the relationship between the two constructs of co-creation and loyalty, indicates a low statistical power of the test, hence a higher type II error (β), the probability that

the test fails to correctly detect the presence of the treatment effect of co-creation (Burns & Burns, 2013). If further research repeats a similar study the number of participants should be higher than 167 used for this study, therefore increasing the statistical power of the test.

As first proposed by this thesis and proven by the results explained in chapter four, there is a clear significant and positive relationship between customer participation in co-creation activities for sustainable products and customers' intention to engage in sustainable responsible behaviors. This result is consistent with the indications of previous findings on the studies of Schiffman and Kanuk (2000), as well as the with the Theory of Planned Behavior (Ajzen, 1991), which suggested that the involvement in activities is an effective approach to change mindsets and intention to change behaviors.

Moreover, coherent with the indications on the study from Haws, Winterich and Naylor (2014), the hypothesis 4a, relative to the moderating role of green values and concern for sustainable and environmental topics, Green Predisposition, in the relationship between Co-creation activities and Customer WTP, was found significant. According to the results, customers with lower green predisposition, after engaging in co-creation activities, are willing to pay a higher price for sustainability than the ones that did not co-create, which might reflect the learning effect from co-creation (Schiffman & Kanuk, 2000) and an assimilation of values of sustainability that might explain the higher WTP (Bardi & Schwartz, 2003; Feather, 1995; Schwartz & Sagiv, 1995). However, for customers with higher green predisposition the effect was the opposite. Higher green predisposition created a negative influence on WTP if customers participated in co-creation activities. A possible explanation, for the negative effect of green values on the relationship between co-creation and WTP might be that consumers with higher green values expect a higher certified product quality and believe that such quality can only be delivered through experts and not by self-designed product, hence attributing an inferior value to the product designed. Another related explanation might be that the final

product does not match the expectations of participants with higher green values, i.e. have a low preference fit, hence their lower WTP (Franke & Schreier, 2010).

Nevertheless, these multiple regression analyses have proven that Green Predisposition has a direct significant effect on both Customer Loyalty for sustainable products and IERB, which is consistent with the previous studies (Bardi & Schwartz, 2003). Yet, the interaction effect of green predisposition in the relationships between co-creation and customer loyalty or IERB (hypotheses 4b and 4c) are not explained by the model results, which is not consistent with previous studies on value assimilation (Bardi & Schwartz, 2003; Feather, 1995; Schwartz & Sagiv, 1995). The non-significant moderation effect of Green Predisposition in the relationship between co-creation and loyalty and IERB opens the door for future research on these relationships.

Moreover, the results of this study show that customers are on average keen to engage on similar co-creation activities ($Mean_{Willingness\ to\ Participate} = 5.3832$, $SD_{Willingness\ to\ Participate} = .11792$) and descriptive results indicate that willingness to engage decreases over the complexity of the process. Contrary to the indication of previous literature, demographic variables and social constructs do not explain customers' willingness to participate, which demands future investigation (hypotheses 5a, 5b, 5c, 6a and 6b). An explanation for this result might be related to the additional variables that condition willingness to participate and that were not accounted for this research, such as additional social factors (Roberts et al., 2014) or self-esteem, self-efficacy, and self-expression (Bandura, 1995; Kollock, 1999). Nevertheless, the linear regression performed reveals that customers' Green Predisposition is a relevant predictor of willingness to participate, consistent with the studies of Greguras and Diefendorff (2009), Kristof (1996), Fernandes, T., and Remelhe (2016), emphasizing the importance of individual characteristics and individual values on behavior.

6 CONCLUSION

6.1 Theoretical contributions

The principal aim of this paper is to understand how participation in co-creation activities influenced WTP, loyalty and IERB scores. Additionally, this study investigates how customers' Green Predisposition moderates the relationships between co-creation and the several DVs. Moreover, demographics such as age, gender and occupation were also taken into account as covariates. Furthermore, participants' willingness to participate was measured and explained by customers' individual characteristics.

Moreover, this thesis contributes to co-creation advantages as well as green citizenship literature. The findings upper-mentioned in *Results* and *Discussion* are most relevant to existing theory once they extend previous literature on co-creation and link two previously un-related topics (i.e. sustainable co-creation and intention to change towards responsible behaviors). The results reveal that co-creation might be an effective tool to increase customer willingness to pay and intention to change towards greener behaviors. Moreover, this paper investigated the relevance of the participants' co-creation inputs according to age, gender and occupation, adding up to the knowledge already existing to the effect of these demographics on the resultant outputs of such activities, namely WTP and IERB.

As such, this paper addressed a literature gap by proving that organizations can play a decisive role on shaping citizens' intention to change towards green behaviors, as well as to stimulate sustainable shopping habits. According to the results, the research also contributes to literature, by proving that women are more likely to, after co-creation, be interested in engaging and changing toward responsible behaviors than men would be. Future research to explore which individual characteristics allow for this gender phenomenon could also be interesting. Additionally, this research unveils that, for this sample, only the customers' green

predisposition contributes for their willingness to participate in similar co-creation activities and that none of demographic variables contributes the customers' willingness to participate.

6.2 Managerial contributions

Consumers are key to drive sustainable production and play a central role in sustainable development. More than confirming this idea, the results of this thesis offer practical implications for managers and organizations, especially in the FMCG markets and governmental institutions.

The first implication concerns the way companies and organizations deliver their products or ideas. In the current era of communication excess, enabled by the increasing ICTs, customers are overloaded with information and most of it does not capture their focus. It is evermore hard to compete for customers' attention and the usual channels are no longer appropriate. More than communicating their products or ideas, companies must involve customers in their innovation processes, not only to increase their customer base but to educate customers towards the company's values. To this end, companies should use co-creation activities and participation in their innovation process and governmental organizations can use co-creation activities to educate their citizens into sustainable development priorities. Make them part of company's culture and the community.

Secondly, the results of this thesis offer clarity over the set of the co-creation activities and procedures. According to the sample of this study, green predisposition often influences the relationship between co-creation participation and WTP, loyalty and IERB and it is an important influencer of the customers' loyalty and IERB. As such, when designing co-creation procedures for sustainable products, companies should assess customers' fit to the values of the company and their concern for sustainability in general. This can be achieved by arranging personality tests during the recruitment process.

Moreover, according to the sample of this study, the influence of co-creation in the change of the intention to engage in responsible behaviors is higher in women than men. Therefore, governmental institutions can change women's intention to engage in responsible behaviors through involvement of such women in co-creation activities. Furthermore, as women are an important figure on household decisions, especially on consumption habits, they are an important initial target of sustainability related campaigns.

