

DESIGN OF SERVICES IN SERVICIZED FIRMS: GAMIFICATION AS AN ADEQUATE TOOL

Abstract

Purpose - The aim of this paper is to propose a model of analysis that justifies gamification as an adequate tool to improve the design of services through the Human Centered Design methodology.

Design/ methodology/ approach –The present work is a conceptual contribution. Based on the information provided by the academic literature on the design of services, Human Centered Design and gamification, the suitability of the proposed model is justified to help the servitized companies to improve the design of their services.

Findings - There is a gap in the academic literature about how a servitized company develops its service design process; Customers demand experiences through services; Involving customers in the co-creation of value and co-design of services can guide servitized companies to achieve success with servitization; Gamification is an effective tool as a relational marketing strategy.

Research limitations/Implications - The review of the literature carried out in this paper provides a solid theoretical basis for future researchers in the area of servitization, service design and relational marketing. However, given the conceptual nature of the research, it is necessary to validate empirically the proposed model.

Practical implications - The proposed model can be useful as a reference for manufacturing companies to guide their servitization process. Our study extends the debate on how to integrate the design of services by presenting a model of development based on gamification.

Originality/value - Having knowledge of the customer is essential throughout the service design process and gamification can be achieved as a Human Centered Design technique.

Keywords: Gamification, Human-Centered Design, Service Design

Paper type: Conceptual paper

Introduction

The arrival of the so-called "Industry 4.0" has revolutionized the business world. This fourth industrial revolution, driven by the introduction of digital technology in industry, brings changes such as the specialization of the value chain, connectivity between different actors, as well as new ways of competing to attend increasingly demanding customers (Marcos and Martín, 2016).

Customers no longer demand products otherwise experiences through the service offered (del Val, 2016). In the words of Stefan Olander, digital director of Nike: " In the past, the product was the end point of the customer experience. Now it is the starting point " (Poornikoo, 2014; Ramaswamy, 2008). This leads to think that the development of services has positioned itself as the starting point and final point in the achievement of a competitive advantage.

Additionally, to make a correct development of services, it is important to bear in mind that the consideration of value has also changed. It has gone from added value to the co-creation of value, from production units to interactive processes that are mutually satisfying and from individual actors to systems of value creation (Sangiorgi et al., 2012).

During the last decade, there have been numerous studies that have shown the importance of the development of services in industrial companies to maintain competitiveness. This process of incorporating services is called servitization, which has as a consequence a change in the business model of the companies by offering a combination of product-service, which provides

different levels of servitization (Baines and Lightfoot, 2014). For this reason, research on what types of services companies must offer to generate new business opportunities (Spring and Araujo, 2009), how to integrate them into the company's offer (Neely, 2009) or how to innovate and design has become particularly relevant the offer of services to be successful (Gebauer and Friedli, 2005).

The work developed by Díaz-Garrido *et al.* (2018) studies the evolution of the main research trends in the field of servitization and recognizes the importance of incorporating the perspective of customers. The servitization focuses on the development of integrated solutions of products-services that offer a greater value for the customer and in the co-creation process of the services in which a learning takes place between the service provider and the customer's experience (Anderson and Narus, 1995; Parasuraman, Zeithaml and Berry, 1988).

It is known that in recent decades, the topic servitization has aroused great interest in the academic community as a result of the positioning that has acquired the service as an essential part in the process of creating value and achieving competitive advantages by manufacturing companies (Lightfoot, Baines and Smart, 2013).

The servitization strategy is considered a continuum that goes from the production of goods to the production of services, resulting in an evolution in which companies offer the most appropriate combination of products and services (Oliva and Kallenberg, 2003, Mathieu, 2001a, 2001b). The incorporation of services in the manufacturing processes responds to a change in strategy (Davies, Brady and Hobday 2007; Galbraith, 2002) and must imply a change in the conception of the behavior of managers to facilitate the competitiveness of companies (Vandermerwe and Rada, 1988; Gebauer and Friedly, 2005). In this stage, the topic begins to deepen in those aspects that allow the domain of the services in the strategic orientation of the industrial companies.

From the perspective of marketing, there are works that analyze the incorporation of services from the point of view of the customer, focusing on the perception and creation of value on the quality of service (Anderson and Narus, 1995; Parasuraman, Zeithaml and Berry, 1988). They analyze the satisfaction and loyalty of the customer in services (Levitt, 1960, Vargo and Lusch, 2004) or the importance of after-sales service in industrial companies (Cohen, Agrawal and Agrawal, 2006). However, the academic literature on servitization lacks studies on how servitized companies develop their design of service, this being the central part of their success or failure of the servitization process.

Therefore, it is considered necessary to open a new line of research, to guide the servitized companies on how to carry out the design process of their services and what could be the appropriate tools to improve it.

Previous research has addressed the introduction of services as a complement to product design, a fact that has caused a lack of interest in the role played by the customers in its development (Kumar and Kumar, 2004). This product-based approach does not recognize the potential that customers have during the design process. In this sense, from the point of view of service design, it is a question of responding to the need for companies to broaden their repertoire to address the challenges that organizations face today (Stacey, Griffin and Shaw, 2000)

The design of services allows to offer frameworks and practical tools to guide the manufacturing companies in the servitization (Iriarte *et al.*, 2016), therefore, it is necessary to create models so that the design of services is adopted by the manufacturing sector (Bhamra, Moultrie and Thurston, 2014). Although there are works that recognize the Human Centered Design (HCD) as a collaborative methodology for designing services within an industrial environment, when considering its use and requirements of the customers (Fraga-Lamas *et al.*, 2018), there is insufficient research considered the most effective methods or techniques in the process of interaction with the customer in the development of services.

In this sense, it is intended that, connecting HCD with service design, customers enter to be part of the value creation process through their opinions and generation of ideas (Ramasmamy, 2008) and it is the responsibility of the company generate an adequate environment to promote the

user's voluntary participation (Kumar and Pansari 2015; Venkatesan 2017) and involve them in the co-creation of value of his goods and services.

The use of external gamification techniques, aimed at involving customers by improving the relationships between them and the company (Werbach and Hunter, 2012), can be an effective tool for designers. Correctly implemented, it can generate that discussion environment, commitment and motivation through which customers can participate and influence the design process. The aim is to create co-creation platforms for experiences that allow servitized companies to guide the design of their products.

