What do we know about Customer Satisfaction and Loyalty? A Bibliometric Analysis

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Abstract— In this study, we explored the Status Quo of the academic literature on customer satisfaction and loyalty, and its research developments. In order to do so, we performed a bibliometric analysis from 1,358,318 scientific articles extracted from the periodical CAPES, over a period of 10 years, using three research axes. As results, we indicate some insights and research paths. Within this context, one of the main contributions of this work was to carry out research with the creation of a framework, which presents the Status Quo on customer satisfaction and loyalty. Based on these results, we propose topics that can be used in agendas for future research. These themes offer the potential to advance scientific knowledge about the relationships and interrelationships between customer satisfaction and loyalty.

Keywords — Bibliometric analysis; Structure of knowledge; Conceptual evolution; Emerging trends; Consumer behavior.

I. INTRODUCTION

In today's competitive marketplace, products and services within the same industry are becoming more and more similar. Thus, in terms of market positioning, companies have sought more differentiation that can keep them close to the customer (NOYAN; ŞIMŞEK, 2014). However, due to market competitiveness, this proximity needs to be based on customer expectations, something that should also be reviewed cyclically (NYADZAYO; KHAJEHZADEH, 2016). For this reason, Pérez and Rodriguez Del Bosque (2015) stress that consumer behavior, although complex, is an important aspect that needs to be carefully analyzed by company managers to obtain competitive advantages.

For Agnihotri et al. (2016), most often customers use and pay for services on demand without worrying about perceived value, failing to consider initial costs. In the opinion of these authors, the satisfaction generated in clients that have this posture, is highly influenced by social media. This may have the occurrence of influences from multiple sources.

However, Han and Hyun (2015) and, Ahrholdt et al. (2017) agree that customer satisfaction is the product of the judgment that is constructed during the acquisition of a service or product of a particular brand or establishment. From this, according to these authors, there is a perception about meeting expectations and, if they have been met, a loyalty behavior is generated.

According to Heskett et al. (1994), customer satisfaction is related to customer loyalty, which in turn is related to profitability. This approach is supported by Hallowell (1996), who emphasizes the practical importance of this assertion by saying that loyalty behaviors, including continuity of relationship, result from clients' beliefs that the amount of value received from an establishment is greater than that available in others.

Sirdeshmukh et al. (2002) emphasize that satisfaction and loyalty, besides being intrinsically interconnected, can be represented by different dimensions and variables. For these authors, these dimensions and variables involve a tripartite view of reliability assessments along operational competence, operational benevolence perceived at the time of the relationship with the company, and dimensions of guidance for problem solving.

The objective of this work was to explore the scientific production on the subject of customer satisfaction and customer loyalty from a multivariate data analysis approach and, as a result, a portfolio of dimensions and variables that can guide researchers and, assist the performance of managers in planning and actions in the area.

The approaches carried out in this work resemble in part the work of Albanez et al. (2014), and Fetscherin and Heinrich (2015), regarding the methodological approach used. However, Albanez et al. (2014) limited their research universe to a specific periodical and also to the research period from 2007 to 2012. In relation to these authors, another important limitator is in the scope, which analyzed papers presented at scientific events organized in Brazil by the National Association of Postgraduate and Research in Administration (ANPAD). Both studies properly investigate customer satisfaction and loyalty; however, they are limited in scope because of sample selection. While Albanez et al. (2014) limited their study

to publications conducted by ANPAD, Fetscherin and Heinrich (2015) collected data only in the Web of Science database. This work was not limited in scope, since the data were collected on a large scale, without restricting them to any database, although there is a delimitation of the research universe. In addition, the studies of Albanez et al. (2014), and Fetscherin and Heinrich (2015) were performed in the beginning and mid-2000, emphasizing the need for a recent study.

II.   CUSTOMER SATISFACTION

Commercial relations always start and have some outcome with clients (ASCARZA et al., 2017). For this reason, an understanding of how to effectively manage customer relationships has become an important topic for academics and practitioners in recent years (KELLER, 1993; Payne, FROW, 2005; RAHIMI et al., 2017). From the positioning in front of the competition and the market, through all the improvements of planning, actions and management of the organization interdepend of the clients (PARK et al., 2018). This interdependence leads companies to a need to meet the expectations that lead to the satisfaction of their demand and also of potential clients (ISTANBULLUOGLU, 2017).