6.3 Limitations and Future Research

This research paper, although providing clear contributions to literature and management over co-creation and sustainable behaviors topics, has several limitations that might motivate further research, additional to the ones already mentioned in the *Discussion* of results.

Firstly, the research was based on a questionnaire and therefore, not an experimental design. To investigate subjective topics and namely behaviors, the use of questionnaires might not be as suitable as full experimental designs as it is subject to perception biases. Since the participants of the questionnaire engage only on a creation *scenario*, it might have been hard to determine the actual value they are willing to pay for sustainability or feel engaged and assimilate the values transmitted through the process. As such, another limitation is that this research can only establish a relationship between co-creation and intention to engage in sustainable responsible behaviors rather than a measurement of actual changed behaviors.

Furthermore, the time and budget constraints made it difficult to gather a more representative sample, in regard to nationalities or fields of study, which has made it difficult to investigate the role of these factors on the co-creation and green predisposition relationship with the dependent variables. Attitudinal-Behavioral Theory posits there is a gap between intention and actual behavioral. Since this study only postulates on how participation in co-creation effects intention to change behaviors, in future research might be interesting to apply these co-creation results on a longitudinal experiment. Conducting an experimental series of

co-creation engagement followed by repeated measurement of responsible behaviors, would strengthen these research results.

Finally, due to the limitation of the sample size and its characteristics, it would be interesting to address in future research if these findings can be extended to other cultures, nationalities and fields of studies.

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8 APPENDIX

8.1 Questionnaires

Start of Common Block: Introduction

Q1.1 Thank you for taking the time to answer this survey. Its purpose is to collect data for the development of a Master Thesis on Co-creation and Consumer Behaviors for NovaSBE & UM SBE.

8.1.1 Scenario1: No co-creation

Q2.1 Please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important to me that the products I use do not harm the environment.	○	○	○	○	○	○	○
I consider the potential environmental impact of my actions when making many of my decisions.	○	○	○	○	○	○	○
My purchase habits are affected by my concern for the environment.	○	○	○	○	○	○	○
I am concerned about wasting the resources of our planet.	○	○	○	○	○	○	○
I would describe myself as environmentally responsible.	○	○	○	○	○	○	○
I am willing to be inconvenienced in order to take actions that are more environmentally friendly.	○	○	○	○	○	○	○

Q2. Your favorite retailer is distributing a new sustainable bamboo toothbrush model - "Panda Brush". Over 4.7 billion plastic toothbrushes that will never biodegrade are dumped in landfills and oceans every year worldwide. As little changes can make a big difference for human's health and for the planet, this brand aims to replace plastic toothbrushes with the ecological bamboo alternative. Purchasing an alternative to toxic non-sustainable materials is paramount. The plastic pollution crisis is a severe concern that should not be overlooked. By buying this brush, you are supporting the development of ever-better ecological options

to help reduce plastic waste hence supporting a better world". The label of this bamboo-based toothbrush comes with the following features:

- Plant-based bamboo toothbrushes
- Organic bamboo handle

Q2.3 Considering what you have just read, how likely are you to buy this toothbrush instead of a manual non-sustainable based toothbrush? Please assume you can afford both.

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely

Q2.4 Considering the sustainable toothbrush mentioned above and the values it represents, please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
If available, I will buy this sustainable toothbrush the next time I need a toothbrush.	○	○	○	○	○	○	○
I intend to keep buying this toothbrush.	○	○	○	○	○	○	○
I am committed to this toothbrush.	○	○	○	○	○	○	○
I recommend this toothbrush those who ask my advice	○	○	○	○	○	○	○
I would say positive things about this toothbrush to other people	○	○	○	○	○	○	○
I would consider this company my first choice when I want to buy toothbrushes.	○	○	○	○	○	○	○

*

Q2.5 Please assume that the average price of manual plastic toothbrush is €2.95. Above which price would you definitely not buy this sustainable bamboo based toothbrush, because you can't afford it or because you didn't think it was worth the money?

_____

Q2.6 Please assume that the average price of manual plastic toothbrush is €2.95. Below which price would you say you would not buy this sustainable bamboo based toothbrush, because you would start to suspect the quality?

_____

Q2.7 Panda Brush Co. is looking for participants to create a new model of this sustainable toothbrush. If you integrate "Panda Brush" team, you will be able to change and design new features for a new version of the brush. How likely are you to participate on a similar product co-creation activity? Please assume you would receive monetary compensation for such work.

- Extremely unlikely;
- Moderately unlikely;
- Slightly unlikely;
- Neither likely nor unlikely;
- Slightly likely;
- Moderately likely;

Extremely likely

Q2.8 Please state one reason why wouldn't that be of interest to you.

Q2.9 Please indicate how much you agree with the accuracy of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
The amount society consumes is major cause of environmental problems	○	○	○	○	○	○	○
Humans are severely abusing the environment	○	○	○	○	○	○	○
Most of us consume far more than we need	○	○	○	○	○	○	○
My actions are driven by concern for the environment	○	○	○	○	○	○	○
I feel strongly about keeping the place I live ecologically healthy	○	○	○	○	○	○	○
I am curious to learn new ways to conserve resources	○	○	○	○	○	○	○
I feel a strong attachment to nature	○	○	○	○	○	○	○
The more connected people are to nature, the better off society will be	○	○	○	○	○	○	○
I will make major lifestyle changes to support future generations	○	○	○	○	○	○	○
My actions reflect my hopes for the future	○	○	○	○	○	○	○
I want to restore the environment for future generations	○	○	○	○	○	○	○
I feel a growing obligation to improve the environment's health	○	○	○	○	○	○	○
I feel a moral responsibility to lower my ecological footprint	○	○	○	○	○	○	○
I take into account how my decisions may affect environment	○	○	○	○	○	○	○
I need to examine my priorities more often	○	○	○	○	○	○	○

It is clear that we soon will need to make major lifestyle changes	○	○	○	○	○	○	○
I should spend more time helping my neighbors	○	○	○	○	○	○	○

Q2.10 Please indicate how much satisfaction you get from the following items.

