

QUANTITATIVE ANALYSIS OF COLLABORATIVE CONSUMPTION: EXPLORING CONSCIOUS CONSUMPTION AMONG CAR SHARING USERS

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Abstract: *In an era marked by constant flux and uncertainty, the rapid emergence of new business models driven by evolving consumption patterns and facilitated by internet-based communication underscores the imperative of continual reinvention for both enterprises and consumers. Innovation and creativity have become the lifeblood of modern societies. As consumer behavior research adapts to this shifting landscape, it increasingly accommodates novel forms and models of consumption, with collaborative consumption being a noteworthy newcomer—an evolving concept that remains relatively uncharted within academic circles (Silveira, Petrini, & Santos, 2012).*

The majority of studies on collaborative consumption have leaned toward theoretical exploration, typified by Belk's seminal work in 2014. Empirical investigations, when undertaken, have predominantly adopted qualitative approaches, exemplified by Bardhi and Eckhardt's 2012 research. This bias towards qualitative research can be attributed to its aptitude for theory development (Cooper & Schindler, 2011).

However, the escalating interest in collaborative consumption necessitates a quantitative perspective that can scale the relationships uncovered to date. Such quantitative research is essential for advancing the existing theories in this field and for comprehensively mapping the intricate dynamics of collaborative consumption.

Keywords: *Collaborative consumption, consumer behavior, innovation, quantitative research, theory development.*

1. Introduction

In a scenario of constant changes and uncertainty, new business models emerge each day, based on new forms of consumption and supported by advances in communication from the internet. Reinventing itself is essential for both businesses and consumers, since innovation and creativity form the basis for the development of modern societies. Within the field of consumer behavior, new forms and models of consumption are taking place in the research agendas. One of these new forms is the collaborative consumption - a relatively recent concept and therefore, still little explored in academic studies (Silveira, Petrini, & Santos, 2012). Because it is a recent and little explored topic, the studies about the collaborative consumption are theoretical in great majority, as the study of Belk (2014). And when empirical, they are based on a qualitative approach, like the research of Bardhi and Eckhardt (2012). In this way, it can be inferred that the qualitative approach to the study of new phenomena is consistent with a search that aims at the formation of theory (Cooper &

Schindler, 2011); which may clarify the researchers' interest in conducting qualitative studies on collaborative consumption in most published research.

However, considering that the studies on the subject of collaborative consumption is increasing, it is necessary to carry out quantitative research that can analyze in greater scale the relations discovered so far, contributing to the improvement of the current theory in this field.

Advancing about the theoretical contributions, in the studies analyzed so far, it was not identified an analysis of the relationship between the collaborative consumption and the social and environmental aspects pertinent to the conscious consumption, generating a theoretical gap about this relation. Thus, the purpose of this research is to verify the level of coherence between attitudes of collaborative consumption in relation to conscious consumption. For this, it is necessary to identify the existence of scales to measure collaborative consumption and conscious consumption; to delineate the consumer profile of collaborative consumption; and to correlate some sociodemographic characteristics of the consumers with the collaborative consumption and the conscious consumption.

Focusing on the achievement of the purposes outlined above, it was necessary to carry out a literature review on the themes - collaborative consumption and conscious consumption. Given that this is a relatively new topic, it was decided to carry out an integrative literature review for collaborative consumption, allowing a systematic understanding of the theoretical advance. Whereas, for being a widely discussed topic and because it has a level of maturity in the academy, it was decided to carry out a narrative literature review for the conscious consumption.

To achieve the main purpose of this research, the quantitative approach method is used through the application of an online survey. For this stage, two scales were selected: one to measure collaborative consumption and another to conscious consumption. The survey was applied online in a Brazilian collaborative group of car sharing on the Facebook® social network. The data were analyzed using SPSS software version 21.0.

Thus, this study contributes both to test the existing theories and for its implementation, as also, to the formation of knowledge about collaborative consumption by means of a quantitative approach - little explored in the thematic. Structurally, the paper begins with this introduction, continues with the literature review, delimit the methodological procedures adopted, analyze and discussing the data and results, and finally, generates conclusions about the purpose of this study.

2. Literature Review

In this section are listed the main findings in the literature on the topics of collaborative consumption and conscious consumption. This step is necessary for a better understanding of the terms and their relations with aspects about consumer behavior, allowing the realization of inferences between theory and empirical results.

2.1. Collaborative consumption

Collaborative consumption is a relevant and recent topic, still little explored in the academic field. Even though it is scarce (Bardhi & Eckhardt, 2012; Barnes & Mattsson, 2016), scientific research on collaborative consumption is intensifying, given the growing interest of researchers about this new field of studies within consumer behavior. Because it is a relatively new topic, many insights about collaborative consumption are imprecise, as is its conceptualization. According to Silveira *et al.* (2016, p. 299) “the studies that involve this theme are relatively recent, only since 2012 has been identified a continuous and growing number of publications on collaborative consumption”.

In prior studies, it is noticeable that the term collaborative consumption is commonly regarded as shared consumption. However, these are different concepts. Belk (2007, p. 126) defines sharing as “the act and the process of distributing what is ours to others for its use and/or the act and process of receiving or carrying something from others for our use”. Moreover, sharing is more likely to occur in family, relatives and friends than among strangers (Belk, 2014). Whereas, “collaborative consumption is people coordinating the

acquisition and distribution of a resource for a fee or other compensation. By including other compensation, the definition also encompasses bartering, trading, and swapping, which involve giving and receiving non-monetary compensation” (Belk, 2014, p. 1597). Contrary to the present consumption on sharing that is characterized by the absence of compensations, the collaborative consumption involves a negotiation of compensations, that can be monetary or not. Moreover, another difference is in the interaction with the other consumers involved, where the collaborative consumption occurs with strange or unknown persons - an unusual case of occurring in shared consumption. Thus, “in the context of shared and collaborative economies, terms such as giant economy, collaborative consumption, peer economy, shared economy and demand economy, among others, are regularly used as interchangeable and synonymous, despite important differences” (Rivera, Gordo, Cassidy, & Apesteguía, 2017, p. 03). Improving the knowledge, Benoit, Baker, Bolton, Gruber and Kandampully (2017, p. 219) affirm that “the collaborative consumption occurs within a triangle of actors: a platform provider, a service provider of peers and a client.