The union of the HCD to the design principles of Industry 4.0 suggests alternatives for the design of services that requires production and operations systems to provide a real connectivity of the products to the customers (Fraga-Lamas *et al.*, 2018).

The main issue that has caused the object of study of this work is the following: How can a servitized company improve the design of its services? It is intended to seek an answer to this question through the inclusion of the customer perspective in the design process under the HCD methodology and with the practical application of gamification tools.

The present work aims to contribute to the academic literature with a conceptual work of deductive reasoning (MacInnis, 2011), which justifies the adequacy of the use of gamification tools to improve the design of services through the incorporation of the customers in the design process.

Therefore, in the first place, a review of the literature is carried out regarding the relationship that exists between the design of services and the HCD methodology. Secondly, it highlights the potential of gamification to obtain real-time information from customers and, therefore, include the perspective of the customer in the service design process. Finally, it is proposed a model of analysis that justifies, through propositions, the adequacy of the use of gamification techniques to improve the design of services under the HCD methodology.

Relationship between Design of Services in Servitized Companies and Human Centered Design

The services incorporation at industrial companies requires the adaptation of the service type to the business context that the company can create value (Tukker, 2004). Gebauer and Friedly (2005) reflect the need to carry out a change in customer orientation so that the servitization process is successful, so that the participation of the customer is crucial to achieve the expected benefits of servitization (Ruiz- Alba *et al.*, 2016).

The servitization steps towards solutions, firms change the opportunities for value creation, moving their position in the value network and need to use and develop resources and capabilities in a different way (Vandermerwe and Rada, 1988). These changes go beyond a extension of the service offering (Brax, 2005), and can be interpreted as a shift from a product-dominant logic to a service-dominant logic (Vargo and Lusch, 2004, 2008; Windahl and Lakemond, 2010).

Service design has become an emerging discipline, a challenge for servitized companies (Baines *et al.*, 2009), where the service dominant logic emphasizes the role of the customer as the central axis of value creation (Lusch and Vargo, 2006) and where the provided service by the manufacturing companies responds to the specific needs of the customers, so that the value created for the customer increases and therefore becomes a source of competitive advantage (Oliva and Kallenberg, 2003; Vargo and Lusch, 2004).

Companies in the transition of products to services must develop and acquire the necessary tools and techniques to enable them to design services. The tools and techniques used for product design are significantly different from the design of services in terms of complexity and intangibility of them (Slack, 2005). To this end, the support of design professionals to direct these strategic changes favor the use of service-oriented practices and maintain the commitment to the transition to servitization (Calabretta *et al.*, 2016).

Some incipient experiments in the manufacturing sector (Bhamra *et al.*, 2014; Iriarte *et al.*, 2014; Sangiorgi *et al.*, 2012; Thurston and Cawood, 2011) suggest the design of services as a methodology capable of offering frameworks and practical tools to guide the manufacturing companies in servitization.

The study by Iriarte *et al.* (2015) indicate how 67% of the large companies in the industrial area of this group offer services associated with the product. Most of these services (78%) are intermediate-services associated with installation, maintenance and product support, although some companies are already starting to offer advanced services in engineering, design and development of applications and solutions. However, it is indicative that only a minority of companies (20%) admit having a structured method for the development of new services.

The design of services is an essential phase in the development of services since it allows to specify the structure and concept of the service (Goldstein *et al.*, 2002; Yu and Sangiorgi, 2014). However, to develop the design of services it is essential to understand the needs of customers. As it is established by Von Hippel (2007: 28): "70% to 80% of new product development that fails does so not for lack of advanced technology but because of a failure to understand users' needs".

Holmlid (2009) shows that the design of services is a human-centered approach that integrates the possibilities and means to create services with their respective qualities, taking into account the economic and strategic aspects of the organization. It involves solving problems through a service response, which unlocks and magnifies new forms of customer-oriented value (Prendeville and Bocken, 2016) and allows for a more customer-oriented business approach, recognizing and communicating value to customers. Customers allow greater market segmentation and offer a systematic approach to in-service innovation (Sangiorgi *et al.*, 2012).

According to Calabreta *et al.* (2016) the use of HCD methods, allows us to better understand the needs of customers and develop offers that meet their needs. Including the customer in the design process, assumes that the company acquires a greater understanding of the market and favors the design of adequate services.

In short, the design of services is understood as a customer-centered approach, in which the interactive and relational nature of the quality of the service stands out (Pacenti, 1998). The ability for understand the experiences of customers and the contexts of provision and use of services is at the center of the contributions of service innovation service designers (Meroni and Sangiorgi, 2016). Hence the importance that designers have the ability to identify where the value is actually co-created.

From this perspective, service design can be defined as an iterative process centered on the human being (Giacomin 2014) in which the customers is involved in the design process (Abrás *et al.*, 2004). This leads us to consider the design of services under the Human Centered Design methodology.

Córdoba, Arteaga and Bonilla (2015) in their conceptual review of the HCD, propose two approaches in their treatment: 1) as a process of problem solving and 2) as collaborative innovation management. In the first approach, HCD is treated as a process that favors creative decision making and obtains solutions focused on cognitive strategies (Cross, 2010; Rowe, 1987). In the second, he tries to develop skills in the way of thinking about design through the use of ethnographic techniques and creative work methods (Hillen, 2014; Kelley and VanPatter, 2005), so that it prioritizes the needs and values of the people involved (Vechakul *et al.*, 2015).

The approach as collaborative innovation management incorporates the HCD as a work philosophy. Therefore, in this work we consider that the HCD represents a methodology that uses tools of collaborative innovation for the development of services from the perspective of design focused on people (Córdoba, Arteaga and Bonilla, 2015). It highlights here the perspective of the customers should be at the starting point in the design of services (Berdugo, Oviedo and Peñabaena, 2014).

It is necessary to apply techniques to empathize with the users of the service and capture their needs quickly and reliably (Iriarte, *et al.*, 2016). Some of these tools used are adaptations of user

research tools and ethnography, which tries to capture the user's experience (Yu and Sangiorgi, 2014), such as joint design workshops, in-depth interviews, storyboard, customer journey, tests of users and trials are some of the most common techniques (Hannington, 2003; Steen *et al.*, 2007; Yu and Sangiorgi, 2014). However, some authors question the practical application of HCD methods justifying that it suffers from a formal technological means to understand the needs of customers (Van Pelt and Hey, 2011).