	Strongly dissatisfied	Dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Satisfied	Strongly satisfied
Finding ways to use things over and over	○	○	○	○	○	○	○
Repairing rather than throwing things away	○	○	○	○	○	○	○
Keeping something running long past its normal life	○	○	○	○	○	○	○
Finding ways to avoid waste	○	○	○	○	○	○	○
Seeing to it that my neighbors are well-fed/well-off	○	○	○	○	○	○	○
Sharing the household skills I have with others	○	○	○	○	○	○	○
Helping to make sense out of the world	○	○	○	○	○	○	○
Working to improve the well-being of others	○	○	○	○	○	○	○
Sharing the tools I own with neighbors	○	○	○	○	○	○	○

End of Block: Study1: No co-creation

8.1.2 Scenario 2: Low Co-creation

Q3.1 Please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important to me that the products I use do not harm the environment.	○	○	○	○	○	○	○
I consider the potential environmental impact of my actions when making many of my decisions.	○	○	○	○	○	○	○
My purchase habits are affected by my concern for the environment.	○	○	○	○	○	○	○
I am concerned about wasting the resources of our planet.	○	○	○	○	○	○	○
I would describe myself as environmentally responsible.	○	○	○	○	○	○	○
I am willing to be inconvenienced in order to take actions that are more environmentally friendly.	○	○	○	○	○	○	○

Q3.2 Your favorite retailer is creating a team of consumers and specialists to design and deliver to the market a new sustainable bamboo toothbrush model: "Earth First". The process consists on assessing how different consumers would design this new model. As such, you will design a new version of toothbrush according to your own insights of what the relevant features of the a new toothbrush should be and the value it should deliver to consumers. The final proposal will later be assessed and presented to a group of specialists. To facilitate the process as much as possible, your suggestions will be made by choosing features to add to the new toothbrush.

Q3.3 Please assume the price 1.95€ as only including the basic features (i.e. plant base toothbrush - bamboo and organic toothbrush handler). Considering each of the following items will add 0.45€/feature to the final price of the toothbrush, which one would you include on a new version of the product? Please choose 5 features you would like to include in the new design.

- Personalized color of the handler
- Personalized color brushes
- Plant-based bristles (i.e. stiff hair)
- Biodegradable label
- Weight of the toothbrush
- Crafting of the handler
- Long lasting more than 3months
- Eco-label (i.e. ecological impact measure)
- Based on fair-trade (i.e. fair compensation of workers)
- Support of a social cause (e.g. support of migrants; fight world hunger)

Q3.4 Please assume that the average price of manual plastic toothbrush is €2.95. Above which price would you definitely not buy this sustainable bamboo based toothbrush, because you can't afford it or because you didn't think it was worth the money?

_____

Q3.5 Please assume that the average price of manual plastic toothbrush is €2.95. Below which price would you say you would not buy this sustainable bamboo based toothbrush, because you would start to suspect the quality?

_____

Q3.6 Considering the product you have just created and the values it represents, please indicate how much you agree or disagree with each of the following statements. Please assume you can afford the created brush.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
If available, I will buy this sustainable toothbrush the next time I need a toothbrush.	○	○	○	○	○	○	○
I intend to keep buying this toothbrush.	○	○	○	○	○	○	○
I am committed to this toothbrush.	○	○	○	○	○	○	○
I recommend this toothbrush those who ask my advice	○	○	○	○	○	○	○
I would say positive things about this toothbrush to other people	○	○	○	○	○	○	○
I would consider this company my first choice when I want to buy toothbrushes.	○	○	○	○	○	○	○

Q3.7 Assume that you need a new toothbrush. How likely are you to buy this sustainable bamboo toothbrush instead of a regular manual sustainable brush you haven't design?

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- Extremely likely

Q3.8 Thinking about the product you have just designed, please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I enjoyed choosing new features to the new design very much.	○	○	○	○	○	○	○
Designing was fun.	○	○	○	○	○	○	○
Designing this product was very interesting.	○	○	○	○	○	○	○
This design activity was fun.	○	○	○	○	○	○	○
I thought designing the product was quite enjoyable.	○	○	○	○	○	○	○
Designing this product required much effort	○	○	○	○	○	○	○
Designing this product was exhausting.	○	○	○	○	○	○	○
I perceived designing this product as ‘‘costly’’ (in terms of time and effort)	○	○	○	○	○	○	○
I like the design of my self-designed product	○	○	○	○	○	○	○
I am satisfied with my self-designed product	○	○	○	○	○	○	○

Q3.9 How comfortable are you to participate on a product co-creation design when asked by a real company? Please assume you would receive a monetary compensation for such work.

- Extremely uncomfortable
- Moderately uncomfortable
- Slightly uncomfortable
- Neither comfortable nor uncomfortable
- Slightly comfortable
- Moderately comfortable
- Extremely comfortable

Q3.10 Please state one reason why wouldn't that be of interest to you.

_____

Q3.11 Please indicate how much you agree with the accuracy of the following statements

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
The amount society consumes is major cause of environmental problems	○	○	○	○	○	○	○
Humans are severely abusing the environment	○	○	○	○	○	○	○
Most of us consume far more than we need	○	○	○	○	○	○	○
My actions are driven by concern for the environment	○	○	○	○	○	○	○
I feel strongly about keeping the place I live ecologically healthy	○	○	○	○	○	○	○
I am curious to learn new ways to conserve resources	○	○	○	○	○	○	○
I feel a strong attachment to nature	○	○	○	○	○	○	○
The more connected people are to nature, the better off society will be	○	○	○	○	○	○	○
I will make major lifestyle changes to support future generations	○	○	○	○	○	○	○
My actions reflect my hopes for the future	○	○	○	○	○	○	○
I want to restore the environment for future generations	○	○	○	○	○	○	○
I feel a growing obligation to improve the environment's health	○	○	○	○	○	○	○
I feel a moral responsibility to lower my ecological footprint	○	○	○	○	○	○	○
I take into account how my decisions may affect environment	○	○	○	○	○	○	○
I need to examine my priorities more often	○	○	○	○	○	○	○
It is clear that we soon will need to make major lifestyle changes	○	○	○	○	○	○	○

I should spend more time helping my neighbors	○	○	○	○	○	○	○

Q3.12 Please indicate how much satisfaction you get from the following items.

	Strongly dissatisfied	Dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Satisfied	Strongly satisfied
Finding ways to use things over and over	○	○	○	○	○	○	○
Repairing rather than throwing things away	○	○	○	○	○	○	○
Keeping something running long past its normal life	○	○	○	○	○	○	○
Finding ways to avoid waste	○	○	○	○	○	○	○
Seeing to it that my neighbors are well-fed/well-off	○	○	○	○	○	○	○
Sharing the household skills I have with others	○	○	○	○	○	○	○
Helping to make sense out of the world	○	○	○	○	○	○	○
Working to improve the well-being of others	○	○	○	○	○	○	○
Sharing the tools I own with neighbors	○	○	○	○	○	○	○

Q3.13 How likely do you think that the contact and the involvement on the creation this product changed your view on the previous questions?