And this demonstrates the importance of the internet for this relationship of upward consumption in contemporary society, as well as the ease of interacting with strangers, which characterizes interpersonal relationships in collaborative consumption always through applications, websites or social networks. Differently from collaborative consumption, shared consumption occurs between two or more people, and there is no platform for interaction and no monetary contribution among those involved (Benoit *et al.*, 2017). Still in the view of these authors, in the collaborative consumption there is no exchange of ownership among those involved in the relationship, which always occurs in shared consumption. Thus, it is noticeable that in the collaborative consumption, “people have access to a good, especially without the higher costs and responsibilities, usually accompanied by possession. Collaborative consumption covers a variety of transactions in almost all business areas, including entertainment (for example, file sharing), food (for example, community gardens), and traffic (for example, car sharing)” (Hartl, Hofmann, & Kirchler, 2016, p. 01).

It is noticed that the Internet not only facilitates communication in the global village in which we live (Santos, 2009), but also improves the forms of consumption in the 21st century. Thus, it can be argued that internet platforms have dramatically reduced transaction costs in supplier matching with consumers, and made it easier for individuals to share their resources with others through monetized and non-monetized exchanges (Edbring, Lehner, & Mont, 2016). But this new form of consumption among strangers, made possible by the ease of internet communication, can raise concerns about trust in the other. Even analyzing collaborative consumption as constructed by the members of a group, it is possible to infer that people are suspicious of the attitude and severity of the actions of others, which requires that there be a code of conduct for all to interact in harmony (Hartl *et al.*, 2016). There are many determinants that influence the consumer to opt for collaborative consumption (Möhlmann, 2015), such as sustainability, the enjoyment of the activity and the economic gains (Hamari, Sjöklint, & Ukkonen, 2015).

For some authors, the collaborative consumption is based on the reduction of costs and the monetary interest perceived by users, being the economic factor one of the main reasons for the expansion of this form of consumption currently (Bardhi & Eckhardt, 2012; Barnes & Mattsson, 2016; Benoit *et al.*, 2017; Edbring *et al.*, 2016). However, collaborative consumption cannot be reduced to a mere exchange form focused only in economic purposes (Roos & Hahn, 2016). Thus, besides the economic focus, social and environmental issues have some level of influence in the adoption of this type of consumption (Barnes & Mattson, 2017). It is important to deepen the research about this statement, because actions carried out by users of forms

of collaborative consumption can act beneficially both in the social sphere (improvement of social relations and consumption forms) and in the environment (reduction of pollution and use of resources), being possible to infer that collaborative consumption has positive impacts on sustainability.

2.2. Conscious consumption

In the face of global changes, especially regarding the social and environmental issues that are growing in the world scenario, it is noticeable that consumption is now listed as a prominent factor in an analysis of whether or not it is a positive contribution to sustainability effectiveness in its three dimensions - social, environmental and economic. Given that the higher the percentage of consumption, the greater the amount of inputs and natural resources that companies will use to increase productivity and to meet demand, which relationally demonstrates the potential of consumerism as a contribute negatively to sustainable development. Faced with consumerism, recent studies have argued for a more conscious consumer position about their consumption actions and the impacts of these actions on social and environmental issues (Dagher & Itani, 2014; Pinto, Herter, Rossi, & Borges, 2014). Thus, many consumers are more attentive to sustainable processes, services and products (Instituto Akatu [AKATU], 2013), seeking to consume from organizations committed to sustainability. From this concern comes up the term conscious consumption, which refers to consumer consciousness about their consumption practices. From the point of theoretical analysis, conscious consumption is complex and sometimes conceptually distinct among various authors (Rodrigues *et al.*, 2016). Therefore, conscious consumption can also be defined as sustainable consumption or responsible consumption - more usual designations (Silva, Araújo, & Santos, 2012). However, most definitions have common characteristics: 1) satisfy human needs; 2) promote quality of life; 3) share resources between rich and poor; 4) actions focused on future generations; 5) analyze the impacts of consumption; 6) minimize resource use and waste generation and pollution (United Nation Educational, Scientific and Cultural Organization [UNESCO], 2005, as cited in United Nations Environmental Programme [UNEP], 2011).

In general, these characteristics seek to convert consumption into a conscious act, especially as regards its impacts on society and the environment (Silva *et al.*, 2012) through the action of consumers in this process. Thus, conscious consumption is one of the alternatives that enable the sustainable development of nations. According to Mutz (2014, p. 120), “linked to consumption acts intended by good consumers, are principles of balance, planning and use of reason at the time of purchase. Therefore, it is concluded that it is not a matter of exterminating or reducing consumption, but only of controlling it”. And the awareness and understanding of the impacts of consumerism on the environment and society are factors that influence a correct posture through the consumption habit inherent to human life in the current scenario. According to an empirical study carried out with Lebanese consumers on factors influencing green purchase behavior, it was observed that “a consumer will engage in greener purchase behavior when his perception of the severity of environmental problems increases, when his perception of environmental responsibility increases and/or when his concern with self-image in environmental behavior increases” (Dagher & Itani, 2014, p. 193).

Therefore, the analysis of the possible consequences of consumer purchase behavior shapes the reflexive attitudes they analyze at the time of consumption, especially when they are immersed in a social environment where they can be judged for consume consciously or not. In a related way, it is possible to infer that men and women may present different dispositions in certain situations on conscious consumption. In a comparative gender study, it was identified that when personal identity is stronger, female participants reported higher levels of sustainable consumption compared to male participants.

