



Article

Co-Creation of Value and Customer Experience: An Application in Online Banking

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Abstract: The need for the banking sector to digitize its services to improve the efficiency of its processes has motivated a wave of research among academics and professionals. One of the most important themes emerging in e-service adoption research is the customer experience. The customer experience has been explored from different angles, being explained from personal elements, interactions between peers, and in terms of the tools provided by companies to improve the experience. However, one of the key elements for improving the customer experience understood from the perspective of service-dominant logic is the co-creation of value. This research explores the personal elements that lead customers to co-create value and how this impacts the customer experience of digital banking channels. We present a cross-sectional quantitative investigation, carried out through a structured questionnaire applied to 406 financial consumers in Colombia. The results indicate that perceived brand knowledge, creativity, and connectivity are antecedents of value co-creation that have a direct effect on the customer experience. The value of the co-creation process allows banks to offer personalized products to their clients without making significant financial and time investments to understand what the client wants, thus improving customer experience with the brand.

Keywords: co-creation of value; customer experience; online banking; consumer behavior



Citation: Peña-García, N.; Losada-Otálora, M.; Juliao-Rossi, J.; Rodríguez-Orejuela, A. Co-Creation of Value and Customer Experience: An Application in Online Banking. *Sustainability* **2021**, *13*, 10486. <https://doi.org/10.3390/su131810486>

Academic Editors: Anssi Öörni and Anna Sell

Received: 18 August 2021

Accepted: 16 September 2021

Published: 21 September 2021

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1. Introduction

The digital transformation is starting to make its way to Colombia, where online banking plays a crucial role in this transformation. Companies in the banking sector are betting that consumers will increasingly enter the digital world to generate greater efficiency, lower costs, and reduce the amount of cash in circulation. The pandemic has significantly supported this bet. The use of office banking services was reduced by 33% in 2020 [1], thanks to the increase in mobile banking. The unbanked population—which, in Colombia, has always been a relevant problem due to its high rates—decreased 8% in the first quarter of 2021 [2]. According to [3], the use of digital banking platforms in Colombia increased by 59% during the pandemic. This panorama has been repeated in other countries in Latin America, where the use of bank branches decreased in general and that of ATMs (−21%) and dataphones (−20%) decreased more specifically. In comparison, mobile banking grew by 68%, and access through websites increased by 24%, according to a study by Movizzon [1].

In Colombia, there are an estimated 10.2 million users of digital channels. They are equivalent to approximately 40% of the 28 million banked Colombians; however, for banking, this percentage is not enough, as the other 60% of Colombians still prefer to use traditional channels, which is why companies in the sector have been working to encourage the use of digital ones [4].

According to reports [1,2], Colombia is one of the leading markets in Latin America and one that increased the most in terms of the use of electronic channels and the use of banking services during the pandemic; however, the amount of money from transactions decreased by 7%, evidencing the decrease in the population's income. Therefore, the number of unique users on digital banking service platforms is expected to have increased within the last year. Consequently, banks must know how to retain the new users who have reached their digital channels, improving their user experience.

To achieve this goal, it is necessary to have a solid understanding of consumer interactions with online channels for the bank to provide a user-friendly platform that guides the services offered, thus satisfying the customer's needs. In this sense, technology as one of the central constructs in the study of services and value co-creation [5] has been highlighted. According to the authors, technology contributes to value co-creation "by enabling the sharing of information within and across service systems" (p. 2). Furthermore, value co-creation has been suggested as a critical element to offer better services, as service provision is fundamental to economic exchange rather than products [6].

Through customer collaboration, banks can learn more about market needs and, thus, provide optimal solutions based on their requests. In addition, it is essential to mention that value co-creation occurs when consumers and companies dialogue by exchanging opinions on different platforms, resulting in new products and services. This shows that the co-creation of value can be considered a fundamental tool. It boosts the development of advantages for both companies and consumers, improving the experience of use and consumption [7], and stimulates innovation in products and services [8].

Specifically, in online banking, the co-creation of value can significantly improve the user experience. When the principal value is the experience, a company must evolve from the co-creation of value to a strategy of co-creation of experiences, where dialogue, access, transparency, and understanding of the risk-benefit ratio are central to the practice of this new form of co-creation. Furthermore, the competitive advantage sought with the co-creation of experiences is to create high-quality interactions that allow consumers to create unique experiences, thus encouraging a sense of belonging and commitment to the store [7,9]. Thus, this research intends to contribute to a deeper understanding of the customer-owned resources that influence the value co-creation process and its impact on the customer experience to deliver substantial business implications that lead to successful company outcomes.