- Extremely likely
- Moderately likely
- Slightly likely
- Neither likely nor unlikely
- Slightly unlikely
- Moderately unlikely
- Extremely unlikely

End of Block: Scenario 2: Low Co-creation

8.1.3 Scenario 3: Medium Co-creation

Q4.1 Please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important to me that the products I use do not harm the environment.	○	○	○	○	○	○	○
I consider the potential environmental impact of my actions when making many of my decisions.	○	○	○	○	○	○	○
My purchase habits are affected by my concern for the environment.	○	○	○	○	○	○	○
I am concerned about wasting the resources of our planet.	○	○	○	○	○	○	○
I would describe myself as environmentally responsible.	○	○	○	○	○	○	○
I am willing to be inconvenienced in order to take actions that are more environmentally friendly.	○	○	○	○	○	○	○

Q4.2 Your favorite retailer is creating a team of consumers and specialists to design and deliver to the market a new sustainable bamboo toothbrush model: “Earth First”. The company aims to align its values of sustainable development with the new product - the new version of Earth First toothbrush. After a selection process, you join this team and prepare to design a new toothbrush according to your personal inputs of what a toothbrush should be and the value it should deliver to consumers, together with industry and product experts.

Q4.3 To transform "Earth First" into a market champion you are asked to suggest new features or changes on the production process of the toothbrush. These suggestions should make the product more sustainable but, at the same time, still attractive to customers. To facilitate this process, please consider provide your insights on changes for specific production process. (i.e. Design: Suggestions that regard to the main features included on the brush to enhance its look and functioning. Manufacturing Processes: Suggestions that regard to the steps through which raw materials of the brush are transformed into a final product (i.e. machines used, energy consumption, resource/waste management) Materials: Suggestions that regard to the materials used to produce the toothbrush)

Design of the toothbrush

Manufacturing Processes

Materials

Other (if you have no other suggestion please write "none").

Q4.4 Assume that the team of creators has a limited budget to enforce the new suggestions you have mentioned before. Please distribute a 100 point budget to the different suggestions according to the importance /impact you perceived them to have on the new version of the brush.

- Design suggestion : _____
- Manufacturing Processes suggestion : _____
- Materials suggestion : _____
- Other category suggestion : _____

Total : _____

Q4.5 Please assume that the average price of manual plastic toothbrush is €2.95. Above which price would you definitely not buy this sustainable bamboo based toothbrush, because you can't afford it or because you didn't think it was worth the money?

_____

Q4.6 Please assume that the average price of manual plastic toothbrush is €2.95. Below which price would you say you would not buy this sustainable bamboo based toothbrush, because you would start to suspect the quality?

_____

Q4.7 Considering the product you have just created and the values it represents, please indicate how much you agree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
If available, I will buy this sustainable toothbrush the next time I need a toothbrush.	○	○	○	○	○	○	○
I intend to keep buying this toothbrush.	○	○	○	○	○	○	○
I am committed to this toothbrush.	○	○	○	○	○	○	○
I recommend this toothbrush those who ask my advice	○	○	○	○	○	○	○
I would say positive things about this toothbrush to other people	○	○	○	○	○	○	○
I would consider this company my first choice when I want to buy toothbrushes.	○	○	○	○	○	○	○

Q4.8 How likely are you to buy such brush instead of a regular manual sustainable brush you haven't design?

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- Extremely likely

Q4.9 Thinking about the product you have just designed, please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I enjoyed this design activity very much.	○	○	○	○	○	○	○
Designing was fun.	○	○	○	○	○	○	○
Designing this product was very interesting.	○	○	○	○	○	○	○
This design activity was fun.	○	○	○	○	○	○	○
I thought designing the product was quite enjoyable.	○	○	○	○	○	○	○
Designing this product required much effort	○	○	○	○	○	○	○
Designing this product was exhausting.	○	○	○	○	○	○	○
I perceived designing this product as ‘‘costly’’ (in terms of time and effort)	○	○	○	○	○	○	○
I like the design of my self-designed product	○	○	○	○	○	○	○
I am satisfied with my self-designed product	○	○	○	○	○	○	○

Q4.10 How comfortable are you to participate on a product co-creation design when asked by a real company?Please assume you would receive a monetary compensation for such work.

- Extremely uncomfortable
- Moderately uncomfortable
- Slightly uncomfortable
- Neither comfortable nor uncomfortable
- Slightly comfortable
- Moderately comfortable
- Extremely comfortable

Q4.11 Why wouldn't that be of interest?

_____

Q4.12 Please indicate how much you agree with the accuracy of the following statements

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
The amount society consumes is major cause of environmental problems	○	○	○	○	○	○	○
Humans are severely abusing the environment	○	○	○	○	○	○	○
Most of us consume far more than we need	○	○	○	○	○	○	○
My actions are driven by concern for the environment	○	○	○	○	○	○	○
I feel strongly about keeping the place I live ecologically healthy	○	○	○	○	○	○	○
I am curious to learn new ways to conserve resources	○	○	○	○	○	○	○
I feel a strong attachment to nature	○	○	○	○	○	○	○
The more connected people are to nature, the better off society will be	○	○	○	○	○	○	○
I will make major lifestyle changes to support future generations	○	○	○	○	○	○	○
My actions reflect my hopes for the future	○	○	○	○	○	○	○
I want to restore the environment for future generations	○	○	○	○	○	○	○
I feel a growing obligation to improve the environment's health	○	○	○	○	○	○	○
I feel a moral responsibility to lower my ecological footprint	○	○	○	○	○	○	○
I take into account how my decisions may affect environment	○	○	○	○	○	○	○
I need to examine my priorities more often	○	○	○	○	○	○	○

It is clear that we soon will need to make major lifestyle changes	○	○	○	○	○	○	○
I should spend more time helping my neighbors	○	○	○	○	○	○	○

Q4.13 Please indicate how much satisfaction you get from the following items.

	Strongly dissatisfied	Dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Satisfied	Strongly satisfied
Finding ways to use things over and over	○	○	○	○	○	○	○
Repairing rather than throwing things away	○	○	○	○	○	○	○
Keeping something running long past its normal life	○	○	○	○	○	○	○
Finding ways to avoid waste	○	○	○	○	○	○	○
Seeing to it that my neighbors are well-fed/well-off	○	○	○	○	○	○	○
Sharing the household skills I have with others	○	○	○	○	○	○	○
Helping to make sense out of the world	○	○	○	○	○	○	○
Working to improve the well-being of others	○	○	○	○	○	○	○
Sharing the tools I own with neighbors	○	○	○	○	○	○	○

Q4.14 How likely do you think that the contact and the involvement on the creation this product changed your view on the previous questions?