However, when the social identity was salient, the male participants increased their intentions of sustainable consumption at the same level as the female participants (Pinto *et al.*, 2014).

Thus, the influence and power of social circle pressure on conscious purchase behavior is remarkable, so that the more actions are proposed by society, the greater the positive attitude of assimilation of socio-environmental practices in the act of consumption by both men and women. In addition, as affirm Silva *et al.* (2012, p. 101) “the proposition of a 'conscious consumption' invokes and supposes the power of the consumer and the exercise of freedom in this act”. Therefore, conscious consumption propagates greater consumer empowerment and its reflective ability to discern consumption habits and ways of minimizing negative impacts in the scope of sustainability. Nevertheless, it is possible to infer that the consumer is not the only actor whose role is crucial to the effectiveness of conscious consumption. In a critical positioning about the role of the individual in conscious consumption, Silva *et al.* (2012) claim that the consumer is not guilty of consuming, but companies that use marketing, advertising, creative processes and innovation are responsible for attracting consumers so they cannot control the momentum and continue to buy unconsciously.

In another study, Tsarenko, Ferraro, Sands, & McLeod (2013) provide insights that support this thinking, demonstrating that external influences can impact conscious consumption behavior. In that research, the authors identified that retailers can influence the consumer to be more environmentally conscious in their consumption habits. Therefore, if companies acted in a conscious way, they would not stimulate excessive consumption and contribute to conscious consumption together with the consumers themselves, which corresponds to an integration of actions, stimulating a unified consciousness of both consumers and companies and even governments acting through legislation. Therefore, “conscious consumption and the end of predatory practices would be the responsibility of the whole society, indistinctly” (Silva *et al.*, 2012, p. 97). However, the focus of consumer centered social-environmental consciousness should not be overlooked, since each individual contributes to a systematic outcome.

3. Research Methods

In accordance with the research purpose, the method of quantitative and descriptive approach was adopted, through the application of an online survey. Besides that, the sample is non-probabilistic. This section is subdivided into: 1) literature review procedures; and 2) quantitative analysis procedures, which will be discussed next.

3.1. Literature review procedures

In the literature review, we sought to list the main findings about collaborative consumption and conscious consumption through papers available in academic databases. However, the search occurred in two distinct ways - one for collaborative consumption and another for conscious consumption, described next.

3.1.1. Integrative literature review - collaborative consumption

Since this is a relatively new topic, there is not a vast amount of publications on collaborative consumption. Thus, it was decided to carry out an integrative literature review to systematize the search for academic papers in this area. The integrative literature review allows addressing new or emerging themes, generating a holistic conceptualization, as well as a synthesis of the literature published to date (Torraco, 2005). For Mendes, Silveira and Galvão (2008, p. 759), “the integrative literature review has the purpose of gathering and synthesizing research results on a delimited topic or issue, in a systematic and orderly manner, contributing to the deepening of the knowledge of the subject under investigation”. It should be emphasized that this method is frequently used in the health area and little explored in the organizational field, despite

its proven effectiveness (Botelho, Cunha, & Macedo, 2011). The integrative review consists of a series of steps, ranging from the accomplishment of the search to the analysis of the findings. The steps adopted in this study are described next. In the first step, after identification of the theme and selection of the research purpose, the term collaborative consumption was defined as a search criterion in the following databases: i) *Scielo*; ii) *Scopus*; iii) *Springer Link*; iv) *Science Direct*; v) *Wiley Online Library*.

In the second step, the search was carried out in the databases and was considered the papers published until October 2017 - date of accomplishment of this step. Papers that they owned in the title, abstract or keywords the term collaborative consumption were pre-selected. In total, fifty papers were preselected in the following databases: *Scielo* – 00 papers; *Scopus* – 00 papers; *Springer Link* – 05 papers; *Science Direct* – 37 papers; *Wiley Online Library* – 08 papers. In the third step, it was proceeded with the careful reading of the titles, abstracts and key words, being that the papers that did not have relevance for this research were discarded. In total, twenty papers were selected for reading in full.

In the fourth step, the papers were read in full. However, after full reading, nine papers were not relevant for this research and were disregarded. In addition, during the reading of the papers, some citations were consistent with this research topic, and then some cited papers were considered for reading. In the fifth step, after analysis and careful reading of these included articles, it was accepted to compose the integrative literature review only the paper of Bardhi and Eckhardt (2012). Finally, in the sixth step, only the twelve papers listed in Table 1 were selected to compose the literature review on collaborative consumption already described in this paper.

Table1. List of selected papers through the integrative literature review

| Journal | Paper | Authorship | Year |
|--|---|--|------|
| <i>Environmental Innovation and Societal Transitions</i> | A netnographic study of P2P collaborative consumption platforms' user interface and design. | Javier de Rivera; ÁngelGordoa; Paul Cassidy;AmayaApesteguía. | 2017 |
| <i>Journalof Business Research</i> | A triadic framework for collaborative consumption (CC): Motives, activities and resources & capabilities of actors. | Sabine Benoit; Thomas L. Bakerb; Ruth N. Boltonc; Thorsten Gruberd; Jay Kandampully. | 2017 |
| | Do we need rules for “what's mine is yours”? Governance in | Barbara Hartl; Eva Hofmann; Erich Kirchler. | 2016 |