For Shin and Managi (2017), customer satisfaction can be measured from the degree of perception of exceeding expectations and also from how the needs were met and delivered. In the view of Pansari and Kumar (2017), the current business market is highly competitive and having the satisfied customer is an important indicator of performance aligned with the urges of demand and business strategies.

According to Gao and Lai (2015), the experiences in terms of commercial relations experienced by the customer, form the satisfaction. However, these authors also point out that when customer satisfaction is measured, the literature only considers satisfaction, dimensions and variables based on specific satisfaction or, specific to the commercial transaction; with no agreement as to the best way to measure it.

For Olsen and Johnson (2003), perceived equity is a psychological reaction of the customer to the value that a service company offers. These authors also point out that, this equity fosters customer satisfaction, which can be described as cumulative satisfaction, from business relationships. It is also highlighted that, from this, clients tend to rely on all their experience, forming intentions and repurchase decisions. This view is corroborated by Ashraf et al. (2018), which define customer satisfaction as one of the main objectives of organizations. According to these authors, satisfaction leads customers to be loyal, and this can be a source of competitive advantage for the organization.

For organizations to position themselves adequately in the face of market and demand, in order to obtain sustainable competitive advantage, it is necessary to provide and improve customer satisfaction (PORTER, 2011). Due to this positioning, Aktepe et al. (2015), advocate the need to constantly carry out an analysis of customer satisfaction and, from this, review plans and actions. According to these authors, this analysis should be used as a parameter to measure levels of customer satisfaction. And, as a result of this action, take actions contrary to the points of low satisfaction detected and, also, improving the points of high satisfaction.

Pan (2015) presents another point of view that satisfaction can be measured by feedback from customers on the quality and evaluation of the products or services themselves or products. For this author, customer satisfaction is an element that can be considered erratic, this is justified because a product or service satisfies a customer and necessarily may not satisfy another. Therefore, according to Ashraf et al. (2018), in order to increase customer satisfaction, it is necessary that the dimensions and variables that influence customer satisfaction are correctly understood.

The search for an effective management of the elements that generate satisfaction and, the improvement of customer loyalty, has been approached by professionals and by the literature (ZEITHAML et al., 1993; RUST, CHUNG, 2006; BLUT et al., 2015). Several studies have found that the higher level of customer satisfaction leads to greater fidelity and, therefore, word of mouth recommendations (BODET, 2008; DENG et al., 2010; OREL; KARA, 2014; MEESALA; PAUL, 2018). The expansion of competition in the marketing of products and services has led companies to reflect on differentiating strategies that foster loyalty and, from this, attract and retain customers (OPREANA, VINEREAN, 2015). However, Kumar et al. (2013) emphasize the existence of an intrinsic association between customer satisfaction and loyalty, which is highly variable and also dependent on dimensions and variables that compose the most varied scenarios. According to these authors, this association still influences the type of sector involved and the segment of clients, which, therefore, influence the nature of the variables.

III.   LOYALTY OF CUSTOMERS

It can be well accepted today that competitiveness in terms of quantity and quality makes it extremely difficult for a company to differentiate itself from its competitors (NGO; NGUYEN, 2016). This, according to Alotaibi (2015), can be measured through customer loyalty, which is both an attitudinal and behavioral tendency that favors the choice of one brand over all others. For Ngo and

Nguyen (2016), for reasons of cost reduction and profit improvement, in order to build sustainable competitiveness, maintaining long-term customer loyalty is a mandatory task of organizations.

In this paper, we present the results of a study of customer loyalty (DICK, BASU, 1994; ZEITHAMLETAL et al., 1993; REICHHELD, 2003). However, Nyadzayo and Khajehzadeh (2016) emphasize that while managers take a continuous approach and emphasize planning and action that drives customer loyalty, this approach remains one of the most challenging issues facing modern day-to-day business, due to the intense breadth and market competition.

Machado (2015) emphasizes that if the customer buys the same brand regularly, it is possible to consider him a loyal customer to this brand. This author further expands this view by pointing out that a constant repurchase of the same brand may be termed trademark behavioral loyalty. This behavioral issue, according to Ngo and Nguyen (2016), occurs when a customer considers that the product or service provided by an organization remains the most appropriate alternative among so many others available in the market. According to these authors, the behavioral loyalty to brands is the one that best meets the needs, expectations and values of this client.