On the contrary, the defenders of its application recognize that the HCD provides a framework to move quickly towards the action where there is an iterative and non-linear process, while maintaining the perspective of the whole, achieving the necessary flexibility that the context of each project requires (Vechakul, *et al.*, 2015; Yu and Sangiorgi, 2014).

In view of the above, the present work, under the consideration that the design of services is recognized as an activity intrinsically linked to human needs and concerns (Hannington, 2003), proposes as a HCD technique the so-called gamification, understood from a perspective of relational marketing where, correctly implemented, it offers the ideal scenario to understand the needs of customers.

It involves applying a technique that allows communicating, interacting, empathizing and stimulating the people involved to obtain an understanding of their needs, desires and experiences (Giacomin, 2014).

Gamification

The development of gamification techniques emerges as a marketing method oriented primarily at a professional level to improve economic results. However, the efficiency that has been shown in the business exercise (Zichermann and Cunningham, 2011), has led to its expansion to other disciplines of study such as education (Caponetto, Earp and Ott, 2014; Christy and Fox, 2014; Dominguez *et al.*, 2013; Filsecker and Hickey, 2014), health (Cafazzo *et al.*, 2012; Stinson *et al.*, 2013), service marketing (Blohm and Leimeister, 2013; Hamid and Kuppusamy, 2017; Huotari and Hamari, 2012; Huotari and Hamari, 2017); engagement to the customer (Harwood and Garry, 2015; Leclercq, Hammedi, and Poncin, 2018;) and more recently in servitization processes (Shi *et al.*, 2013; Petridis *et al.*, 2014; Shi *et al.*, 2017) among others.

Thus, the most recognized definitions in the literature are those established by Deterding *et al.* (2011: 10) who, from a gaming industry perspective, state that "is the use of game design elements in non-game contexts". In the same line, Petkov *et al.* (2011) point out that mobile applications are persuasive technological tools that aim to influence the behavior of users through the design of game elements and Werbach and Hunter (2012: 26) as "use of game elements and game-design techniques in non-game contexts".

However, given the object of study of this work, it is considered that the most appropriate definition is that provided by Huotari and Hamari (2012: 19) who understand that it is: "a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation".

Based on this idea, this paper has considered gamification as the use of games in non-ludic environments, in order to achieve a previously defined goal. It has been demonstrated that gamified experiences persuade customers, generate better attitudes and favor greater change behavior (Bittner and Shipper, 2014) which allows us to use game mechanics to empathize with our customers, design and develop personalized services (Shi *et al.*, 2017)

These authors define gamification from a service marketing perspective, arguing that since the contribution of Vargo and Lusch (2008) on the service dominant logic, the service approach could replace the traditional marketing theory where the creation of value was contemplated exclusively through the production process (Huotari and Hamari, 2012).

The maintenance of sustainable and mutually satisfactory relationships justify the importance of relationship marketing, which highlights the need to incorporate a long-term marketing vision that truly takes into account the needs of the customer and that values the establishment of stable

relationships in the markets (López, 2009). To achieve this goal, it is necessary that there be a collaborative exchange between the company and the customer, which requires information, social interaction and mutual commitments that gamification can provide (Ruiz-Alba *et al.*, 2019).

Although gamification is not exempt from criticism, the academic literature recognizes its ability to involve users and solve problems (Petridis *et al.*, 2014; Zichermann and Cunningham, 2011); align the interests of individuals with the objectives of the organization through motivation, competition, incentives and commitment (Deterding, 2012; Petridis *et al.*, 2014); promote the commitment of the main stakeholders to modify behavior, develop skills and promote innovation (Gartner, 2014) and encourage the co-creation of value through the participation of the customer in the design of new services (Gebauer, Bravo-Sánchez and Fleisch, 2007; Gómez and de Pablos, 2013, Huotari and Hamari, 2012).

Gamification has demonstrated its potential along the value chain (Blohm and Leimeister, 2013), allowing to establish a closer relationship between product and service (Gómez and de Pablos, 2013).

A clear example is found in the case of Nike with the Nike + initiative, a gamified application resulting from the union between Nike and Apple, aimed at a segment of customers who love running, allowing users to obtain information on which routes are the most popular, what is the best way to train to avoid injuries, what distances do they travel and what is their progress, among others. In this way, on the part of the brokers, they have a virtual space where they can interact with the products and the website, sharing experiences, results and receiving feedback. On the part of the company, the information provided by the users allows to know firsthand their personal concerns, feelings, experiences and needs (Ramaswamy, 2008)

Thanks to the use of gamification techniques through mobile applications, it has managed to understand the needs, learn from its customers and realize that the market for sneakers had changed towards the creation of value through experiences. Nike has taken advantage of the opportunity offered by this new technological environment to create an emerging value creation strategy, promoting the participation of its customers in internet platforms through which it establishes a relationship with its customers as never before (Ramaswamy, 2008).

Now, to be successful with a gamified system, it is necessary to be clear about what is to be achieved and for this, it is essential to determine the type of gamification that must be implemented. Werbach and Hunter (2012) recognize three types of gamification: internal, to improve internal relationships within the company; external, to improve relations with customers; of behavior: aimed at changing the behavior of the user. The latter has been the one that has had the greatest recognition in the academic literature, however, in this work external gamification is taken into consideration, where the focus is on the customer's perspective.

Based on the above, gamification can become an effective strategy to incentivize the servitization process in which industrial companies are immersed through the incorporation of the perspective of the customers in the process of designing services. The application of game elements in non-play context (Werbach and Hunter, 2012) offers potential opportunities for the successful adoption of servitization strategies through the education and training of managers specializing in servitization, giving them the means to visualize the impact on their business (Shi *et al.*, 2013).

Analysis Model

Considering the object of study, the proposed model justifies how the application of gamification techniques could improve the service design processes in industrial companies.

Taking into account that the key to success in the design of services lies in understanding the needs of the user, gamification, properly implemented, provides a unique environment to obtain real-time information from users through their behavior, needs and future trends.

This work is based on the consideration that the success in the design of services is in including the perspective of the customers in the design process. This can guarantee success in the development of the service and therefore in the servitization process.

For this reason, the study by Steen, Kuijtt-Evers and Klok (2007), which analyzes how the HCD methods used in the design process will be determined by the knowledge required of the customer and by the user and the importance of the current or future context. The authors consider that the methods have a dynamic movement that allows the cooperation between designers and users to acquire knowledge, articulate problems, incorporate ideas and develop solutions jointly according to who possesses the knowledge. In such a way that, depending on who possesses that knowledge, the method to be applied will be one or the other.