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| | collaborative consumption communities. | | |
| | You are what you can access: Sharing and collaborative consumption online. | Russell Belk | 2014 |
| <i>Journal of Cleaner Production</i> | Exploring consumer attitudes to alternative models of consumption: motivations and barriers. | Emma G. Edbring; Matthias Lehner; Oksana Mont. | 2016 |
| <i>REGE - Revista de Gestão</i> | Economia compartilhada e consumo colaborativo: o que estamos pesquisando? | Lisilene M. Silveira; Maira Petrini; Ana C. M. Z. Santos. | 2016 |
| <i>Journal of Consumer Behaviour</i> | Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again | Mareike Möhlmann | 2015 |
| <i>Journal of the Association for Information Science and Technology</i> | The Sharing Economy: Why People Participate in Collaborative Consumption | Juho Hamari; Mimmi Sjöklint; Antti Ukkonen. | 2016 |
| <i>Journal of Business Ethics</i> | Understanding Collaborative Consumption: An Extension of the Theory of Planned Behavior with Value-Based Personal Norms | Daniel Roos; Rüdiger Hahn. | 2017 |

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|--|---|-----------------------------------|------|
| <i>Technological Forecasting & Social Exchange</i> | Understanding Collaborative Consumption: Test of a Theoretical Model | Stuart J. Barnes; Jan Mattsson. | 2017 |
| | Understanding current and future issues in collaborative consumption: A four stage Delphi study | Stuart J. Barnes; Jan Mattsson. | 2016 |
| <i>Journal of Consumer Research</i> | Access-Based Consumption: The Case of Car Sharing | Fleura Bardhi; Giana M. Eckhardt. | 2012 |

Source: Elaborated by the authors.

3.1.2. Narrative literature review - conscious consumption

Regarding conscious consumption, it is a relatively mature concept in the field of organizational studies, possessing a vast list of studies and research that analyze its bases and characteristics. It is possible to say that much research on environmental responsibility was conducted in the 1970s and 1980s, when consumers began to seriously evaluate the impact of products on the environment (Follows & Jobber, 2000). In addition, since the 1990s has been focused studies on the environmental impact of individual consumption (Pedersen, 2000).

In view of these arguments, it is understood that conscious consumption has maturity in the academic field and, therefore, was opted for the narrative literature review to search the academic papers that make up the literature review adopted in this study. This research step considered papers that approached the term Conscious Consumption in journals indexed in the following databases: i) *Scielo*; ii) *Science Direct*; e iii) *Wiley Online Library*. According to Botelho et al. (2011, p.125) “the narrative review is used to describe the state of the art of a specific subject, from the theoretical or contextual point of view”. In addition, it is based on the perception and personal interpretation of the scholars (Bernardo, Nobre, & Janete, 2004).

3.2. Quantitative analysis procedures

Through the analysis of the literature and according to the research purpose, the following hypotheses were considered for the elaboration of the research:

H0. Collaborative consumption does not have a relation to conscious consumption;

H1. Collaborative consumption has a relation to conscious consumption;

H2. Gender influences the relationship between collaborative consumption and conscious consumption.

The scale adopted for collaborative consumption is recent and was the only one identified in the literature. This scale was proposed by Pizzol, Almeida and Soares (2017) and is specific to analyze the collaborative consumption in the car sharing modality. It is noteworthy that this scale was validated in Brazil and has not yet been tested in an independent sample. In this way, we opted for the measurement of collaborative consumption in a Brazilian group of car sharing on an online social network - Facebook®. For conscious consumption, the Ecologically Conscious Consumer Behavior Scale (ECCB) was adopted. This scale was

developed by Roberts (1996) and adapted to the Brazilian context by Grohmann, Battistella, Velter, and Casasola (2012). Thus, the version adapted to the Brazilian context was used in this study. The choice of this scale was due to maturity and applications in prior studies that proved to be satisfactory. The ECCB was applied in conjunction with the collaborative consumption scale in the same sample. A pre-test was performed with 23 respondents from the general sample. The assertions in the survey were put on a Likert interval scale of 05 points, varying from "I totally disagree" to "I completely agree" (01- I totally disagree, 02- I partially disagree, 03- I neither agree nor disagree, 04- I partially agree, and 05 - I totally agree). After analysis of the pre-test, some changes were considered and altered for regarding the understanding of terms, affirmations, and sociodemographic information. Then, the survey was carried out in December 2017, when were made available not only the survey link (through Google Docs) but also an informative about the research on the group page of car sharing on Facebook®. The sample universe of this group was 17.830 users. In all, 188 members of the collaborative carsharing group answered. For this study was used the SPSS software (Statistical Package for the Social Sciences) in version 21.0 to enter the data and obtain the statistical calculations. The statistical analyzes were based on the precepts of Cooper and Schindler (2011), Hair, Babin, Money, and Samouel (2005) and Malhotra (2006).

4. Analysis and Results

In this section we present the results obtained in the research, initially dealing with the sociodemographic aspects that characterize the sample profile, the normality, reliability and dimensionality analyzes of the scales, and, finally, the hypothesis test followed by their analyzes.

4.1. Sample profile

To characterize the sample, data were collected about gender, age, marital status, if they have children, individual monthly income, level of education, city of residence and questions related to the frequency with which the individual travels, whether at leisure or work, and what is the frequency of use of collaborative car sharing. After the data treatment and checkup, all 188 questionnaires were validated. Of this total, 44.7% were men and 55.3% were women. The mean age was 31 years ($\sigma = 28.06$).

Considering the distribution of ages by age group, it was observed that 69.1% of the respondents are included in the range between 20 and 30 years. Regarding marital status, 76.6% are single, 17% are married, 3.2% divorced, 2.7% have a stable union, and 0.5% are widowed. In relation to income, the average obtained was R\$2,202.95 ($\sigma = 1955.31$), and when analyzed by income range, it was verified that 47.3% of the participants have income between R\$1,000.01 to R\$ 3,000.00. In addition, 54.8% of respondents do not own a car. Regarding the level of education, 31.4% have completed secondary education while 68.6% have completed higher education. Most of the participants live in the city of Caruaru (54.8%), followed by Recife (38.8%), and the rest in cities in the metropolitan region of Recife in the State of Pernambuco - Brazil (6.4%). Regarding the use of collaborative car sharing, it was observed that, from the digital platforms used by users to obtain the service of car share, 61.7% of users always use Facebook®, while the use of specific applications for car sharing presented low frequency - 85.1% never used.