- Extremely likely
- Moderately likely
- Slightly likely
- Neither likely nor unlikely
- Slightly unlikely
- Moderately unlikely
- Extremely unlikely

End of Block: Scenario 3: Medium Co-creation

8.1.4 Scenario 4: High Co-creation

Q5.1 Please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
It is important to me that the products I use do not harm the environment.	○	○	○	○	○	○	○
I consider the potential environmental impact of my actions when making many of my decisions.	○	○	○	○	○	○	○
My purchase habits are affected by my concern for the environment.	○	○	○	○	○	○	○
I am concerned about wasting the resources of our planet.	○	○	○	○	○	○	○
I would describe myself as environmentally responsible.	○	○	○	○	○	○	○
I am willing to be inconvenienced in order to take actions that are more environmentally friendly.	○	○	○	○	○	○	○

Q5.2 Your favorite retailer is creating a team of consumers and specialists to design and deliver to the market a new sustainable bamboo toothbrush model: “Earth First”. The company aims to align its values of sustainable development with the new product - the new version of Earth First toothbrush. After the selection process, the company asks you to work with the marketing department and suggest ideas for a campaign that aims to increase the customer base (i.e. number of customers of the new toothbrush).

Q5.3 To transform "Earth First" into a market champion you are asked to suggest new features or changes on the production process of the toothbrush. These suggestions should make the product more sustainable but, at the same time, still attractive to customers. To facilitate this process, please consider provide your insights on changes for specific production process.(i.e. Design: Suggestions that regard to the main features included on the brush to enhance its look and functioning. Manufacturing Processes: Suggestions that regard to the steps through which raw materials of the brush are transformed into a final product (i.e. machines used, energy consumption, resource/waste management) Materials: Suggestions that regard to the materials used to produce the toothbrush)

Design of the toothbrush

Manufacturing Processes

Materials

Other (if you have no other suggestion please write "none").

Q5.4 Assume that the team of creators has a limited budget to implement the new suggestions you have mentioned before. Please distribute a 100 point budget to the different suggestions according to the importance /impact you perceived them to have on the new version of the brush.

- Design : _____
- Manufacturing Processes : _____
- Materials : _____
- Other : _____

Total : _____

Q5.5 Brands and organizations throughout sectors are ever more aware of sustainability matters and challenges. Some even see them as a leverage for branding and to marketing their products. Last year, Nike launch a campaign to promote its Women Collection by supporting one of the sustainability challenges: empowering women and gender equality. YouTube. (2017, March 6). Nike: What will they say about you? [Video File]. Retrieved from https://www.youtube.com/watch?v=F-UO9vMS7AI

Q5.6 You are asked by Earth First to construct an idea for a marketing campaign to launch the new version of the brush based on the features and suggestions you mentioned above. Taking as inspiration the video above for Nike, please suggest an marketing campaign idea for Earth First that reflects its sustainable values in a way you think you appeal most to costumers.

_____

Q5.7 Above which price would you definitely not buy a manual sustainable bamboo toothbrush, because you can't afford it or because you didn't think it was worth the money? Please assume that the average price of manual plastic toothbrush is €2.95

_____

Q5.8 Below which price would you say you would not buy a manual sustainable bamboo toothbrush because you would start to suspect the quality? Please assume that the average price of manual plastic toothbrush is €2.95.

_____

Q5.9 Considering the product you have just created and the values it represents, please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
If available, I will buy this sustainable toothbrush the next time I need a toothbrush.	○	○	○	○	○	○	○
I intend to keep buying this toothbrush.	○	○	○	○	○	○	○
I am committed to this toothbrush.	○	○	○	○	○	○	○
I recommend this toothbrush those who ask my advice	○	○	○	○	○	○	○
I would say positive things about this toothbrush to other people	○	○	○	○	○	○	○
I would consider this company my first choice when I want to buy toothbrushes.	○	○	○	○	○	○	○

Q5.10 How likely are you to buy such brush instead of a regular manual sustainable brush you haven't design?

- Extremely unlikely
- Moderately unlikely
- Slightly unlikely
- Neither likely nor unlikely
- Slightly likely
- Moderately likely
- Extremely likely

Q5.11 Thinking about the product you have just designed, please indicate how much you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I enjoyed this design activity very much.	○	○	○	○	○	○	○
Designing was fun.	○	○	○	○	○	○	○
Designing this product was very interesting.	○	○	○	○	○	○	○
This design activity was fun.	○	○	○	○	○	○	○
I thought designing the product was quite enjoyable.	○	○	○	○	○	○	○
Designing this product required much effort	○	○	○	○	○	○	○
Designing this product was exhausting.	○	○	○	○	○	○	○
I perceived designing this product as ‘‘costly’’ (in terms of time and effort)	○	○	○	○	○	○	○
I like the design of my self-designed product	○	○	○	○	○	○	○
I am satisfied with my self-designed product	○	○	○	○	○	○	○

Q5.12 How comfortable are you to participate on a product co-creation design when asked by a real company? Please assume you would receive a monetary compensation for such work.

- Extremely uncomfortable
- Moderately uncomfortable
- Slightly uncomfortable
- Neither comfortable nor uncomfortable
- Slightly comfortable
- Moderately comfortable
- Extremely comfortable

Q5.13 Why wouldn't that be of interest?

_____

Q5.14 Please indicate how much you agree with the accuracy of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
The amount society consumes is major cause of environmental problems	○	○	○	○	○	○	○
Humans are severely abusing the environment	○	○	○	○	○	○	○
Most of us consume far more than we need	○	○	○	○	○	○	○
My actions are driven by concern for the environment	○	○	○	○	○	○	○
I feel strongly about keeping the place I live ecologically healthy	○	○	○	○	○	○	○
I am curious to learn new ways to conserve resources	○	○	○	○	○	○	○
I feel a strong attachment to nature	○	○	○	○	○	○	○
The more connected people are to nature, the better off society will be	○	○	○	○	○	○	○
I will make major lifestyle changes to support future generations	○	○	○	○	○	○	○
My actions reflect my hopes for the future	○	○	○	○	○	○	○
I want to restore the environment for future generations	○	○	○	○	○	○	○
I feel a growing obligation to improve the environment's health	○	○	○	○	○	○	○
I feel a moral responsibility to lower my ecological footprint	○	○	○	○	○	○	○
I take into account how my decisions may affect environment	○	○	○	○	○	○	○
I need to examine my priorities more often	○	○	○	○	○	○	○

It is clear that we soon will need to make major lifestyle changes	○	○	○	○	○	○	○
I should spend more time helping my neighbors	○	○	○	○	○	○	○

Q5.15 Please indicate how much satisfaction you get from the following items.