Although this work consider appropriate to take as a reference the HCD methods proposed by these authors, as well as the importance of the context in which the design process is located, the model presented (see Figure 1) shows that gamification allows knowledge to be obtained of users at any time of the process, not being necessary for the designer to move towards the customer or viceversa at any time.

In this model, therefore, part of the consideration that the knowledge of the customer is essential throughout the service design process.

With regard to the context, we refer to the current context when the design process focuses on the current situation or a present problem and the future context when the design process focuses on a future situation or on the identification of an opportunity. In this way, Participatory Design and Ethnographic Fieldwork methods is considered appropriate when dealing with the current context, Co-designing and Empathic Design when it comes to the search for opportunities, while Contextual Design and Lead User Approach draw on the current context for facilitate future development.

In short, the proposal of this work is to consider that the proper design of services requires close cooperation between the designer and the customer throughout the design process, gamification being an appropriate tool to achieve this purpose by providing a means of obtaining rapid information, reliable and effective.

[Insert Figure 1]

“Participatory Design” tries to include customers in the design, evaluation and implementation process, so that the customers are considered an expert. In participatory design the customers are involved in the development of the products, in essence they are co-designers (Steen, Kuijtt-Evers and Klok, 2007).

Taking the example of Nike + as a reference, the website offers diverse visualizations about user performance, ability to challenge others and a forum to discuss and share ideas (Saponas *et al.*, 2006).

Nike + provides a participation platform that invites you to connect to a vast community of brokers (Ramaswamy and Gouillart 2010a), which allows Nike to involve customers in the design process.

The “Ethnographic Approach” tries to study the customs, traditions and values of a community (San Vicente, 2010) focusing on the social, cultural, functional and cognitive aspects of people as individuals (Steen *et al.*, 2007). The immediate objective of an ethnographic study is to capture an aspect or specific area of the group studied (San Vicente, 2010).

These methods are used in the analysis stages (Hartson and Pyla, 2012) or inspiration (Brown, 2008) of the HCD, in which user participation tries to understand the specific context of use of the service at the present time.

Centering the design on the customers involves involving them from the beginning in the process, that is, putting Participatory Design into practice. At the same time, knowing how they are, what

they need, what they use the site for, how they react to the design or how their use experience will facilitate the Ethnographic Approach.

The servitization entails the need to know how the company must sell and deliver their products as a combination of product-service, and even software or solutions. For this, the ability of a company to collect, analyze and exploit data on processes, technology related to the service and usability of the product, provides the opportunity to develop new product-service combinations with which to obtain competitive advantages or improve the efficiency (Huikkola and Kohtamäki, 2017).

Design of services is thus an ethnographic research process (Suri and Howard, 2006) that allows to develop the service through intuition and observation of the behavior of those involved in the design process.

The traditional way of developing these methods is through interviews and observation, however, the use of gamification techniques allows the designer to obtain information on the profile of users, lifestyles, customs, traditions and values at the same moment in time that the user decides to participate in the use of gamification.

Following the example of Nike, and at the time when the user decides to create a Nike + account, Nike collects useful information from their customers, in terms of gender, height, weight or preferences on training. This allows Nike to adjust its offer to specific customer profiles (Brunello, 2014). Additionally, Nike has real-time information on the behavior of its customers through an online community.

Therefore, the use of gamification will facilitate the identification of multiple subjective visions and collaboration between customers and designers (Suri and Howard, 2006) with which to design services jointly. In addition, it has a demonstrable potential to reach a global community of volunteers willing to contribute their time to solving problems (Petridis *et al.*, 2014) and to innovation always with the clear objective of improving the user experience. The more we know the audience, the more adapted the design will be and the more satisfactory the customer's experience (Hassan, Martín and Lazza, 2004)

Therefore, it is proposed:

P1: Gamification is an effective tool to encourage participatory design and guide ethnographic work towards an improvement in the design of services simultaneously in the current context.

As a technique the "Lead User Approach", is to identify who is the user that sets a trend in the market by being a pioneer in detecting needs that will be experienced by other users in the future. They are able to identify possible solutions to the deficiencies of current services (Steen *et al.*, 2007).

The Nike + app allows runners to visually map each race while tracking pace, distance, time and calories burned by motivating runners with instant feedback from celebrities such as Lance Armstrong during and after each race (Mercken, 2017)

"Context Design" is a method that helps designers get to know the natural context in which customers move in order to better understand their needs (Steen *et al.*, 2007). It is about improving the future design with the current knowledge of the user.

The knowledge obtained with these methods leads us to relate it to the phase of ideation or design of the HCD process, focused on the ability of designers to create concepts or identify new proposals or opportunities in the development of services.

As well-gamified platform allows detecting who is the main customers, and it can even be the company itself that involves industry leaders to guide the behavior of other users. Nike has been able to create the ideal context to help designers understand the needs of their customers in real time.

Gamification offers situations that suppose challenges and constant personal improvement, situations of competitiveness or the existence of incentives (Gonzalez and Blanco, 2008, Werbach and Hunter, 2008) that support obtaining current information that in the design process can be used to the development of new services or improvements to those already existing in the future context. In addition, gamification facilitates the development of virtual communities where you can closely monitor the behavior of users.

Thanks to the gamification, the organization obtains information in real time of the needs, pleasures and preferences of the users, which allows the organization to orient the design of its services to the demands of the market.

Thus, it is proposed:

P2: Gamification is an effective tool to detect market trends and better understand the needs of users at the present time to improve the design of services in a future context

“Co-designing” is a method that actively incorporates the customer into the design process (Troye and Supphellen, 2012). In this way, customers become coders and active and creative participants and the designer goes from interpreting the information for the design process to being a facilitator that encourages creativity (Niemelä *et al.*, 2014), its contribution on the HCD process to achieve feasible the service opportunities that appear. In this method, the customer and the designer work together in order to obtain knowledge about the future context that allows creating a new product or service.

Thanks to technology, the design approach is undergoing a massive change becoming a daily activity where participants invent their own rules. However, to encourage participation in the practice of design, organizations must understand that the perspective of customers is an essential part of that change (Lee, 2008). In this way, involving customers in design has become an essential part of design research (Berdugo *et al.*, 2014).

In accordance with Vargo and Luch (2016) in FP6, it is important to take into account the distinction between co-creation of value and co-design. The co-creation of value is not optional, it is characterized by specialization and interdependence and hence the value is always co-created. The co-design, on the other hand, is optional, recognizes the active participation of the customer in the design and is related to the value proposal.