Consumers who use online banking differ from traditional consumers. An online consumer does not obtain information unidirectionally, as is often the case in the traditional way. Instead, consumers who use online banking tend to be informed, connected, empowered, and have learned over time that they can get better value from their commercial exchanges, as their consumer-to-consumer interaction provides them with a comprehensive source of information. There are different dimensions of the "customer-owned resources" that may form the co-creation of value action [10]: brand knowledge, brand skills, brand creativity, and brand connectedness. In the same line, [7] proposed for co-creation to take place, the knowledge and creativity of the customer is necessary, as well as the equity or willingness of the parties to participate in the process. In addition, knowledge and creativity are necessary to achieve prolonged customer interactions with the brand.

This research seeks to provide a deeper understanding of the personal characteristics that influence the value co-creation process, and following a previous study [7,10], knowledge, creativity, and connectivity are proposed as antecedents of value co-creation. The research questions that were addressed are:

What effect does value co-creation have on the customer experience?

What are the customer-owned resources that motivate the co-creation of value?

This research aims to analyze the customer-owned resources as antecedents to the behavior of value co-creation in the banking sector, which is expected to have an impact on the customer experience in online channels, thus contributing to the understanding of the banking customers' behavior and the construction of value co-creation in an emerging economy.

2. Literature Review

Service-dominant logic (SDL) focuses on creating value, with the service and the customer as main axes, thus changing the entire tradition of the study of value, which had been focused on goods and the producer [8]. SDL as a concept has gained strength since 2004, when [6] it was proposed to make this important change; since then, it has been consolidated, extended, and elaborated upon [11]. The co-creation of value has been one of the fundamental elements in consumer research in different sectors. For example, in the marketing of sustainable tourism, previous research [12] presented the difficulty of educating consumers on the responsible consumption of natural resources and how the study of the SDL allowed for the co-creation of communications so that they could co-create sustainability between companies and users of sustainable tourism. Likewise, other work [5] explored the scope of technology in the co-creation of value, innovation, and service systems, finding that technology - when considered as an operating resource - can be achieved not only through the collaborative creation of value but by the innovation of the service itself.

One study that was conducted explored the relationship between CSR and the co-creation of value in banking clients in the banking sector [13]. It highlighted the importance of understanding changes in consumer behavior to close the gap between management and client, contributing to the literature on the co-creation of value in banking clients—a little-explored and critical topic. As [13] highlights, banks are currently focused on consumer complaints, and, in general, all their efforts are centered on the client as a new way of directing their core strategy. This customer-centric strategy is also explored by [14], whose work explores how established banking companies can motivate value co-creation through openness and collaboration on their IT platforms. Likewise, other research analyzes how the perceived quality dimensions in mobile banking affect the co-creation of value to obtain long-term results that impact the customer's engagement to the bank, reflected in their intention to co-create value [15].

This research also adopts a customer-centric approach, understanding that customer experience is vital in building better services. The customer experience is explored as the result of value co-creation, which is proposed to happen when the customer has their resources understood as connectivity, creativity, and knowledge [10].

2.1. Customer Experience

Different studies have tried to explain why companies, despite their efforts to have a greater variety of products for consumers, still have dissatisfied users [9]. Companies conduct research that does not allow them to determine the real needs of consumers, avoiding the use of alternatives such as the incorporation of customers in the product development process [16]. Consumer belief systems enable them to assess perceived value. According to information processing, the consumer will judge past, present, and future outcomes when using a product/service that is valuable to them [17].

On the other hand, consumers and companies should establish exchange spaces to generate value creation and extraction [9]. Thus, companies are challenged to develop new capabilities in searching for new ways of creating value for their customers [18]. Customers derive value perception from their overall consumption experience [19]. Therefore, new business models in the future are expected to be based on the co-creation of value and experience networks [18]. Network experiences enable products to be validated in all perspectives, reorganizing the changing desires of consumers, achieving personalized co-creation experiences, leading to the supply and demand of products and services centered around the exchange of experiences between companies and consumers [9].

Following previous research, when a customer becomes a co-designer of a product, an emotional connection with the brand is strengthened or initiated. Thus, the customer experience can be viewed from different perspectives; the information and experiential perspectives include the consumer and innovation [20]. In [21], the authors refer to the

paradigm that generates the change of focus in marketing, focusing studies on people and experiences to generate new products and define strategies.