Customer loyalty encourages consumers to buy more consistently, and also more cyclically, by spending a larger portion of money and thus having a positive feeling about shopping experiences, helping to attract other consumers (KASIRI et al. al., 2017; LIU; ATUAHENE-GIMA, 2018). Due to this feeling, customer loyalty as the main consequence of customer satisfaction, has several ways of being defined and measured (Wright et al., 2017, Gong, YI, 2018). According to Khuong and Dai (2016), if a company invests resources to increase customer loyalty without focusing on profitability, such long-term action can lead to failures in its sustainability vis-à-vis the market.

Although customer loyalty is often related to the predisposition of shopping repeatedly (ALOTAIBI, 2015;

NGO; NGUYEN, 2016), according to Ismail and Yunan (2016), a good or service to ensure customer loyalty, needs to be accompanied by some psychological bond, and the organization must simultaneously maintain attitudes favorable to an ongoing relationship.

For Chuah et al. (2016), organizations need to establish cycles of change and manage customer satisfaction in order to retain them strategically. However, according to these authors, although these cycles may be effective in generating customer loyalty, however, they are not a suitable instrument for changing dissatisfactions when they occur.

Customer loyalty over time has been studied intensively, and has sought to identify and understand dimensions and variables that lead a consumer to become loyal, as well as the factors that make him break a loyalty relationship with a particular brand or consequences of these situations (VISENTINI, FENNER, 2017).

IV. DEVELOPMENT OF THE METHODOLOGICAL APPROACH AND RESULTS

This article was structured as a result of the investigation of the scientific production related to customer satisfaction and loyalty, with the subsequent analysis of quantitative data on works present in the literature, which were allocated in research axes to observe interfaces in these works.

Within this context, bibliometrics, which is a mechanism for reviewing scientific production, can be considered as systematic, comprehensible and reproducible, allowing a broader understanding of scientific and technological information (FETSCHERIN; HEINRICH, 2015). For this reason, and considering the assumptions presented in this section, the methodological approach of this work employed three stages (Structuring the research framework, Study for research portfolio composition and Bibliometric analysis of the research portfolio) to investigate scientific production related to satisfaction and customer loyalty (Figure 1).

Fig. 1: Synthesis of the methodological approach used

The structuring of the research framework was started from the definition of research axes. In this work three

central axes were defined to investigate the literature. Thus, the first research axis was defined from the

consideration of the notes of the works of Hellier et al. (2003) and Hur et al. (2015), which describe multivariate data analysis as an extremely broad and flexible framework for data appreciation, which allows analyzing customer relationships. Subsequently, the term multivariate data analysis was inserted into the CAPES (Coordination for Improvement of Higher Level Personnel) platform, which returned 1,358,318 scientific articles, indicating the relevance of the selected axis.

From this, the two remaining axes were defined considering a multidimensional analysis that considered customer satisfaction and loyalty in their study. Thus, by performing a refinement in the searches considering in the secondary axis, literatures containing the words multivariate data analysis, customer satisfaction and loyalty with up to 80% occurrence in the articles and, in the tertiary, literatures containing the words multivariate data analysis, satisfaction and loyalty of clients with occurrences less than 80%. After this survey, to help define the keywords, the word cloud technique was used to hierarchize the most important words found in the literature (Figure 2).

The literature confirms that the terms customer expectations (PARASURAMAN et al., 1991; ZEITHAML et al., 1993; KELLEY; DAVIS, 1994); consumer satisfaction (TSE, WILTON, 1988; YI, 1990; WESTBROOK, OLIVER, 1991; GIESE, COTE, 2000) and consumer loyalty (OLIVER, 1999; et al., 2002), are employed in several works and, for this reason, these were selected as components of the second axis. The third axis was elaborated following the same context, defining the following terms: Performance (TEAS, 1993; ZEITHAML et al., 1993; BAKER, CROMPTON, 2000; CRONIN et al., 2000); (Carman, 1990; IACOBUCCI et al., 1995; OSTROM, LACOBUCCI, 1995; PLEGER BEBKO, 2000); quality (CARMAN, 1990; BOLTON; DREW, 1991; CRONIN JR .; TAYLOR, 1994; PARASURAMAN et al., 1994); In this paper, we present the results obtained in the literature, which is based on the results obtained by Taylor et al. (1994) and Van der Fu et al. (2001), McKinney et al.