	Strongly dissatisfied	Dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Satisfied	Strongly satisfied
Finding ways to use things over and over	○	○	○	○	○	○	○
Repairing rather than throwing things away	○	○	○	○	○	○	○
Keeping something running long past its normal life	○	○	○	○	○	○	○
Finding ways to avoid waste	○	○	○	○	○	○	○
Seeing to it that my neighbors are well-fed/well-off	○	○	○	○	○	○	○
Sharing the household skills I have with others	○	○	○	○	○	○	○
Helping to make sense out of the world	○	○	○	○	○	○	○
Working to improve the well-being of others	○	○	○	○	○	○	○
Sharing the tools I own with neighbors	○	○	○	○	○	○	○

Q5.16 How likely do you think that the contact and the involvement on the creation this product changed your view on the previous questions?

- Extremely likely
- Moderately likely
- Slightly likely
- Neither likely nor unlikely
- Slightly unlikely
- Moderately unlikely
- Extremely unlikely

End of Block: Scenario 4: High Co-creation

Start of Block: Common block - Demographics

Q6.1 What is your gender?

- Male
- Female
- Other

Q6.2 What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate
- Some college but no degree
- Bachelor's degree
- Master's degree
- Doctoral degree

Q6.3 Please indicate your occupation:

- Employed
- Unemployed
- Student

Q6.4 In which country do you currently reside?

▼ Afghanistan ... Zimbabwe

Q6.5 What is your academic field of studies?

- Business, Economics or Finance
- Psychology or Sociology
- International Relations
- Law
- Engineering
- Natural Sciences (e.g. Biology, Mathematics, Physics)
- Pharmacy
- Medical, Nursing and Health Sciences
- Arts
- Sports
- Other _____

Q6.6 How old are you?

- Under 18
- 18-20
- 21-23
- 24-26
- 27-30
- over 30

Thank you so much for your time! Any related questions or final comments please contact me at: beatriz.lanca@novasbe.pt / b.polidoro@student.maastrichtuniversity.nl

End of Block: Common block - Demographics

8.2 Constructs and Items

Table 9 Constructs and Items (own illustration)

Construct	Items
Customer Loyalty adapted from Bobâlcă, Gătej and Ciobanu (2012).	If available, I will buy with this brand the next time I need a toothbrush. (1)
	I intend to keep buying with this brand. (2)
	I am committed to this brand. (3)
	I recommend this brand those who ask my advice. (4)
	I would say positive things about this brand to other people. (5)
	How likely are you to buy this brush instead of a manual non-sustainable based toothbrush? Please assume you can afford both. (6)
	I would consider this company my first choice when I want to buy toothbrushes. (7)
Green Scale adapted from Haws, Winterich and Naylor (2014).	It is important to me that the products I use do not harm the environment. (1)
	I consider the potential environmental impact of my actions when making many of my decisions. (2)
	My purchase habits are affected by my concern for the environment. (3)
	I am concerned about wasting the resources of our planet. (4)
	I would describe myself as environmentally responsible. (5)
	I am willing to be inconvenienced in order to take actions that are more environmentally friendly. (6)
Green Consumer's and Green Citizens' behavioral predictors adapted from Guckian, De Young and Harbo (2017).	Amount society consumes is major cause of environmental problems (1)
	Humans are severely abusing the environment. (2)
	Most of us consume far more than we need. (3)
	My actions are driven by concern for the environment (4)
	Seeing to it that my neighbors are well-fed/well-off (5)
	Sharing the household skills I have with others (6)
	Helping to make sense out of the world (7)
	Sharing the tools I own with neighbors (8)
	Working to improve the well-being of others (9)
	Finding ways to use things over and over (10)
	Keeping something running long past its normal life (11)
	Finding ways to avoid waste (12)
	Repairing rather than throwing things away (13)
	I feel strongly about keeping the place I live ecologically healthy (14)
	I am curious to learn new ways to conserve resources (15)
	I feel a strong attachment to nature (16)
	The more connected people are to nature, the better off society will be (17)
	I will make major lifestyle changes to support future generations (18)
	My actions reflect my hopes for the future (19)
	I want to restore the environment for future generations (20)
	I feel a growing obligation to improve the environment's health (21)
	I feel a moral responsibility to lower my ecological footprint (22)
	I take into account how my decisions may affect environment (23)
	I need to examine my priorities more often (24)
	It is clear that we soon will need to make major lifestyle changes (25)
	I should spend more time helping my neighbors (26)
WTP adapted from Breidert, Hahsler & Reutterer (2006)	Above which price would you definitely not buy a manual sustainable bamboo toothbrush, because you can't afford it or because you didn't think it was worth the money? Please assume that the average price of manual plastic toothbrush is €2.95
	Below which price would you say you would not buy a manual sustainable bamboo toothbrush because you would start to suspect the quality? Please assume that the average price of manual plastic toothbrush is €2.95
Additional items used	How likely are you to participate on a product co-creation design? Please assume you would receive a monetary compensation for such work. (1)
	How likely are you to buy this brush instead of a manual non-sustainable based toothbrush? Please assume you can afford both. (2)
	How likely do you think your contact with this new sustainable product would change your previous answers? (3)

8.3 Sample Characteristics

Table 10 Gender descriptives (adapted SPSS output)

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	78	46.7	46.7	46.7
	Female	89	53.3	53.3	100.0
	Total	167	100.0	100.0	

Table 11 Highest Degree Received descriptives (adapted SPSS output)

Highest degree completed and received					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school graduate	19	11.4	11.4	11.4
	Some college but no degree	24	14.4	14.4	25.7
	Bachelor's degree	73	43.7	43.7	69.5
	Master's degree	50	29.9	29.9	99.4
	Doctoral degree	1	.6	.6	100.0
	Total	167	100.0	100.0	

Table 12 Occupation descriptives (adapted SPSS output)

Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed	60	35.9	35.9	35.9
	Unemployed	2	1.2	1.2	37.1
	Student	105	62.9	62.9	100.0
	Total	167	100.0	100.0	

Table 13 Nationality descriptives (adapted SPSS output)

Nationality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Australia	1	.6	.6	.6
	Bangladesh	1	.6	.6	1.2
	Belgium	3	1.8	1.8	3.0
	Brazil	1	.6	.6	3.6
	Brunei Darussalam	2	1.2	1.2	4.8
	Chile	1	.6	.6	5.4
	Comoros	1	.6	.6	6.0
	Costa Rica	1	.6	.6	6.6
	Denmark	7	4.2	4.2	10.8
	Finland	1	.6	.6	11.4
	France	1	.6	.6	12.0
	Germany	8	4.8	4.8	16.8
	Hungary	1	.6	.6	17.4
	Jamaica	1	.6	.6	18.0
	Jordan	1	.6	.6	18.6
	Kiribati	1	.6	.6	19.2
	Liechtenstein	1	.6	.6	19.8
	Malaysia	1	.6	.6	20.4
	Netherlands	8	4.8	4.8	25.1
	Panama	1	.6	.6	25.7
	Portugal	93	55.7	55.7	81.4
	Singapore	1	.6	.6	82.0
	Spain	2	1.2	1.2	83.2
	Switzerland	18	10.8	10.8	94.0
	United Kingdom	6	3.6	3.6	97.6
	United States of America	4	2.4	2.4	100.0
	Total	167	100.0	100.0	