4.2. Univariate analysis of the variables of collaborative consumption and conscious consumption

It is presented the results of the univariate analysis generated from descriptive statistics in order to better understand the response pattern of the scales of consumption and the behavior of ecologically conscious consumption, and thus obtain an initial observation about the variables that compose these scales. Table 2 presents the values of the mean, standard deviation, variance, asymmetry and kurtosis of the variables that

compose the collaborative consumption. While Table 3 presents these same data for the variables that compose the conscious consumption.

Table2. Univariate Analysis of the Collaborative Consumption Scale

| Variables | Descriptive Analysis | | | | |
|--|----------------------|--------------------|----------|-----------|----------|
| | Average | Standard deviation | Variance | Asymmetry | Kurtosis |
| CC1 - Using carsharing services means thinking about the environment. | 4,207 | 1,0468 | 1,096 | -1,217 | ,768 |
| CC2 - Using a shared car reduces the consumption of natural resources. | 4,362 | 1,0117 | 1,024 | -1,590 | 1,881 |
| CC3 - Using a shared car is a sustainable mode of consumption. | 4,479 | ,8803 | ,775 | -1,622 | 1,796 |
| CC4 - Using carsharing services means thinking about others and the community. | 4,383 | ,8157 | ,665 | -,991 | -,219 |
| CC5 - I feel good when I share resources and avoid overconsumption. | 4,516 | ,7563 | ,572 | -1,479 | 1,427 |
| CC6 - Using carsharing improves my image vis-à-vis the community and society. | 3,128 | 1,1903 | 1,417 | -,019 | -,724 |
| CC7 - I feel accepted by the community and society when I use carsharing. | 3,064 | 1,2176 | 1,483 | -,015 | -,796 |
| CC8 - Using carsharing allows me to be part of a group of people with similar interests. | 3,894 | 1,2277 | 1,507 | -,864 | -,232 |
| CC9 - I trust the carsharing services I use. | 3,622 | ,9978 | ,996 | -,391 | -,235 |
| CC10 - The car sharing service is safe. | 3,223 | 1,0096 | 1,019 | -,272 | -,260 |
| CC11 - I trust the carsharing operating model. | 3,569 | ,9481 | ,899 | -,410 | -,303 |
| CC12 - Having to find the car pick-up point is inconvenient. | 2,165 | 1,1879 | 1,411 | ,682 | -,547 |
| CC13 - Having to book the car every time I need to use it is inconvenient. | 1,670 | 1,0586 | 1,121 | 1,786 | 2,581 |
| CC14 - I'm afraid of not being able to use the shared car when I need to use it. | 3,271 | 1,3105 | 1,717 | -,356 | -,928 |
| CC15 - I fear the car will not be suitable for use (maintenance, cleaning) when I need to use it. | 3,309 | 1,2626 | 1,594 | -,294 | -,904 |
| CC16 - Using the shared car saves me time. | 4,378 | ,9651 | ,931 | -1,722 | 2,532 |
| CC17 - The possibility of using different models of vehicles, according to my need, is an attraction of carsharing. | 2,606 | 1,3262 | 1,759 | ,310 | -,959 |
| CC18 - I appreciate the convenience of using the shared car for my trips. | 4,388 | ,8611 | ,741 | -1,503 | 2,144 |
| CC19 - I appreciate not having to worry about collective transportation schedules (bus, subway, train, ferry, and catamaran) for my trips. | 4,154 | 1,1435 | 1,308 | -1,391 | 1,199 |
| CC20 - I use the carsharing service because, by doing so, I can cut my costs. | 4,766 | ,6105 | ,373 | -3,246 | 12,237 |
| CC21 - Participating in carsharing benefits me financially. | 4,617 | ,7473 | ,558 | -2,117 | 4,418 |

Source: Research Data.

Based on Table 2, it can be observed that the respondents adopt a posture favorable to the factors that motivate or limit the practice of collaborative consumption, since the majority of averages obtained were between 3,569 and 4,766, representing agreement. However, there is a moderate to low agreement between the items that obtained averages between 1,670 and 3,309. Thus, the variables that presented the two largest averages were CC20 (I use the carsharing service because, by doing so, I can cut my costs) with 4,766, followed by CC21 (Participating in carsharing benefits me financially) with 4,617, both related to economic issues present in the cost factor of the collaborative consumption scale. Therefore, it is possible to corroborate with the prior studies that defend the role of the economic factor as an influencer in the actions that involve collaborative consumption (Bardhi & Eckhardt, 2012; Barnes and Mattsson, 2016; Benoit *et al.*, 2017; Edbring *et al.*, 2016).

Nevertheless, the variable that presented the lowest mean was CC13 (Having to book the car every time need to use it is inconvenient.) with 1,670 and related aspects of convenience.

Table 3. Univariate analysis of the Ecologically Conscious Consumption Behavior (ECCB) scale

| Variables | Descriptive Analysis | | | | |
|---|----------------------|--------------------|----------|-----------|----------|
| | Average | Standard deviation | Variance | Asymmetry | Kurtosis |
| ECCB1 - I try to buy products made of paper | 2,734 | ,9992 | ,99 | ,003 | -,188 |
| ECCB2 - I try to buy only products that can be recycled | 2,638 | 1,1172 | 1,248 | ,148 | -,643 |
| ECCB3 - Whenever possible, I buy products made from recycled material | 3,186 | 1,2927 | 1,671 | -,187 | -1,132 |
| ECCB4 - I avoid buying products with packaging that are not biodegradable | 2,596 | 1,1684 | 1,365 | ,325 | -,542 |
| ECCB5 - I try not to buy products that have lots of packaging | 3,122 | 1,2371 | 1,530 | -,235 | -,862 |
| ECCB6 - When possible, I always choose products that cause less pollution | 3,516 | 1,2978 | 1,684 | -,525 | -,808 |
| ECCB7 - I always make an effort to reduce the use of products made of scarce natural resources | 3,394 | 1,2168 | 1,481 | -,379 | -,713 |
| ECCB8 - I do not buy products that harm the environment | 2,723 | 1,1646 | 1,356 | ,084 | -,895 |
| ECCB9 - When I have to choose between two equal products, I always choose what is least harmful to other people and the environment | 3,324 | 1,3349 | 1,782 | -,368 | -,978 |
| ECCB10 - I have already convinced friends or relatives not to buy products that harm the environment | 2,910 | 1,3748 | 1,890 | -,035 | -1,238 |