In this way, after the definition of the research axes, a selection of the databases that were used was made, this selection was based on the bases available on the periodic CAPES platform. For that, the research area was used as the research area, defined as Engineering and, delimited by Production Engineering. Thus, we found 117 databases. Afterwards, the key words multivariate data analysis, satisfaction, loyalty and customers, which obtained answers from three databases (Springer, ScienciDirect and Emerald), were refined in order to meet the objective of this study. In order to obtain which word compositions the literature uses, considering the previous

findings (Figure 2) and the delimitation of the investigation in three axes, a triangulation of data was determined for determination of keywords by axis (Table 1).

Fig.2: Synthesis of the most relevant findings in the literature

Table. 1: Summary of keywords for search axes

Axis 1	Axis 2	Axis 3
Multivariate data analysis	Customer expectations	Performance
	Consumer satisfaction	Customization
	Consumer loyalty	Quality
		Marketing
		Profitability

Thus, from the definitions of the research bases and the research axes, investigations in the literature were made from combinations between research axes, by means of the combination between the defined keywords, using as a link "link" in this search, the Boolean operator "and".

The study for composition of the research portfolio was carried out considering a search for articles in the defined databases, using the keywords and research axes contained in Table 1. The filters used in this search were: article; engineering, and industrial and production engineering, which returned 2229 articles for a period of ten years between 2007 and 2017 (Table 2).

Table.2: Compilation of initial search results

Research axes (R_n)			Data base		
R₁	**R₂**	**R₃**	**Springer**	**ScienciDirect**	**Emerald**
Multivariate data analysis	*Customer expectations*	*Performance*	28	179	65
		Customization	5	29	2
		Quality	26	197	69
		Marketing	23	145	50
		Profitability	7	66	28
Multivariate data analysis	*Consumer satisfaction*	*Performance*	10	171	33
		Customization	4	28	3
		Quality	12	234	35
		Marketing	11	194	29
		Profitability	5	58	16
Multivariate data analysis	*Consumer loyalty*	*Performance*	3	92	14
		Customization	1	17	1
		Quality	3	125	15
		Marketing	3	131	14
		Profitability	3	37	8
	Total		**144**	**1703**	**382**

The next step in the composition of the research portfolio was to carry out a sorting of duplicate articles, which was carried out using Zotero software. In this way, all articles found (Table 2) were imported into the software operation platform, with a repetition of 1685 articles identified. Subsequently, these articles were deleted from the research portfolio, leaving a quantitative of 544 articles.

Table.3: Selected articles from the title and abstract

Author(s)	Title	Citations
Talib et al. (2013)	An empirical investigation of relationship between total quality management practices and quality performance in Indian service companies.	153
Jiewanto et al. (2012)	Influence of Service Quality, University Image, and Student Satisfaction toward WOM Intention: A Case Study on Universitas Pelita Harapan Surabaya.	82
Herrmann et al. (2006)	An empirical study of quality function deployment on company performance	49
Ramseook-Munhurrun et al. (2015)	Examining the Structural Relationships of Destination Image, Perceived Value, Tourist Satisfaction and Loyalty: Case of Mauritius.	89
Wang e Tseng (2011)	Evaluation of International Student Satisfaction using Fuzzy Importance-Performance Analysis	26
Ferreira et al. (2010)	Efeitos da responsabilidade social corporativa na intenção de compra e no benefício percebido pelo consumidor: um estudo experimental	18
Noor e Foo (2014)	Determinants of Customer Satisfaction of Service Quality: City Bus Service in Kota Kinabalu, Malaysia.	29
Abdullah (2013)	Fuzzy multi criteria decision making and its applications: A brief review of category.	35
Gil et al. (2010)	Las asociaciones de la imagen como determinantes de la satisfacción en el sector bancario español.	18
Fuentes-Blasco et al. (2014)	Effect of customer heterogeneity on the relationship satisfaction–loyalty.	26
Gregorio e Cronemyr (2011)	From expectations and needs of service customers to control chart specification limits.	17
Camgoz-Akdag e Zaim (2012).	Education: a comparative structural equation modeling study.	13
Šályová et al. (2015)	Effect of Marketing Orientation on Business Performance: A Study from Slovak Foodstuff Industry.	19
Radomir e Nistor (2012)	High-Educated Consumer Perceptions of Service Quality: An Assessment of the SSTQUAL Scale in the Romanian Banking Industry.	14