According to [22], “CX is the result of the cognitive, affective, emotional, social, and physical responses a customer might have to elements that might or might not be controlled by a provider” (p. 4). In this sense, the customer experience could be positively influenced by providing the customer the possibility of integrating into the value creation process. Furthermore, according to [23], positive experiences with the brand, the product, the service, and even with other brand customers result in consumer satisfaction. Likewise, customers who perceive satisfaction in their customer experiences are more likely to be loyal to the brand.

2.2. Co-Creation of Value

Co-creation has been used in various academic fields such as health, engineering, architecture, and technology. In co-creation, the end-user is indispensable in the creative process [24].

Recent studies have attempted to explain the co-creation of value between companies and consumers, concluding that companies cannot dissociate themselves from value, as it involves consumers and responds to their needs. In the same way, consumers try to seek this interaction to be understood and to have their needs answered quickly and efficiently [25]. Consequently, consumers have become increasingly connected among themselves, having more permanent communication and dialogue, evaluating, suggesting, and developing the products and services of companies more and more [9]. Consequently, companies should focus on personalized interactions with each consumer, allowing more points of exchange. In addition, companies should focus not only on customer interaction at the time of purchase but also on all possible points in the relationship with the consumer (e.g., pre-sale and post-sale) [9].

Therefore, to achieve value co-creation, market research should be conducted, including surveys, statistical models, ethnographic videos, segment, and group evaluation, among other techniques that should be developed to understand the consumer [8] better. Market research allows companies to analyze and detect trends, evaluate consumer tastes and preferences, and determine the strengths and weaknesses of the environment.

In this ongoing market research, a study has identified the sharing economy trend based on spending less money while enjoying experiences [26]. This market has been acknowledged by Uber, Lyft, and Airbnb, which have co-created value collaboratively in the products and services they offer in all phases of the process. Thus, it is now easier to enable interaction environments between companies and consumers [27]. Therefore, interactive platforms must consider processes, people, devices, and interfaces, among others, to enable user interaction between the company and consumers. For example, Trip Advisor contains more than 6.5 million hotels, restaurants, attractions, more than 70 million photos of travelers, blogs where travelers can share recommendations and experiences, tools facilitating a high degree of value co-creation, and an endless search for consumer objectives.

In this research, we understand the co-creation of value as the exchange between the company and the consumers, with direct communication and constant evaluation of products and services based on permanent market research, making it possible to specify the likes and needs of consumers, thereby facilitating the creation of the product or service desired.

According to the authors, co-creation of value and customer experience are related to the search for mutual benefits. This leads to consumers being connected, informed, and active with brands and being interested in being part of them [9]. This search for mutual benefits occurs through quality interactions, translating into environments or situations of co-creating unique experiences between consumers and companies, such as Disney and Ritz Carlton. The relationships between these variables emerge when creating value from experiences and not through goods or services. Therefore, the emphasis is given to

experiences that lead to greater participation of customers or consumers in co-creation. As a result, companies visualize an increase in productivity and the generation of ideas based on the experiences lived by consumers [28]. However, companies should focus on customer needs when creating new products and consider the experiences they want to live with their products. Therefore, flexibility, participation, and broad relationships are aspects consumers seek to associate with companies [29].

Furthermore, consumers wish to create their own experiences by being the protagonists of these new products and services [30]. From customer value theory, the consumer is the central nucleus of the chain and, hence, plays an essential role in creating and designing products and services, giving consumers a high degree of participation [31,32]. Then, as a result of what has been found in the literature, hypothesis 1 of the research is presented:

Hypothesis 1. *Co-creation of value has a direct and positive impact on the customer experience.*

2.3. Consumer-Owned Resources

2.3.1. Connectivity

The Internet offers a space for creating and exchanging knowledge through digital marketing channels, encouraging bi-directional communications [19]. Connectivity refers to the relationships, connections, and networks that customers weave through the use of tools such as social networks, letting them socialize or interact with other current or potential customers, users, and employees [10] through such virtual communities. Both the customer and the company participate in the decision-making process and, thus, co-create value [30]. Similarly, these connectivity networks make companies expand their reach in their co-creation process, leveraging these resources, where groups or individuals influence their consumption experiences [10]. Finally, connectivity indicates the extent to which the actor is linked to others through the brand. This connection is related to the interpersonal relationships created by a brand's customers within their social network [10].