8.4 SDGs Ranking

Rank	Country	Score
1	Sweden	84.5
2	Denmark	83.9
3	Norway	82.3
4	Finland	81.0
5	Switzerland	80.9
6	Germany	80.5
7	Austria	79.1
8	Netherlands	78.9
9	Iceland	78.4
10	United Kingdom	78.1
11	France	77.9
12	Belgium	77.4
13	Canada	76.8
14	Ireland	76.7
15	Czech Republic	76.7
16	Luxembourg	76.7
17	Slovenia	76.6
18	Japan	75.0
19	Singapore	74.6
20	Australia	74.5

Figure 7: Which countries are achieving the UN SDGs fastest? Adapted from “Which countries are achieving the UN Sustainable Development Goals fastest?” by A. Willige 2017, World Economic Forum.

8.5 Reliability Tests

Table 14 Reliability Tests (adapted SPSS output)

Reliability Statistics			
Variable	EVM	Cronbach's Alpha	N of Items
GP	1	.850	6
	2	.861	6
	3	.887	6
	4	.855	6
Loyalty	1	.928	6
	2	.947	6
	3	.954	6
	4	.933	6
IERB	1	.932	26
	2	.875	26
	3	.921	26
	4	.937	26
WTP	1	.978	2
	2	.889	2
	3	.898	2
	4	.855	2

8.7 Process Multiple Regression Analyses

```
          Run MATRIX procedure:
***************** PROCESS Procedure for SPSS Version 3.1 *****************
        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3
**************************************************************************
Model  : 1
    Y  : WTPmax
    X  : CoCreati
    W  : GP
Covariates:
 Gender   Occupati National FieldofS Age
Sample
Size:  167

          OUTCOME VARIABLE:
 WTPmax
Model Summary
        R       R-sq        MSE          F        df1        df2          p
     .3085      .0952    35.0716     2.0770     8.0000   158.0000      .0410
Model
             coeff         se          t          p       LLCI       ULCI
constant      .4850     3.2953      .1472      .8832    -6.0236     6.9936
CoCreati      .2620     1.0026      .2613      .7942    -1.7182     2.2422
GP            .5086      .5263      .9663      .3354     -.5309     1.5480
Int_1       -3.5704     1.1137    -3.2060      .0016    -5.7700    -1.3708
Gender        1.2284      .9343     1.3148      .1905     -.6170     3.0738
Occupati      .3468      .5650      .6139      .5402     -.7691     1.4628
National      .0168      .0112     1.4957      .1367     -.0054      .0389
FieldofS     -.1354      .1953     -.6936      .4890     -.5212      .2503
Age           .7620      .6025     1.2647      .2078     -.4280     1.9519
Product terms key:
 Int_1    :        CoCreati x        GP
Covariance matrix of regression parameter estimates:
           constant   CoCreati         GP      Int_1     Gender   Occupati   National   FieldofS        Age
constant   10.8593      .2609      .2840      .1485     -.3326    -1.2496     -.0174      .0520     -1.6326
CoCreati     .2609     1.0052      .0652     -.0885      .0227     -.0062     -.0001      .0038     -.0743
GP           .2840      .0652      .2770     -.0495     -.0458      .0080     -.0005     -.0154     -.0520
Int_1        .1485     -.0885     -.0495     1.2403      .0318     -.0047     -.0003      .0023     -.0227
Gender      -.3326      .0227     -.0458      .0318      .8730     -.0677      .0001     -.0084      .0072
Occupati   -1.2496     -.0062      .0080     -.0047     -.0677      .3192      .0000      .0004      .1644
National    -.0174     -.0001     -.0005     -.0003      .0001      .0000      .0001     -.0003      .0007
FieldofS     .0520      .0038     -.0154      .0023     -.0084      .0004     -.0003      .0381     -.0273
Age        -1.6326     -.0743     -.0520     -.0227      .0072      .1644      .0007     -.0273      .3630
Test(s) of highest order unconditional interaction(s):
       R2-chng         F        df1        df2          p
X*W      .0589     10.2781     1.0000   158.0000      .0016
   Focal predict: CoCreati (X)
        Mod var: GP       (W)
Conditional effects of the focal predictor at values of the moderator(s):
         GP     Effect         se          t          p       LLCI       ULCI
     -.9300     3.5826     1.4975     2.3924      .0179      .6249     6.5403
      .0000      .2620     1.0026      .2613      .7942    -1.7182     2.2422
      .9300    -3.0586     1.3833    -2.2111      .0285    -5.7906     -.326
```

Figure 8: Process Model 1 (SPSS output)

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.1 *****************
        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3
**************************************************************************
Model  : 1
    Y  : Loyalty
    X  : CoCreati
    W  : GP

Covariates:
 Gender   Occupati National FieldofS Age

Sample
Size:  167

**************************************************************************
OUTCOME VARIABLE:
 Loyalty

Model Summary
        R      R-sq       MSE         F       df1       df2         p
     .5113     .2614    1.1476    6.9904    8.0000   158.0000     .0000

Model
            coeff         se          t          p       LLCI       ULCI
constant    5.3348     .5961    8.9496     .0000    4.1574    6.5121
CoCreati     .1894     .1814    1.0443     .2979    -.1688     .5476
GP           .6137     .0952    6.4464     .0000     .4257     .8017
Int_1        .2401     .2015    1.1920     .2350    -.1577     .6380
Gender       .2105     .1690    1.2454     .2148    -.1233     .5443
Occupati     .1206     .1022    1.1804     .2396    -.0812     .3225
National    -.0018     .0020    -.9028     .3680    -.0058     .0022
FieldofS     .0444     .0353    1.2567     .2107    -.0254     .1142
Age         -.0481     .1090    -.4410     .6598    -.2633     .1672