| | | | | | |
|--|-------|--------|-------|-------|--------|
| ECCB11 - When I know the possible damages that a product can cause to the environment, I do not buy this product | 3,548 | 1,2293 | 1,511 | -,566 | -,584 |
| ECCB12 - I do not buy products and foods that can cause the extinction of some animal and plant species | 3,527 | 1,2515 | 1,566 | -,433 | -,792 |
| ECCB13 - I have already changed or stopped using products for ecological reasons | 3,197 | 1,3399 | 1,795 | -,244 | -1,071 |
| ECCB14 - I do not buy products manufactured or sold by companies that harm or disrespect the environment | 3,064 | 1,1774 | 1,386 | -,224 | -,650 |
| ECCB15 - I buy organic products because they are healthier | 3,314 | 1,3213 | 1,746 | -,300 | -,985 |
| ECCB16 - I prefer products and food without pesticides because they respect the environment | 3,702 | 1,2652 | 1,601 | -,591 | -,723 |
| ECCB17 - When I buy products and foods, environmental concerns interfere with my purchase decision | 3,149 | 1,2449 | 1,550 | -,135 | -,879 |

Source: Research Data.

In contrast to the results obtained in the collaborative consumption scale, for the scale of ecologically conscious consumption behavior, it can be observed in Table 3 that most of the averages presented low or moderate results in relation to the agreement of the respondents with the items of the questionnaire. The lowest average item was ECCB4 (I avoid buying products with packaging that are not biodegradable) with 2,596 and related to the recycling factor, while the item with the highest average obtained was ECCB16 (I prefer products and food without pesticides because they respect the environment) with 3.702, related to the health factor. For the sample adhesion analysis, the Shapiro-Wilk test (S-W) was used due to the size of the sample, according to Hair *et al.* (2005). The S-W test was used to calculate the level of significance of the differences in the distributions of the collaborative consumption scales (21 items), as well as the conscious consumption scale (17 items) in relation to a normal distribution. The test result for all scales was significant ($P < 0.05$) and the null hypothesis H_0 of normal distribution was rejected for all analyzed variables. In addition, the asymmetry and kurtosis values for the variables show that the results do not adhere to the normal curve. Thus, the use of non-parametric techniques is recommended (Malhotra, 2006).

4.3. Exploratory factorial analysis of the scales

Initially, the Cronbach alpha coefficient was calculated to verify the reliability of the scales. This coefficient ranges from 0 to 1, in which a result $0.6 \leq$ indicates a reliability of internal consistency that is not satisfactory (Malhotra, 2006). Thus, both the collaborative consumption and the ecologically conscious consumption behavior scales presented satisfactory coefficients (0.755 and 0.929, respectively). Although high Cronbach alpha indices were observed in the analyzed scales, suggesting the existence of the unidimensionality of them, for the analysis of the unidimensionality of these scales we adopted the factorial analysis method. This type of analysis allows a set of directly measurable variables, called observed variables, to be characterized as the clear manifestation of a smaller set of latent variables (which are not directly

measurable), called common factors, in which each of them acts only on one of the observed variables (Aranha & Zambaldi, 2008).

The Kaiser-Meyer-Olkin (KMO) and Bartlett sphericity tests were used to measure the degree of correlation between the variables and to evaluate the adequacy of the factorial analysis. Thus, in the KMO test, high values between 0.5 and 1.0 indicate the adequacy of the factorial analysis, whereas values below 0.5 indicate that the type of factor analysis may be inadequate (Malhotra, 2006).

However, Bartlett's sphericity test verifies the hypothesis that the variables are not correlated in the population, in which a 5% significance level is sought to reject the null hypothesis of identity correlation matrix (Hair *et al.*, 2005; Malhotra, 2006). Thus, for the collaborative consumption scale, the result of 0.770 was obtained in the KMO test, demonstrating the adequacy of the variables for the application of the factorial analysis. In the Bartlett sphericity test the result was 1327.243 with 210 degrees of freedom and significance level of $p < 0.00$, rejecting the null hypothesis. The exploratory factor analysis generated 7 factors, with the total explained variance of 66.52%, according to the viability criteria of the analysis ($> 60\%$), according to Hair *et al.* (2005). The grouping of the variables for each factor found, as well as their commonalities is presented in Table 4.

Table 4. Exploratory Factorial Analysis of the Collaborative Consumption Scale

| Variables | Component | | | | | | | Comunities |
|--|-----------|------|------|------|---|---|---|------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| The carsharing service is safe. | ,886 | | | | | | | ,823 |
| I trust the carsharing services I use. | ,875 | | | | | | | ,833 |
| I trust the carsharing operating model. | ,838 | | | | | | | ,787 |
| I feel accepted by the community and society when I use carsharing | | ,856 | | | | | | ,797 |
| Using carsharing improves my image vis-à-vis the community and society. | | ,794 | | | | | | ,736 |
| Using carsharing allows me to be part of a group of people with similar interests. | | ,605 | | | | | | ,551 |
| Using carsharing services means thinking about others and the community. | | ,539 | | | | | | ,515 |
| Using a shared car reduces the consumption of natural resources. | | | ,801 | | | | | ,672 |
| Using carsharing services means thinking about the environment. | | | ,777 | | | | | ,716 |
| Using a shared car is a sustainable mode of consumption | | | ,735 | | | | | ,611 |
| I feel good when I share resources and avoid overconsumption. | | | ,450 | | | | | ,464 |
| Using the shared car saves me time. | | | | ,742 | | | | ,719 |