Another study has defined connectivity as any access to the web. This access produces changes in habits, expectations, and norms, allowing users to choose what, when, and where to use the information on the Internet, as well as the interactions they wish to have with the web [30]. This study also stated that social software facilitates connection, allowing people to find others and disseminate information among friends and acquaintances. What was once known as "one to one" dissemination has now become "many to many more" [30]. The connectivity variable has also been used in co-creation studies [33]. It has been mentioned that connectivity enables users of a product or service to share and co-create experiences online through technologies that reinforce the connection with consumers in any space and at any time. In [34], the authors stated that the connected consumer has five powers: access to information, global vision, networking, experimentation, and activism. These powers enable companies to deliver consumer satisfaction through product co-creation.

Some authors have argued that the power of co-creation emerges from the ability of companies to access new skills, thus integrating competencies that are focused on diversifying and expanding the different topics which can be developed through connectivity [35]. According to [36], people are more likely to participate in knowledge exchanges if they feel that the other party is committed to the exchange and perceive value in the information obtained from the other party. In other words, connectivity motivates the reciprocity necessary for the actors participating in the commercial exchange to generate value co-creation actions. Social exchange theory assumes that a person's perception of reciprocity directly affects their willingness to cooperate in relational exchanges [37]. If reciprocity is perceived as relevant, the person will need to act proactively to benefit the community.

Based on the research conducted by [10], brand value can be co-created before, during, and after consumption. The co-creation process occurs through the relationship and social interactions of the entire ecosystem; in other words, not only concerning the people who

participate directly in the process, but also the different networks that have an affinity with the brand or potential consumers of the brand.

Co-creation has an increasingly direct relationship with connectivity due to information technology, communications, and the Internet [34]. Connectivity allows companies to view value co-creation as creating products and services and focusing on customer experiences. Companies must create value based on a culture connected through the Internet, based on how dependent consumers are on the actual experiences of other consumers and not on what companies publish about their own experiences [34]. This relationship also generates co-creation in an environment where people want and need to interact with others, generating progressive value in a company's products and services. In recent years, ICT has been one of the main driving factors for consumers to be increasingly empowered in consumption and production. For this reason, the Internet is considered as the platform with the highest level of interactions that encourages collaboration between people, referred to as the co-creation of value and online experiences, through tools such as blogs, videos, or social networks [33]. Based on the theoretical review conducted, hypothesis 2 of this paper is as follows:

Hypothesis 2. *A consumer's level of connectivity has a direct and positive impact on the co-creation of value.*

2.3.2. Creativity

The concept of creativity has been used in different analyses, especially those carried out for product development. New product creativity is a predictor of new product success [38]. Studies related to co-creation have mentioned that the creativity of a consumer, along with the skills of others or companies, can lead to a process of co-creation and co-design of new products and services [39]. The author also stated that co-creation and co-design processes occur due to the advent of new technologies and platforms, allowing democratization, creativity, and the participation of different people in processes that are developed in a complex way, where consumer expectations are increasingly higher [39]. An example of this situation happens in social networks, with the opportunity to develop creativity before a product or service increases, stimulating the co-creation of brand and value [10].

Additional analyses have mentioned that the failure of a product or service may be due to the absence of innovation and creativity capacity, which is why these components are related to the strength of the identity and influence of consumers. This implies that, in the ideation and design of products, creativity is necessary [40]. These necessary elements avoid biased results, as they do not consider only the profile and knowledge of the internal people in a company. For this reason, it was considered essential to involve external agents with functional diversity, thus finding new relationships between diverse ideas and perspectives.

Similarly, [41] noted the importance of brand communities in developing new products and the contributions to creativity and innovation that can be provided due to the extensive knowledge these communities have of the products. For this reason, companies could consider the identification of consumer needs as fundamental, achieving the generation of ideas, the modification of concepts and processes, the development of prototypes, and the testing of final products—as some companies, such as Ducati and Harley-Davidson, do—which relate the creativity variable to a co-creation process using the consumer's capacity to create new and valuable ideas.

Creativity can be studied from different perspectives. One of them is based on the creativity exhibited by the company, mainly through its advertising campaigns [42]. Another perspective is creativity from the consumer [43]. This type of creativity is interesting for this research, as it arises from the consumer as a customer-owned resource. However, the company can motivate or stimulate creativity through its communications on social networks, creating a situation or a space for creativity. In [44], it was affirmed that creating

spaces (situations), whether in networks or interaction systems, generates “situated creativity,” which is generated in a community under social interaction. For this study, creativity is conceptualized as the disposition that the consumer has to imagine and create with and for the brand.