Thus, after filtering and deleting duplicate articles, a check of the adherence to the topic customer satisfaction and loyalty was performed in all 544 articles, by means of title and abstract reading. This verification allowed us to locate 507 articles that were not aligned with the topic, which were removed from the scope of the study. Proceeding, as suggested by Hicks et al. (2015), a verification of the scientific recognition of the remaining articles was carried out. And, in this way, the other 37 publications were analyzed for scientific recognition. The purpose of this analysis was to select the most relevant literature, with two cut-off stages, the first one based on the pre-established value of 85%, that is, articles whose quotations represent 85% of the sum of all quotes in the portfolio, were selected and, below that margin, were removed from the analysis process. The second cut phase,

according to Hicks (2015), considered as included in the methodological approach, articles that were cited 12 times or more, being withdrawn to those below this level (Table 3). In order to aid in the operationalization of these searches and citation checks, the Google Scholar search tool was used.

However, as Fetscherin and Heinrich (2015) point out, a bibliometric analysis must be able to indicate the real paths that the academy has been following. For this reason, a new verification of adherence of the selected articles to the subject of customer satisfaction and loyalty was carried out, and a full reading of contents was carried out. From this, 9 articles were excluded from the framework of Table 3, due to the absence of adhesion. Thus, after the previous studies, where 2229 literatures were considered, the final portfolio of articles adhering to the theme studied was obtained (Table 4).

Table.4: Composition of the final portfolio

Author(s)	Citations
Jiewanto et al. (2012)	82
Ramseook-Munhurrun et al. (2015)	89
Wang e Tseng (2011)	26
Abdullah (2013)	35
Camgoz-Akdag e Zaim (2012).	13

Sequentially, the bibliometric analysis was started, considering all the articles that compose the final portfolio and their respective citations (250 articles). This analysis followed the precepts of Hicks et al. (2015), which suggest as parameters of the literature, the year of publication, the country of origin, and the interrelations between the literatures of a field of study. Thus, from the analysis of the 250 articles, 45 different countries were identified, 9 temporal periods of publications between 2010-2018 (Figure 3), and several interrelations between literatures.
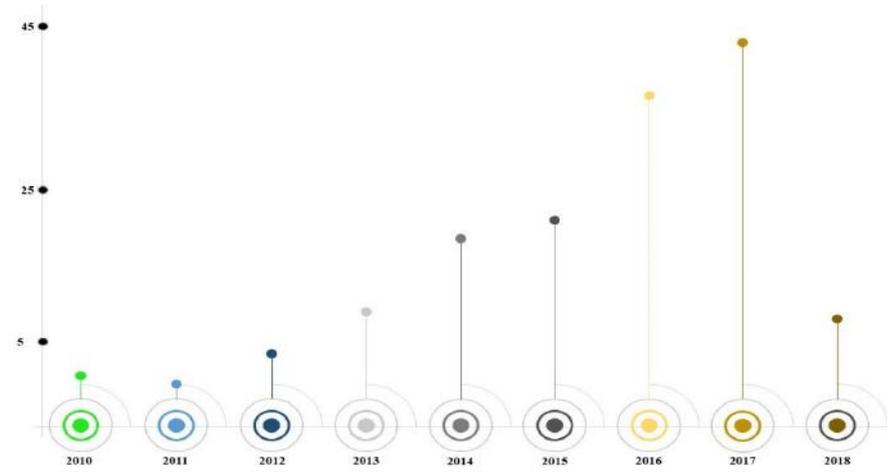

Fig. 3: Time Synthesis of Publication Behavior

Figure 3 shows the evolution of the number of articles published per year. The year with the most articles published is 2017, with forty-four articles; followed by 2016 with forty-one; 2015 with twenty-three; 2014 with twenty; 2018 with fourteen; 2013 with ten; 2012 with five of us; 2011 with an article published in the scientific journals indexed in the three databases researched. The annual average of the scientific production on the subject is 19.5 articles / year, fact that indicates the relevance and discussions in the literature. With this, it is evaluated that the scientific production on satisfaction and customer loyalty is still moderate and, it needs more researchers interested in the subject.

Figure 3 shows the evolution of the number of articles published per year. The year with the most articles published is 2017, with forty-four articles; followed by 2016 with forty-one; 2015 with twenty-three; 2014 with twenty; 2018 with fourteen; 2013 with ten; 2012 with five of us; 2011 with an article published in the scientific

journals indexed in the three databases researched. The annual average of the scientific production on the subject is 19.5 articles / year, fact that indicates the relevance and discussions in the literature. With this, there is an indication that scientific output on customer satisfaction and loyalty is still moderate. However, in ascertaining the results that Figure 3 presents, it is possible to notice that in the period comprising the years 2010 and 2011, the publications were scarce, however, after that period an increasing pattern of publications is also denoted.