| | | | | | | | | |
|---|--|--|--|------|------|------|------|------|
| The possibility of using different models of vehicles, according to my need, is an attraction of carsharing. | | | | ,669 | | | | ,527 |
| I appreciate the convenience of using the shared car for my trips. | | | | ,612 | | | | ,634 |
| Having to book the car every time I need to use it is inconvenient. | | | | | ,813 | | | ,689 |
| Having to find the car pick-up point is inconvenient. | | | | | ,786 | | | ,628 |
| I appreciate not having to worry about collective transportation schedules (bus, subway, train, ferry, catamaran) for my trips. | | | | ,368 | | | | ,519 |
| Participating in carsharing benefits me financially. | | | | | | ,829 | | ,693 |
| I use the carsharing service because, by doing so, I can cut my costs. | | | | | | ,716 | | ,608 |
| I fear the car will not be suitable for use (maintenance, cleaning) when I need to use it. | | | | | | | ,834 | ,765 |
| I'm afraid of not being able to use the shared car when I need to use it. | | | | | | | ,729 | ,683 |

Source: Research Data.

In Table 4 the first factor corresponds to the confidence dimension, according to the model proposed in the original scale. The second factor refers to the social identity dimension, which, in the analyzed sample, included the variable "Using carsharing services means thinking about others and the community", diverging from the original model. In the third factor, related to socio-environmental consciousness, a variable is lost compared to the original scale, since it migrated to the previously discussed factor. The fourth factor deals with issues related to convenience, but the variable "I appreciate not having to worry about collective transportation schedules (bus, subway, train, ferry, and catamaran) for my trips" was removed in detriment of downtown factor load. The fifth factor deals with risk, however, the number of variables was reduced in view of the new grouping of variables. In the sixth factor are issues related to costs. Finally, a new factor was generated that was previously related to the risk, but in this new configuration it was suggested the appointment of the item for availability, since the issues are related to the disposition of the vehicle and the time, thus diverging from the original scale.

Then, after withdrawing the factor "I appreciate not having to worry about collective transportation schedules (bus, subway, train, ferry, catamaran) for my trips", a second factorial analysis was generated.

The KMO test result was 0.763 and the significance level of $p < 0.00$ in the Bartlett sphericity test, which obtained the approximate chi-square value of 1327.243 with 190 degrees of freedom. In this second analysis, the seven factors remained, with only the displacement of the variable "I feel good when I share resources

and avoid overconsumption" that started to compose the factor related to the dimension of social identity. The Cronbach alpha index obtained with the 20 items of the scale was 0.751.

For the ECCB scale, an exploratory factorial analysis was also performed, according to Table 5. The KMO test obtained the result of 0.923 and the level of significance of $p < 0.00$ in the sphericity test of Bartlett, presenting the approximate chi-square value of 1787.485 with 136 degrees of freedom. The analysis resulted in three factors depending on the amount of dimensions present in the scale used and a total explained variance of 63.39%.

Table 5. Exploratory Factorial Analysis of the ECCB scale

| Variables | Component | | | Comunities |
|---|-----------|------|------|------------|
| | 1 | 2 | 3 | |
| I do not buy products and foods that can cause the extinction of some animal and plant species | ,794 | | | ,646 |
| When I know the possible damages that a product can cause to the environment, I do not buy this product | ,750 | | | ,584 |
| I do not buy products manufactured or sold by companies that harm or disrespect the environment | ,694 | | | ,625 |
| I have already changed or stopped using products for ecological reasons | ,677 | | | ,620 |
| I do not buy products that harm the environment | ,661 | | | ,594 |
| When possible, I always choose products that cause less pollution | ,624 | | | ,662 |
| When I have to choose between two equal products, I always choose what is least harmful to other people and the environment | ,623 | | | ,559 |
| I always make an effort to reduce the use of products made of scarce natural resources | ,622 | | | ,653 |
| I have already convinced friends or relatives not to buy products that harm the environment | ,560 | | | ,514 |
| I try to buy only products that can be recycled | | ,779 | | ,717 |
| I avoid buying products with packaging that are not biodegradable | | ,757 | | ,699 |
| I try to buy products made of paper | | ,709 | | ,508 |
| Whenever possible, I buy products made from recycled material | | ,663 | | ,663 |
| I try not to buy products that have lots of packaging | | ,546 | | ,565 |
| I buy organic products because they are healthier | | | ,864 | ,773 |
| I prefer products and food without pesticides because they respect the environment | | | ,853 | ,781 |
| When I buy products and foods, environmental concerns interfere with my purchase decision | | | ,564 | ,612 |

Source: Research Data.

In Table 5 it is possible to observe the factors arranged with their respective variables grouped according to the factorial load. The first factor corresponds to the change of habit dimension and added in addition to the variables of the original model, plus three variables:

"I do not buy products that harm the environment", "When possible, I always choose products that cause less pollution, "and" I always make an effort to reduce the use of products made of scarce natural resources."

The second factor deals with the aspects related to recycling and the number of variables was reduced in comparison to the original scale, because some variables migrated to the dimension previously treated. The third factor is related to the health dimension and the same was maintained according to the original scale.

4.4. Correlation analysis

In order to verify the degree of association between the constructs studied here and the variables related to age by means of the Spearman correlation coefficient (Hair *et al.*, 2005), it was noted that there are significant levels of association between three dimensions (0,312, sig. = 0.000), social identity (0.363, sig. = 0.000), and confidence (0.205, sig. = 0.005) have a significant and positive relationship with the conscious consumption construct. Based on the correlation, we reject the null hypothesis H_0 , in which "the collaborative consumption has no relation with the conscious consumption", since there is correlation between some dimensions that motivate the collaborative consumption.