A relationship between creativity and co-creation exists when production and innovation are extended to consumers, involving them by way of working in a balanced and dynamic way, thus obtaining the participation and experience of both parties [44]. Social networks such as MySpace, Facebook, and Flickr, among others, are a clear example, as they can articulate the experience of companies with the content posted by their consumers. One study stated that creativity leads people to develop new ideas and products, generating diversity, discovering new links, the motivation to innovate, and the available resources [40]. On the other hand, co-creation is considered the primary source that provides tools for communication and creativity to a group of designers - that is, consumers - who mutually benefit from the results through a collaborative design process [39]. These involve the exploration of new ideas, the development of models or prototypes, and the implementation of new products or business units. In conclusion, co-creation and creativity have a common objective: the interaction and generation of creative ideas with the potential to innovate [45]. Thus, the third hypothesis of the research is proposed:

Hypothesis 3. *Consumer creativity has a direct and positive impact on the co-creation of value.*

2.3.3. Knowledge

Recent studies have attempted to include more concepts related to the co-creation of value and customer experiences. Thus, technological advances have facilitated the co-creation process by creating new forms of innovative interaction with consumers, new channels designed to reach consumers, and, finally, new opportunities to develop products/services aligned with consumers' lifestyles [17]. On the other hand, the inclusion of new technologies has redefined customer roles in new product creation and innovation [46]. New technologies provide services ranging from Internet-based forums to new product creation centers, incorporating consumers in various activities such as design, testing, and support activities. A new methodology for including new technologies is the so-called Virtual Customer Environment (VCE), a modality used by Microsoft and Ducati. The former leveraged the knowledge of its customers to create a collaborative network of questions and answers to maintain the level of support service without significant investments. The latter called its strategy “Tech Café,” which consisted of generating technical knowledge for its customers to generate numerous ideas from its expert customers to be considered in the following [46]. Under the VCE scheme, [46] have researched the cognitive and learning areas. The cognitive-learning dimension refers to the knowledge and understanding of the products. This research was based on experiences or interactions with other customers. Such interactions facilitate product knowledge, technology knowledge, and market knowledge [46].

A product aimed at a specific public is more likely to succeed if it arrives through stories told, which must have interactions of knowledge of the product, technology, and market, generating affiliations to it [46]. Following [47], knowledge is individual and part of a community context. Creativity and play adapt to the learning environment and stimulate the co-creation of creativity and knowledge by incorporating new technologies, as proposed based on the concept of VCE [46]. Through this new learning environment, the attainment of knowledge is facilitated, which allows for understanding new concepts or phenomena. The new learners would have the opportunity to develop multiple and flexible perspectives of the products, thus generating new ideas and knowledge [47].

Traditional learning was one-to-many. With the new VCE technologies as a basis, this learning can already be based on the one-to-one, many-to-one, or many-to-many paradigms, facilitating knowledge-sharing interactions at various places and times [48,49]. In addition, it has been found that learning platforms can bring broad benefits, such as

helping individual learning needs through a collaborative modality, fostering access to information with interactive content according to existing needs, providing attractive and alternative models, and creating an open and accessible system promoting communication between different people [49].

The co-creation process involves joint activities between the consumer and providers to achieve a specific goal. In this way, the consumer requires specific knowledge, information, skills, and resources to support the value creation process [13,29]. For that reason, we refer to this process as “value-in-use” rather than focusing specifically on the product’s characteristics [17]. Furthermore, technological platforms provide suitable environments for the management and development of new productions through the participation and collaboration of participants, allowing for creative and co-creative interventions and generating user experiences, whether individual or group [50]. Furthermore, following the above, the efficient cost and multiple interaction opportunities offered to online consumers through the Internet contribute to the co-creation of value and the improvement of new products [25].

The value of consumer learning is a critical factor in Co-creation experiences, as it motivates customer participation. When talking about customer participation in social media, it generally occurs in brand communities through blogs, comments, suggestions, and ratings, among others [51]. Furthermore, customer engagement can affect the brand in various aspects such as trust, loyalty, and equity [52]. In other words, a product aimed at a specific audience is more likely to be successful if it arrives through storytelling, which must involve the interaction of knowledge and learning about the product, technology, and the market, thus generating an affiliation with the product [46].

From the above, the fourth hypothesis of the research follows:

Hypothesis 4. *Consumer knowledge has a direct and positive impact on the co-creation of value.*

To achieve the aim of this study, a research model that shows the relationships between the proposed constructs was proposed to determine the effect of value co-creation on the customer experience. Then, following the literature [6,10], the effects of the variables connectivity, creativity, and knowledge on value co-creation were proposed, as shown in Figure 1.