Although, in the academic literature the use of these terms is recognized in an indistinct manner, it is worth mentioning that the present work focuses on the co-design approach.

In this sense, Nike + facilitates the user experience and tries to make the customers part of the design process by motivating them with their achievements and participation in an online community (Poornikoo, 2014).

Nike is a perfect example of a company that turns its marketing focus into a service offering. Nike went from selling running shoes to co-designing a running experience (Brunelo, 2014).

Customers not only buy Nike +, but the support service for the execution. Nike + allows users to achieve their objectives by offering them a gamified service that motivates them to participate more in routine exercises. The idea of co-design embedded in the device is one of the fundamental premises for the transition to the dominant logic of the service. Once again, the gamified platform has facilitated the participation of customers in the co-design process (Poornikoo, 2014)

The “Empathic Design” tries to know the experiences of the customers and empathize emotionally with them. Its usefulness lies in the ability that designers give to identify needs or desires that the customer does not recognize or never mentions because they consider that they can not be covered. The experience of the designers is an important side in the application of this method since, it is the researchers who try to experience something that allows them to find inspiration and creativity to develop products or services in the future (Steen *et al.*, 2007).

The emerging logic of "service dominant logic" challenges buyers' vision as passive customers and includes buyers in the process of propuesta de valor by stating that the customer is always a co-creator of value (Vargo and Lusch 2004, 2008). It has been demonstrated that Nike's gamified application allows customers to be an active part of the value proposition.

In view of the above, gamification is recognized as an adequate tool to encourage the co-creation of value through the participation of the customer in the design of new services (Gebauer, Bravo-Sánchez and Fleisch, 2008; Gómez and de Pablos, 2014; Huotari and Hamari, 2012), involve users and involve them in design through motivation and commitment (Deterding, 2012; Zicherman and Cunningham, 2011) and offer a context of emotion that facilitates interaction between customers and organization (Yang, Asaad and Dwivedi, 2017).

In short, based on the information obtained by customers, the organization has the possibility to strongly empathize with them and involve them in the design of services to such an extent that they are recognized as co-designers of the service.

In this way, it is established:

P3: Gamification is an effective tool to empathize with customers through knowledge of their experiences and encourage the co-design in a future context.

Conclusions

This work relates the gamification with the methods used in the service design process through the HCD methodology, so that it can respond to the challenges that organizations face today.

The design process is one of the most relevant aspects of the success of servitization if the participation of the customer

is sought. Design is recognized as an activity intrinsically linked to human needs and concerns (Hanington, 2003) and therefore the HCD methodology is suitable for the study of service design in industrial companies.

With the HCD methodology experts, designers or researchers cooperate with customers to incorporate ideas, have knowledge of the customers in the innovation process and thus articulate problems and develop solutions together (Steen, Aarts and Broekman, 2012). In this process, the information provided by the use of gamification will facilitate the joint development of the process and it will improve the usability of the product, achieving that the offer of the company can differentiate itself (Huikkola, and Kohtamäki, 2017)

The review of the literature carried out in this work leads us to establish that there is a gap in the academic literature on how a servitized company develops its service design process, being this the most important part to guarantee success with servitization.

The provision of services requires principles, organizational structures and novel processes for the manufacturer of goods, where the business model goes from being a model of transactions to a model based on relationships. (Oliva and Kallenberg, 2003). This highlights the importance of relationship with the customers in the new business models. Uniting gamification and HCD through technology deepens the relationship between the company and the customer, in the process of designing the service and therefore in the servitization process.

The idea is for designers and researchers to cooperate in the design process with customers to contribute their ideas and knowledge and develop solutions / innovations together (Steen *et al.*, 2012).

Service design can be understood as a new discipline centered on people, fostering strong connections to improve the functioning of an entire system and optimize value for all those interested. However, the suitability of existing service design tools remains unclear (Sangiorgi and Junginger, 2015). Therefore, it is considered that gamification is an effective tool as a relational marketing strategy and adequate to improve the service design process.

Gamification, correctly implemented, allows achieving a change in user behavior aimed at increasing their level of motivation, involvement, autonomy and commitment (Searbon and Fels, 2015), provoking an adequate context for the exchange of information that facilitates the use of new methods of application in the HCD.

Thanks to Industry 4.0, customers do not demand products, but experiences through services, therefore, involving customers in the co-creation of value and co-design of services can guide the companies servitized to achieve success with servitization.

In this way, the main contributions of this paper are the following:

1. This work broadens the knowledge of servitization since it considers the design phase of the service in the servitization process. The gamification through the technology allows to obtain valuable information that favors the design of services adapted to the needs of the customers.

2. For industrial companies, it justifies the viability of gamification in the different phases of the service design process, since it is a tool with which customers share information about the use of the product and the needs of customers. From this perspective, the process of design through gamification will facilitate the identification of different services depending on the stage of transition in which the company is located.

3. Deepen the consideration of the HCD methodology from the perspective of collaborative innovation management.

4. The debate on the importance of service design in servitized companies is expanded, motivating researchers to continue with this line of research, seeking the involvement of the customer through gamification. In this way, the process of transforming the product into the service adapted to the needs and usability of the product-service can be deepened.

This work is not without limitations. Although the theoretical framework presented in this paper provides a solid theoretical basis for future researchers in the area of servitization, service design and relational marketing, it is necessary to delve into the variables that can empirically reflect the proposed proposals.

The design of services allows to offer frameworks and practical tools to guide the manufacturing companies in the servitization (Iriarte *et al.*, 2016), therefore, in future research, it would be interesting to study what elements of gamification can contribute to the improvement of the design of services in manufacturing industrial contexts, as well as, analyzing the impact of gamification under the HCD methodology in companies operating in B2B environment.

Bibliography

Abras, C., Maloney-Krichmar, D. and Preece, J. (2004). User-centered design. *Bainbridge, W. Encyclopedia of Human-Computer Interaction. Thousand Oaks: Sage Publications*, 37(4), 445-456. Anderson, J. C., & Narus, J. A. (1995). Capturing the value of supplementary services. *Harvard Business Review*, 73(1), 75-83.

Baines, T. S., Lightfoot, H. W., Benedettini, O. and Kay, J. M. (2009). The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of Manufacturing Technology Management*, 20 (5), 547-567.