The socio-environmental consciousness factor was expected to have a higher correlation than the other factors, however, a higher correlation was observed in the social identity factor. This suggests that people who have an ecologically conscious consumption behavior are concerned with making a good image for society about socioenvironmental aspects rather than actually possessing them as a constant aspect of their personal identity.

This corroborates the idea of Dagher and Itani (2014) that self-image preoccupation with society directs individuals to adopt environmental behavior.

Table6. Correlation between conscious consumption and collaborative consumption

| | | Cost | socio environmental consciousness | Social Identity | Trust | Convenience | Risk | Availability |
|----------------------|-------------------------|--------|-----------------------------------|-----------------|--------|-------------|-------|--------------|
| ConsciousConsumption | CoefficientCorrelations | -,154* | ,312** | ,363** | ,205** | ,108 | -,037 | ,076 |
| | Sig. (2 extremities) | ,034 | ,000 | ,000 | ,005 | ,141 | ,610 | ,298 |
| | N | 188 | 188 | 188 | 188 | 188 | 188 | 188 |

Source: Research Data.

4.5. Test of hypothesis

The purpose of the test of hypothesis is to allow statements to be made about an unknown parameter in which it can be associated with a probability distribution based on a random sample. The aim is to determine, by statistical means, whether the null hypothesis is acceptable or not (Cooper & Schindler,

2003). From the tests of normality already presented, it was verified that the most adequate test to compare the averages would be the Mann-Whitney U, which is based on observations of two independent samples (Malhotra, 2006). Table 7 shows the results of the comparison of means for the variables of the construct ecologically conscious consumption with respect to the gender of the respondents.

Table 7. Test of Hypothesis 2

| Conscious Consumption | Mann-Whitney U | Wilcoxon W | Z | Sig. Asymp. (2 tails) |
|-----------------------|----------------|------------|--------|-----------------------|
| Recycling | 3786,500 | 7356,500 | -1,572 | ,116 |
| Change of habit | 4340,500 | 9800,500 | -,074 | ,941 |
| Health | 3797,000 | 7367,000 | -1,547 | ,122 |

Source: Research Data.

The H2 hypothesis H2 considers that gender influences the relationship between collaborative consumption and conscious consumption. In function of the data set, it is verified that the H2 hypothesis was not supported, considering the non-significance. Thus, in relation to gender, there was no significant difference in the analysis, and it did not allow corroborating the idea that women are more predisposed to conscious consumption than men (Pinto *et al.*, 2014) in collaborative consumption. However, on the basis of the previous correlation about social identity, it is possible to infer that this gender equality was due to the fact that when social identity prevails over personal identity, men equate themselves with women in relation to conscious consumption, caused by social pressure (Pinto *et al.*, 2014). This relationship could be inferred since the analysis occurred with members of a group of collaborative car sharing and in this case, the feeling of participation in the group may have influenced the responses. Thus, the hypothesis H2 is not confirmed - "gender influences the relationship between collaborative consumption and conscious consumption".

5. Conclusion and Implications

In general, the study contributed to understand the relationship between collaborative consumption and conscious consumption. According to the analyses, it is possible to affirm that there is a level of coherence between attitudes of collaborative consumption in relation to conscious consumption, mainly between three dimensions: i) social identity; ii) socio-environmental consciousness; and iii) trust. Furthermore, it was not possible to infer that gender difference influenced this relationship, since the analysis showed parity in the results between men and women.

In addition, the analyses show that financial concern is an important factor that consumers take into account in the use of collaborative consumption (collaborative car sharing), corroborating with prior studies (*e.g.*, Bardhi & Eckhardt, 2012; Barnes & Mattsson, 2016; Benoit *et al.*, 2017; Edbring *et al.*, 2016).

Findings from this study contribute to fill a gap in a theme as recent as collaborative consumption, bringing some theoretical and practical applications to this field of study. As theoretical contributions, the results of this study demonstrate coherence with findings from other researches in which it was shown that economic interests predominate in the use of collaborative consumption. In fact, the main contribution is due to the addition of one more case through the empirical investigation and the methodological approach of quantitative nature, still little applied to the field of research in question. Moreover, the relationship

between collaborative consumption and conscious consumption analyzed in this study demonstrated that other factors may also influence and deserve more detailed investigation, such as the dimension of social identity in contrast to the dimension of socio-environmental consciousness facing the issues of sustainability.

In addition, as a practical implication, the study provides information from a consumer segment that can assist organizations seeking this share of the collaborative consumer market. Thus, it is possible to correctly analyze the impacts of forms of collaborative consumption on managerial implications, where new ventures can take advantage of the growth of these new forms of consumption in Brazil and generate well-structured and accessible platforms which consider aspects related to the dimensions of social identity, social-environmental consciousness and trust. Consequently, these platforms could facilitate the communication and the consumption of these specific consumers.

6 Limitations and Future Research

It should be emphasized that the research presented some limitations: 1) the data collection instrument consists of two scales, increasing the size of the instrument and requiring more time to respond; 2) the number of responses was insufficient to generate a probabilistic sample; 3) the analysis occurred in a specific region of Brazil, making it impossible to compare contextual aspects between different regions that may influence the responses; and 4) the results are restricted to car sharing, not applying to other collaborative consumption models. Therefore, the following agenda for future research is proposed.

Firstly, it is necessary to dedicate more time and resources for getting a larger sample size (probabilistic) as well for expanding the geographical coverage, in order to get more accurate and representative answers not only in Brazil but also in other countries - in a cross-cultural analysis, for example. Secondly, it is essential to analyze the relationship between collaborative consumption and conscious consumption aside from car sharing to other spheres of collaborative consumption, as a way of broadening the findings of this research to a greater understanding about collaborative consumption literature.

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