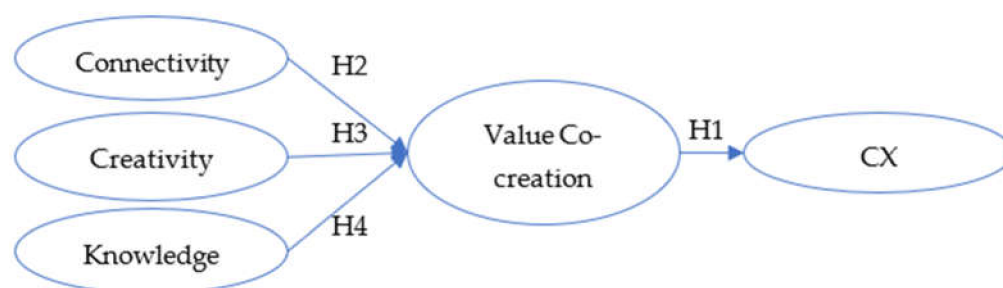


Figure 1. Proposed research model.

3. Research Methodology

3.1. Sample

To determine the sample size, we carried out the calculation suggested in previous research (e.g., [53,54]), assuming that, for infinite populations, with a 95% confidence level, if $ZC = 1.96$ and $f = 0.1$, then $n = 384.16$. The sample was taken from the country’s main metropolitan areas for convenience, maintaining a relative level of participation according to the area’s population.

The profile of the respondents was as follows: People born and raised in Colombia, aged 18 and older with at least one financial product, from economic strata 2 to 6, located in the main cities of Colombia, and who use at least two of the channels offered by their primary bank (i.e., ATM, website, app, or office).

3.2. Research Design

To test the relationships proposed in the research model, cross-sectional quantitative research is proposed through structured questionnaire interviews with financial consumers. The structured questionnaire was applied through a market research firm with consumer panels that interviewed 406 financial consumers in the major metropolitan areas of Colombia. The study was conducted in November 2018. To build the measurement instrument, the research of [10] was used to measure the variables of knowledge, creativity, and connectivity. To measure the value co-creation variable, we used a scale based on the study by [29], who presented a qualitative approach to understanding the consumer value co-creation process. The most relevant aspects of the research were identified and translated into items discussed by experts. For the customer experience scale, the research of [55] was used. All items were measured with a seven-point Likert-type scale, where 1 corresponds to strongly disagree and 7 to strongly agree. The scales are presented in Table 1.

Table 1. Dimensions, items, and scales.

Constructs	Items
Customer Experience	I would say that my experience in my bank is excellent
	I believe I get a higher experience with my bank
	I think the overall experience in the whole process with my bank is excellent
	I tend to review (read) my bank's publications on its website or social networks
Co-Creation of Value	I publish content about my bank through my social networks (original content, not shared)
	I share information about my bank through social networks
	When I purchase a financial product from my bank, I can customize it according to my interests
	When I want to purchase a financial product or use one of my bank's services, and I have a concern, I use the customer service (chat, call, email, etc.)
Connectivity	I feel identified with my bank's values.
	I am connected to other consumers of this brand
	I participate in one or more of the brand's communities
	I socialize with other consumers of the brand
Creativity	I am imaginative when interacting with the brand
	I am creative when interacting with the brand
	I am curious when interacting with the brand
Knowledge	I actively share our knowledge about the work with the organizers.
	I proactively share our best practices with the organizer
	I interact with the organizer by sharing what we have learned from the exhibition

4. Results

4.1. Validation of Measuring Instrument

A confirmatory factor analysis using the partial least squares (PLS) technique with the SmartPLS software was carried out to validate the proposed model. Table 2 shows the main results of the constructs studied in the model.

The β loadings criterion of the model was determined through the PLS calculation, obtaining variations in the loadings between 0 and 1. We found β loadings higher than 0.6, following recommendations to maintain each item. In turn, the measurement of the average value extracted (AVE) was higher than 0.5 [56], which allowed us to conclude that the β loading criterion evidenced the reliability and validity of the model studied, thus identifying that all variables (except for one item, CCV5) could be evaluated in this study. We decided to eliminate the item CCV5 to improve the goodness of fit of the measurement instrument. The Fornell–Larcker criterion was used (also called the discriminant validity). The results of the analysis are shown in Table 3. The correlation of the constructs due to the average variance extracted (AVE) was below 0.7 [57].

Table 2. Confirmatory Factor Analysis.