Baines, T. and Lightfoot, H. W. (2014). Servitization of the manufacturing firm: Exploring the operations practices and technologies that deliver advanced services. *International Journal of Operations and Production Management*, 34(1), 2–35. doi: 10.1108/IJOPM-02-2012-0086.

Berdugo Correa, C., Oviedo-Trespalacios, Ó., Peñabaena Niebles, R., Luna Amaya, C. and Nieto Bernal, W. (2014). Diseño y desarrollo de servicios: una nueva perspectiva desde el ciclo de vida. *Interciencia*, 39 (2).

Bhamra, T. and Moultrie, J. Thurston. P. (2014). Service Design and Manufacturing. *Mapping and developing Service Design Research in the UK*.

Bittner, J. V. and Shipper, J. (2014). Motivational effects and age differences of gamification in product advertising. *Journal of Consumer Marketing*, 31, pp. 391–400.

Blohm, I., and Leimeister, J. M. (2013). Gamification: Design of IT-based enhancing services for motivational support and behavioral change. *Business and Information Systems Engineering (BISE)*, 5 (4), 275-278.

Brax, S. (2005). A manufacturer becoming service provider—challenges and a paradox. *Managing Service Quality: An International Journal*, 15(2), 142-155.

Brown, T. (2008). Design thinking. *Harvard Business Review*, 86(6), 84.

Brunello, A. (2014). *The impact of Gamification on Business Performance* (Bachelor's thesis, Università Ca'Foscari Venezia).

Cafazzo, J. A., Casselman, M., Hamming, N., Katzman, D. K. and Palmert, M. R. (2012). Design of an mHealth app for the self-management of adolescent type 1 diabetes: a pilot study. *Journal of Medical Internet Research*, 14(3).

Calabretta, G., De Lille, C., Beck, C. and Tanghe, J. (2016). Service Design for Effective Servitization and New Service Implementation. In *Service Design Geographies. Proceedings of the ServDes. 2016 Conference* (No. 125, pp. 91-104). Linköping University Electronic Press.

Caponetto, I., Earp, J., & Ott, M. (2014, October). Gamification and education: A literature review. In *European Conference on Games Based Learning* (Vol. 1, p. 50). Academic Conferences International Limited.

Christy, K. R. and Fox, J. (2014). Leaderboards in a virtual classroom: A test of stereotype threat and social comparison explanations for women's math performance. *Computers and Education*, 78, 66-77.

Cohen, M. A., Agrawal, N. and Agrawal, V. (2006). Achieving breakthrough service delivery through dynamic asset deployment strategies. *Interfaces*, 36(3), 259-271.

Cordoba Cely, C., Bonilla Mora, H. and Arteaga Romero, J. (2015). Artifacts: A result of design research. *ICONOFACTO*, 11(17), 30-52.

Cordoba, C. (2015). Fundamentos del Pensamiento en Diseño. *InvestigiumIRE*, 6(2), 38-50.

Cross, N. (2010). Design thinking as a form of intelligence. In *Proceedings of the 8th Design Thinking Research Symposium (DTRS8) Interpreting Design Thinking, Sydney, 19-20 October, 2010* (pp. 99-105).

Davies, A., Brady, T. and Hobday, M. (2007). Organizing for solutions: Systems seller vs. systems integrator. *Industrial Marketing Management*, 36(2), 183-193.

Del Val Román, J. L. (2016, October). Industria 4.0: la transformación digital de la industria. In *Valencia: Conferencia de Directores y Decanos de Ingeniería Informática, Informes CODDII*.

Deterding, S., Dixon, D., Khaled, R. and Nacke, L. (2011). From game design elements to gamefulness: defining gamification. In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9-15). ACM.

Deterding, S. (2012). Gamification: designing for motivation. *Interactions*, 19 (4), 14-17.

Díaz-Garrido, E., Pinillos, M.; Soriano-Pinar, I. and García-Magro, C. (2018) 'Changes in the intellectual basis of servitization research: A dynamic analysis', *Journal of Engineering and Technology Management*, 48, 1–14. doi: 10.1016/J.JENGTECMAN.2018.01.005.

Domínguez, A., Saenz-De-Navarrete, J., De-Marcos, L., Fernández-Sanz, L., Pagés, C. and Martínez-Herráiz, J. J. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers and Education*, 63, 380-392.

Fraga-Lamas, P., Fernández-Caramés, T. M., Blanco-Novoa, Ó., and Vilar-Montesinos, M. A. (2018). A review on industrial augmented reality systems for the industry 4.0 shipyard. *IEEE Access*, 6, 13358-13375.

Filsecker, M. and Hickey, D. T. (2014). A multilevel analysis of the effects of external rewards on elementary students' motivation, engagement and learning in an educational game. *Computers and Education*, 75, 136-148.

Galbraith, J. R. (2002). Organizing to deliver solutions. *Organizational dynamics*, 31(2), 194.

Gartner (2012). Gamification 2020: What is the future of gamification. Gartner, Inc., Nov, 5.

Gebauer, H., Bravo-Sanchez, C. and Fleisch, E. (2007). Service strategies in product manufacturing companies. *Business Strategy Series*, 9(1), 12-20.

Gebauer, H. and Friedli, T. (2005), "Behavioural implications of the transition process from products to services", *Journal of Business and Industrial Marketing*, 20 (2), 70-80.

Giacomin, J. (2014). What is human centred design? *The Design Journal*, 17 (4), 606-623.

González, C. S. and Blanco, F. (2008). Emociones con videojuegos: incrementando la motivación para el aprendizaje. *Teoría de la Educación. Educación y Cultura en la Sociedad de la Información*, 9(3).

Goldstein, S. M., Johnston, R., Duffy, J. and Rao, J. (2002). The service concept: the missing link in service design research?. *Journal of Operations Management*, 20 (2), 121-134.

Gomez, C. G., and de Pablos Heredero, C. (2013). The gamification and the enrichment of innovation practices in the firm: an analysis of experiences. *Intangible Capital*, 9 (3), 800-822.

Hanington, B. (2003). Methods in the making: A perspective on the state of human research in design. *Design Issues*, 19(4), 9-18.

Hamid, M. and Kuppusamy, M. (2017). Gamification Implementation in Service Marketing: A Literature. *Electronic Journal of Business and Management*, 2(1), 38-50.

Hartson, R. and Pyla, P. S. (2012). *The UX Book: Process and guidelines for ensuring a quality user experience*. Elsevier.