Product terms key:
 Int_1    :       CoCreati x        GP

Covariance matrix of regression parameter estimates:
            constant   CoCreati         GP      Int_1     Gender    Occupati   National   FieldofS        Age
constant     .3553      .0085      .0093      .0049     -.0109     -.0409     -.0006      .0017     -.0534
CoCreati     .0085      .0329      .0021     -.0029      .0007     -.0002      .0000      .0001     -.0024
GP           .0093      .0021      .0091     -.0016     -.0015      .0003      .0000     -.0005     -.0017
Int_1        .0049     -.0029     -.0016      .0406      .0010     -.0002      .0000      .0001     -.0007
Gender      -.0109      .0007     -.0015      .0010      .0286     -.0022      .0000     -.0003      .0002
Occupati    -.0409     -.0002      .0003     -.0002     -.0022      .0104      .0000      .0000      .0054
National    -.0006      .0000      .0000      .0000      .0000      .0000      .0000      .0000      .0000
FieldofS     .0017      .0001     -.0005      .0001     -.0003      .0000      .0000      .0012     -.0009
Age         -.0534     -.0024     -.0017     -.0007      .0002      .0054      .0000     -.0009      .0119

Test(s) of highest order unconditional interaction(s):
       R2-chng         F       df1       df2         p
X*W      .0066     1.4210    1.0000   158.0000     .2350
----------
    Focal predict: CoCreati (X)
          Mod var: GP       (W)
 ************************ ANALYSIS NOTES AND ERRORS ************************
Level of confidence for all confidence intervals in output:
  95.0000
NOTE: The following variables were mean centered prior to analysis:
          GP       CoCreati
NOTE: Variables names longer than eight characters can produce incorrect output.
      Shorter variable names are recommended.
------ END MATRIX
```

Figure 9: Process Model 2 (SPSS output)

```
        Run MATRIX procedure:
*************** PROCESS Procedure for SPSS Version 3.1 *****************
        Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
   Documentation available in Hayes (2018). www.guilford.com/p/hayes3
        Model  : 1
   Y  : IERB
   X  : CoCreati
   W  : GP
Covariates:
 Gender   Occupati National FieldofS Age
Sample
Size:  167
OUTCOME VARIABLE:
 IERB

Model Summary
        R       R-sq        MSE         F       df1       df2         p
    .6722     .4519     .2296   16.2843    8.0000   158.0000     .0000
Model
            coeff         se          t         p       LLCI       ULCI
constant   5.2293     .2666   19.6127     .0000    4.7027    5.7559
CoCreati    .1794     .0811    2.2119     .0284     .0192     .3396
GP          .4234     .0426    9.9425     .0000     .3393     .5075
Int_1      -.1556     .0901   -1.7267     .0862    -.3336     .0224
Gender      .1532     .0756    2.0272     .0443     .0039     .3026
Occupati    .0379     .0457     .8297     .4079    -.0524     .1282
National    .0003     .0009     .3253     .7454    -.0015     .0021
FieldofS    .0091     .0158     .5781     .5640    -.0221     .0403
Age         .0548     .0487    1.1248     .2624    -.0414     .1511

Product terms key:
 Int_1    :       CoCreati x       GP

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  5000

W values in conditional tables are the mean and +/- SD from the mean.

NOTE: The following variables were mean centered prior to analysis:
        GP      CoCreati

NOTE: Variables names longer than eight characters can produce incorrect output.
      Shorter variable names are recommended.

------ END MATRIX -----
```

Figure 10: Process Model 3 (SPSS output)

8.8 Linear Analysis – Willingness to Participate

Table 15 Linear Regression Model Summary (adapted SPSS output)

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.289[a]	.084	.049	1.48570
a. Predictors: (Constant), Age, Gender, NationalityR, FieldofStudyR, GP, Occupation				
b. Dependent Variable: WP				

Table 16 Linear Regression ANOVA (adapted SPSS output)

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.305	6	5.384	**2.439**	**.028[b]**
	Residual	353.168	160	2.207		
	Total	385.473	166			
a. Dependent Variable: WP						
b. Predictors: (Constant), Age, Gender, NationalityR, FieldofStudyR, GP, Occupation						

Table 17 Linear Regression Coefficients (adapted SPSS output)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.408	1.165		2.066	.040
	Field of Studies R	.390	.252	.128	1.549	.123
	Gender	.234	.234	.077	1.000	.319
	GP	.418	.130	.255	3.205	.002
	Nationality R	-.375	.256	-.116	-1.468	.144
	Occupation	.067	.143	.042	.467	.641
	Age	-.023	.154	-.014	-.151	.880
a. Dependent Variable: WP						

8.9 Effect sizes

Table 18 Effect sizes (adapted SPSS output)

Tests of Between-Subjects Effects							
Source	DV	Type III SS	df	Mean²	F	Sig	**Partial Eta²**
Corrected Model	Loyalty	108.106[a]	45	2.402	2.116	.001	**.440**
	IERB	38.697[b]	45	.860	3.785	.000	**.585**
	WTP	1991.115[c]	45	44.247	1.295	.135	**.325**
Intercept	Loyalty	75.378	1	75.378	66.388	.000	**.354**
	IERB	74.770	1	74.770	329.109	.000	**.731**
	WTP	2.592	1	2.592	.076	.783	**.001**
Gender	Loyalty	3.017	1	3.017	2.657	.106	**.021**
	IERB	.740	1	.740	3.258	.074	**.026**
	WTP	14.387	1	14.387	.421	.518	**.003**
Occupation	Loyalty	1.192	1	1.192	1.050	.308	**.009**
	IERB	.034	1	.034	.150	.699	**.001**
	WTP	50.890	1	50.890	1.490	.225	**.012**
Age	Loyalty	1.422	1	1.422	1.253	.265	**.010**
	IERB	.192	1	.192	.845	.360	**.007**
	WTP	142.168	1	142.168	4.162	.044	**.033**
CoCreation	Loyalty	7.326	1	7.326	6.452	.012	**.051**
	IERB	1.867	1	1.867	8.217	.005	**.064**
	WTP	32.816	1	32.816	.961	.329	**.008**
GP	Loyalty	72.009	23	3.131	2.757	.000	**.344**
	IERB	28.872	23	1.255	5.525	.000	**.512**
	WTP	1033.012	23	44.914	1.315	.172	**.200**
CoCreation * GP	Loyalty	30.112	18	1.673	1.473	.111	**.180**
	IERB	4.538	18	.252	1.110	.351	**.142**
	WTP	830.490	18	46.138	1.351	.169	**.167**
Error	Loyalty	137.386	121	1.135			
	IERB	27.490	121	.227			
	WTP	4132.948	121	34.157			
Total	Loyalty	5149.833	167				
	IERB	5394.072	167				
	WTP	13108.883	167				
Corrected Total	Loyalty	245.492	166				
	IERB	66.187	166				
	WTP	6124.064	166				
a. R Squared = .440 (Adjusted R Squared = .232)							
b. R Squared = .585 (Adjusted R Squared = .430)							