Construct	Item	β	Mean	Standard Deviation	Composite Reliability	AVE
Customer experience	CX1	0.939	5.11	1.62	0.966	0.906
	CX2	0.956	4.77	1.69		
	CX3	0.960	4.83	1.70		
Co-creation of value	CCV1	0.745	4.27	2.05	0.858	0.549
	CCV2	0.689	2.16	1.72		
	CCV3	0.712	2.15	1.76		
	CCV4	0.757	4.08	1.96		
	CCV6	0.795	4.19	1.92		
Connectivity	CN1	0.914	2.40	1.95	0.955	0.841
	CN2	0.821	2.54	1.97		
	CN3	0.921	2.19	1.80		
	CN4	0.912	2.62	2.00		
Creativity	CR1	0.961	3.99	1.86	0.965	0.903
	CR2	0.966	3.92	1.87		
	CR3	0.922	4.31	1.87		
Knowledge	KN1	0.885	5.19	1.59	0.915	0.782
	KN2	0.907	5.27	1.43		
	KN3	0.860	4.21	1.59		

Table 3. Discriminant Validity, Fornell–Larcker Criterion.

Constructs	CCV	CX	Connectivity	Creativity	Knowledge
CCV	0.741				
CX	0.644	0.952			
Connectivity	0.542	0.283	0.917		
Creativity	0.626	0.571	0.474	0.95	
knowledge	0.572	0.616	0.318	0.613	0.884

Note: The data below the diagonal indicate the correlation between the factors. According to [57], it should be smaller than the data on the diagonal. The diagonal is the square root of the shared variance in each factor and its measures (Average Variance Extracted, AVE).

4.2. Hypothesis Testing

The model was tested through a partial least square structural equation model (PLS-SEM) analysis. Bootstrapping with 500 maximum iterations was run in SmartPLS 3.0 software (SmartPLS GmbH, Ahornstr. 54, 25474 Boenningstedt, Germany). This type of analysis is valid for exploratory research on developing topics. The results are presented in Figure 2.

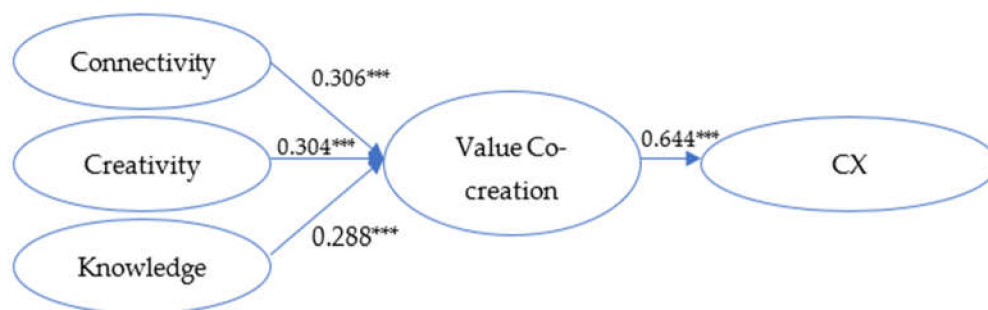


Figure 2. Proposed research model. **Note:** CCV: $R^2 = 0.517$, $Q^2 = 0.261$; CX: $R^2 = 0.414$, $Q^2 = 0.346$; *** $p < 0.005$.

According to the PLS-SEM analysis, all the hypotheses proposed in the research were positively contrasted. As a result of this analysis, it can be confirmed that customer-owned resources are highly correlated with the co-creation of value variable. In turn, this variable had a high correlation with customer experience. It is essential to highlight that most of the β values are above 0.9, suggesting that the model is valid for application.

4.3. Discussion

The research model was proposed to study the consumer-owned resources as antecedents of the co-creation of value and its relationship with the customer experience regarding the banking sector in an emerging economy. According to this research, companies and banks can plan their relationship models with target customer segments through online channels. This will allow banks to offer differentiating factors in the market, enabling consumers to meet their own needs without neglecting the bank's experience in the financial market, achieving customization of its products for each type of consumer. After this work, it can be affirmed that the first step to achieving a process of co-creation of value is to encourage a better and greater B2C connection with information, benefits, and problems, among others. Once the first step is achieved, the next step is to generate and let consumers create the products, create a B2C connection, bring new skills to the process, and give products to fit the needs of consumers and not consumers to fit the products. Therefore, it can be considered a competitive advantage to incorporate these models in product development [10,58]. As a third step, financial information must be provided to the consumer, making it possible to interact in the different online channels and activities, such as rate verification, credit simulations, and personalized debt levels per user.