Harwood, T. and Garry, T. (2015). An investigation into gamification as a customer engagement experience environment. *Journal of Services Marketing*, 29(6/7), 533-546.

Hassan, Y. Martín Fernández, F. J., and Iazza, G. (2004). Diseño web centrado en el usuario: usabilidad y arquitectura de la información. *Hipertext. net*, (2).

Hillen, V. (2014). *101 claves para la innovación. 101 claves para innovar a través del design thinking*. Paris: Paris-Est d.school.

Holmlid, S. (2009). Interaction design and service design: Expanding a comparison of design disciplines. *Nordes*, (2).

- Huikkola, T. and Kohtamäki, M. (2017). Solution providers' strategic capabilities. *The Journal of Business & Industrial Marketing*, 32(5), pp. 752-770.
- Huotari, K. and Hamari, J. (2012). Defining gamification: a service marketing perspective. *In Proceeding of the 16th International Academic MindTrek Conference* (pp. 17-22). ACM.
- Huotari, K. and Hamari, J. (2017). A definition for gamification: anchoring gamification in the service marketing literature. *Electronic Markets*, 27 (1), 21-31.
- Iriarte, I., Justel, D., Alberdi, A., Val, E. and Gonzalez, I. (2016). Diseño de servicios para la servitización. Experiencias con empresas manufactureras vascas a través de la colaboración universidad-empresa. *Universia Business Review*, (49), 146-181.
- Kelley, D. and Van Patter, G. (2005). Design as glue. Understanding the Stanford D. School. *NextD Journal Conversation*, 21, 1-9.
- Kumar, R. and Kumar, U. (2004): A conceptual framework for the development of a service delivery strategy for industrial systems and products. *The Journal of Business and Industrial Marketing*, 19 (4/5), pp. 310-319.
- Kumar, V. and Pansari, A. (2015). Measuring the benefits of employee engagement. *MIT Sloan Management Review*, 56(4), 67.
- Leclercq, T., Hammedi, W. and Poncin, I. (2018). The Boundaries of Gamification for Engaging Customers: Effects of Losing a Contest in Online Co-creation Communities. *Journal of Interactive Marketing*, 44, 82-101.
- Lee, Y. (2008). Design participation tactics: the challenges and new roles for designers in the co-design process. *Co-design*, 4(1), 31-50.
- Levitt, T. (1960). *Marketing myopia* (pp. 45-56). Boston.
- Lightfoot, H., Baines, T. and Smart, P. (2013). The servitization of manufacturing: A systematic literature review of interdependent trends. *International Journal of Operations & Production Management*, 33(11/12), 1408-1434.
- Lusch, R. F. and Vargo, S. L. (2006). Service-dominant logic: reactions, reflections and refinements. *Marketing theory*, 6(3), 281-288.
- MacInnis, D. J. (2011). A framework for conceptual contributions in marketing. *Journal of Marketing*, 75(4), 136-154.
- Marcos, E. and Martín, M^a L. (2016). "Formación de profesionales para la empresa del siglo XXI", *Ekonomiaz*, vol. 89, pp. 174-193.
- Mathieu, V. (2001a). Service strategies within the manufacturing sector: benefits, costs and partnership. *International Journal of Service Industry Management*, 12(5), 451-475.
- Mathieu, V. (2001b). Product services: from a service supporting the product to a service supporting the client. *Journal of Business & Industrial Marketing*, 16(1), 39-61.
- Mercken, S. (2017). *Customers' and employees' willingness to join an engagement platform: An empirical study of Nike's Training Club* (Master's thesis, UHasselt).
- Meroni, A., and Sangiorgi, D. (2011). *Design for Services*. London: Routledge.
- Neely, A. (2009), "Exploring the financial consequences of the servitization of manufacturing", *Operations Management Research*, 1 (2), pp. 103-118.

- Niemelä, M., Ikonen, V., Leikas, J., Kantola, K., Kulju, M., Tammela, A. and Ylikauppila, M. (2014, July). Human-driven design: a human-driven approach to the design of technology. In *IFIP International Conference on Human Choice and Computers*(pp. 78-91). Springer, Berlin, Heidelberg.
- Oliva, R. and Kallenberg, R. (2003). Managing the transition from products to services. *International Journal of Service Industry Management*, 14(2), 160-172.
- Pacenti, E. (1998). *La progettazione dei servizi tra qualità ambientale e qualità sociale*. Di Tec.
- Petridis, P., Baines, T., Lightfoot, H. and Shi, V. G. (2014). Gamification: Using gaming mechanics to promote a business.
- Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988). SERVIQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12-40.
- Petkov, P., Köbler, F., Foth, M., Medland, R. and Krcmar, H. (2011, May). Engaging energy saving through motivation-specific social comparison. In *CHI'11 Extended Abstracts on Human Factors in Computing Systems* (pp. 1945-1950). ACM.
- Poornikoo, M. (2014). *Gamification: A platform for transitioning from Goods-dominant logic to Service-dominant logic: Case of Nike+ Fuelband* (Master's thesis).
- Prendeville, S. and Bocken, N. (2017). Sustainable business models through service design. *Procedia Manufacturing*, 8, 292-299.
- Ramaswamy, V. (2008). Co-creating value through customers' experiences: the Nike case. *Strategy & leadership*, 36(5), 9-14.
- Ramaswamy, V. and Gouillart, F. J. (2010). *The power of co-creation: Build it with them to boost growth, productivity, and profits*. Simon and Schuster.
- Rowe, P. (1987). *Design Thinking*. Cambridge, MA: MIT Press
- Ruiz-Alba, J., Soares, A., Rodríguez-Molina, M.A. and Frías-Jamilena, D.,M. (2019). Servitization strategies from customers' perspective: The moderating role of co-creation. *The Journal of Business & Industrial Marketing*, 34(3), 628-642.
- Sangiorgi, D., Fogg, H., Johnson, S., Maguire, G., Caron, A. and Vijayakumar, A. (2012). 'Think Services: Supporting manufacturing companies in their move toward services', in *ServDes.2012 Conference Proceedings Co-Creating Services; The 3rd Service Design and Service Innovation Conference*; Espoo; Finland.
- Sangiorgi, D. and Junginger, S. (2015). Emerging Issues in Service Design. *The Design Journal*, 18(2), 165-170.
- Saponas, T. S., Lester, J., Hartung, C. and Kohno, T. (2006). Devices that tell on you: The Nike+ iPod sport kit. *Dept. of Computer Science and Engineering, University of Washington, Tech. Rep.*
- Slack, N. (2005). Patterns of "servitization": Beyond products and services. *Institute for Manufacturing*.
- Seaborn, K., and Fels, D. I. (2015). Gamification in theory and action: A survey. *International Journal of Human-Computer Studies*, 74, 14-31.
- Shi, V. G., Baldwin, J., Ridgway, K. and Scott, R. (2013). Gamification for servitization a conceptual paper. *Frameworks and Analysis*, 114.