This research showed that implementing the co-creation of value model in banking can lead to the co-creation of value through the variables mentioned above, empowering the consumer to use online banking with all the benefits that this process includes. On the other hand, for the bank, implementing this system represents a cost reduction, as it minimizes the contact of bank employees while generating and providing necessary information to consumers. Finally, this model can also strengthen customer affiliations and brand positioning by generating an added and differential value within the banking sector's different modalities to offer its consumers. It is an innovative and straightforward process for the user that keeps successful companies in this position.

This study also contributed to studying the customer experience in the banking sector, based on the co-creation of value. It was concluded that consumers who participate in value co-creation have a positive experience with the brand. Thus, the variables analyzed (connectivity, creativity, and knowledge) allow users to be highly correlated with brands, either when consumers interact with them when they acquire knowledge of the brand, when they are connected (in the many-to-many relationship), or when they socialize with other consumers to gain knowledge of the products and services. On the other hand, the search for mutual benefits between a company and a user requires the existence of quality interactions, and the co-creation of a value model makes this possible [9]. Finally, it is stated that connectivity, creativity, and knowledge are indispensable factors for the development of co-creation of value models because, without the existence of any of these three variables, the interactions between consumers and companies would not be possible [10].

5. Conclusions, Implications, and Research Limitations

5.1. Conclusions

In this research, we developed the concept of value co-creation concerning the customer experience outcome. The connectivity, creativity, and knowledge mentioned in the research served as the theoretical basis for this research [10]. The relationship of each of these variables with the co-creation of value evidenced that companies can have a practical customer experience model. All the hypothesized variables mentioned in this research demonstrated that consumer participation is necessary. It generates knowledge about products and services, achieving brand positioning if the user experience is successful and connecting consumers.

Furthermore, the interaction involved in the co-creation of value makes it possible to study the different behaviors of human beings over time [9], enabling observation of the changes that these may have, according to the context, time, or space, thus making significant contributions to science. In this research, a scale was proposed to measure the variable co-creation of the value of the consumer, which has been tested through

quantitative research of a sample of 400 banking consumers, with positive and significant results in co-creation. The implementation of this scale may allow future studies to measure the construct under a single dimension—making it a reflective factor, not a formative one—providing a new perspective to the topic of the study when compared to how the literature had been working.

5.2. Limitations and Future Research

Like all studies, this one has some limitations, which may lead to new lines of research. First of all, this study was carried out before the pandemic. Therefore, it would be essential to have new studies in the post-pandemic period to determine whether the co-creation of value has changed, if the effect of the economic crisis has had an impact on the willingness to participate in co-creation or, even, if the significant advances in the digitization of electronic commerce have promoted the personal characteristics that were proposed in this study as determinants of value co-creation.

Additionally, the sample used in this study was assumed to be representative, following [53]. However, since the study was based in Colombia, expanding the sample in new studies could be convenient by extending the research to other countries with different economies and national cultures. Furthermore, this type of study would add significantly to investigations such as [59], who carry out cross-national research to find the motivators to co-create value online. Therefore, we suggest addressing more countries and measuring personal culture to analyze its impact on value co-creation beyond the country of origin. Likewise, the measurement of national culture would then allow latent segmentation analysis to find those differences that underlie personal characteristics.

Future research should address these issues to expand the knowledge we have so far about value co-creation, especially in the banking sector. This industry has been renewing itself with new ways of banking and financial services. In addition, future studies also should include other types of clients, such as companies, and analyze characteristics of the companies such as organizational culture, skills and knowledge of management, and openness, among others.

Author Contributions: Conceptualization, N.P.-G. and M.L.-O.; methodology, N.P.-G.; software, N.P.-G.; validation, J.J.-R. and A.R.-O.; formal analysis, N.P.-G.; investigation, N.P.-G. and M.L.-O.; resources, A.R.-O.; data curation, J.J.-R.; writing—original draft preparation, J.J.-R.; writing—review and editing, N.P.-G.; visualization, N.P.-G.; supervision, M.L.-O.; project administration, N.P.-G.; funding acquisition, A.R.-O. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by UNIVERSIDAD DEL VALLE, “Internal call for Research projects” grant number CI8114.

Institutional Review Board Statement: CESA Ethics Committee, project number 32004.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data associated with this study has been uploaded to Mendeley: Pena-Garcia, Nathalie (2021), “Dataset “Co-creation of value and customer experience” Sustainability”, Mendeley Data, V1, doi:10.17632/2p9kgwvc9t.1.

Conflicts of Interest: The authors declare no conflict of interest.

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