Shi, V. G., Baines, T., Baldwin, J., Ridgway, K., Petridis, P., Bigdeli, A. Z., ... and Andrews, D. (2017). Using gamification to transform the adoption of servitization. *Industrial Marketing Management*, 63, 82-91.

Slack, N. (2005). The changing nature of operations flexibility. *International Journal of Operations & Production Management*, 25(12), pp. 1201-1210.

Spring, M. and Araujo, L. (2009), "Service and products: rethinking operations strategy", *Journal of Operations and Production Management*, 29 (5), pp. 444-467.

Stacey, R. D., Griffin, D. and Shaw, P. (2000). Complexity and management: Fad or radical challenge to systems thinking? [Ebrary Reader version]. Retrieved from Ebrary database.

Steen, M., Kuijt-Evers, L. and Klok, J. (2007). Early user involvement in research and design projects—A review of methods and practices. In *23rd EGOS Colloquium* (Vol. 5, No. 7, pp. 1-21).

Steen, M., Aarts, O. and Broekman, C. (2012). Benefits of human-centred design in open innovation projects. In *ISPIIM Conference Proceedings (p. 1)*. The International Society for Professional Innovation Management (ISPIIM).

Stinson, J. N., Jibb, L. A., Nguyen, C., Nathan, P. C., Maloney, A. M., Dupuis, L. L., ... and Portwine, C. (2013). Development and testing of a multidimensional iPhone pain assessment application for adolescents with cancer. *Journal of Medical Internet research*, 15(3).

Suri, J. F. and Howard, S. G. (2006). Going deeper, seeing further: Enhancing ethnographic interpretations to reveal more meaningful opportunities for design. *Journal of Advertising Research*, 46(3), 246-250.

Thurston, P. and Cawood, G. (2011). The Product Advantage from Service Design. *Design Management Review*, 22 (4), pp. 70-75.

Tukker, A. (2004). Eight types of product–service system: eight ways to sustainability? Experiences from SusProNet. *Business Strategy and the Environment*, 13(4), 246-260.

Troye, S. V. and Supphellen, M. (2012). Customer participation in coproduction: "I made it myself" effects on customers' sensory perceptions and evaluations of outcome and input product. *Journal of Marketing*, 76(2), 33-46.

Van Pelt, A. and Hey, J. (2011). Using TRIZ and human-centered design for customer product development. *Procedia Engineering*, 9, 688-693.

Vandermerwe, S., and Rada, J. (1988). Servitization of business: adding value by adding services. *European Management Journal*, 6(4), 314-324.

Vargo, S. L. and Lusch, R. F. (2004) 'Evolving to a new dominant logic for marketing', *Journal of Marketing*, 68 (1), 1–17.

Vargo, S. L. and Lusch, R. F. (2008) 'Service-dominant logic: continuing the evolution', *Journal of The Academy of Marketing Science*. 233, 36 (1), 1–10.

Vargo, S. L. and Lusch, R. F. (2016). Institutions and axioms: an extension and update of service-dominant logic. *Journal of the Academy of Marketing Science*, 44(1), 5-23.

Vechakul, J., Patel, B. and Jaspal, S. (2015) 'Human-Centered Design as an Approach for Place-Based Innovation in Public Health: A Case Study from Oakland, California', *Maternal Child Health Journal*, 19, pp. 2552–2559.

Venkatesan, R. (2017). Executing on a customer engagement strategy. *Journal of the Academy of Marketing Science*, 45, pp. 208-293

Von Hippel, E. (2007). An emerging hotbed of user-centered innovation. *Harvard Business Review*, 85(2), 27-28.

Werbach, K. and Hunter, D. (2012). *For the win: How game thinking can revolutionize your business*. Wharton Digital Press.

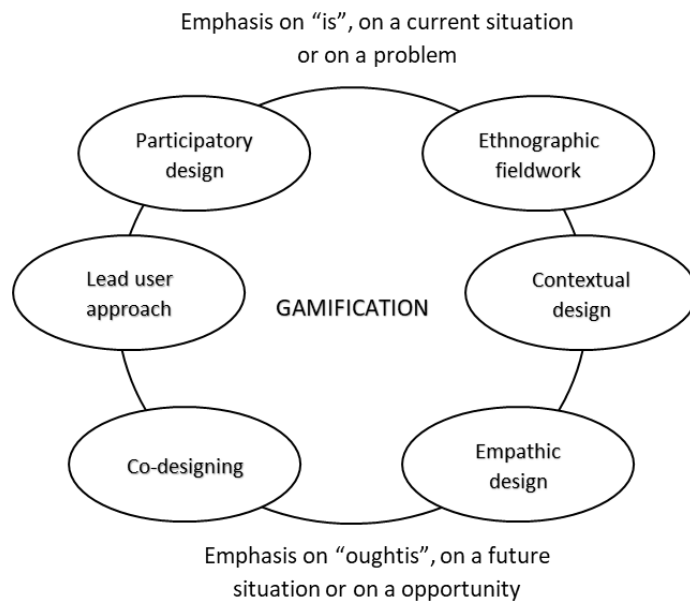
Windahl, C. and Lakemond, N. (2010). Integrated solutions from a service-centered perspective: Applicability and limitations in the capital goods industry. *Industrial Marketing Management*, 39(8), 1278-1290.

Yang, Y., Asaad, Y. and Dwivedi, Y. (2017). Examining the impact of gamification on intention of engagement and brand attitude in the marketing context. *Computers in Human Behavior*, 73, 459-469.

Yu, E. and Sangiorgi, D. (2014). Service design as an approach to new service development: reflections and futures studies. In *ServDes. 2014. Fourth Service Design and Innovation Conference "Service Futures"*, pp. 194-204.

Zichermann, G. and Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. " O'Reilly Media, Inc."

Figure 1: Human centered design and gamification



Source: Autor's own adapted from Steen et al. (2007)