Thus, as of 2011, this evolution on investigations regarding the subject of customer satisfaction and loyalty, suggests a recognition of the importance of knowing the needs and expectations of the clients with greater rigor. This can be verified through the cumulative regression of the publication behavior (Figure 4), where the obtained value of R^2 (0.96092) suggests that the adjustment of the model can explain the observed values and that the statistical conditions are adequate to confirm that the

number of publications can lead to a growing on the subject customer satisfaction and loyalty.
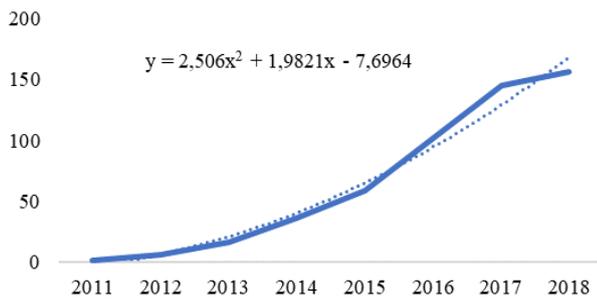

$$y = 2,506x^2 + 1,9821x - 7,6964$$

Fig. 4: Trend analysis of publications

In addition, Figure 5 shows the countries of origin of the published articles on customer satisfaction and loyalty, which were almost identified from the research axes (Table 2).
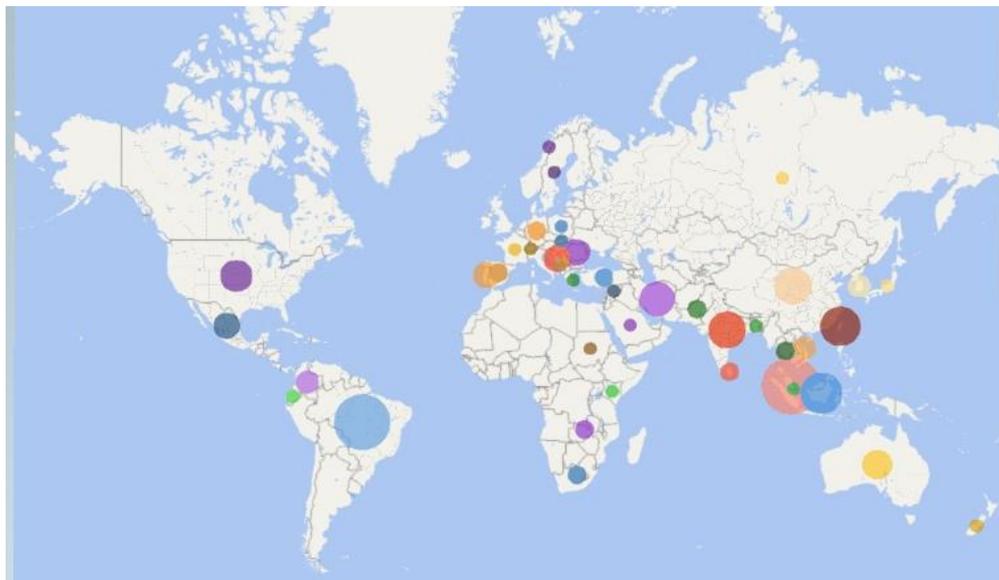

Fig. 5: Academic productivity by country

We identified 154 publications, with an average of 3 articles per country. Three countries (Brazil, Indonesia and Malaysia) contributed with 30.5% of the publications. The other countries, including South Africa, Germany, Australia, Mexico and England, for example, published on average two scientific papers each in the period analyzed. It is also noted that there are countries considered to be emerging, or in development, are publishing studies on the subject, such as Singapore, South Korea, India, Thailand and Indonesia. Although the number of publications has increased by approximately 48% since 2007, which suggests an awakening by customer satisfaction and loyalty studies, compared to other areas of knowledge, however, efforts are needed to increase and research related to customer satisfaction and loyalty.

The investigation of the interrelation between citations was made through the analysis of social networks (Figure 6), which made it possible to graphically visualize interactions among the selected literatures (Table 4), making it possible to note occurrences of relations, as well as their amplitudes.
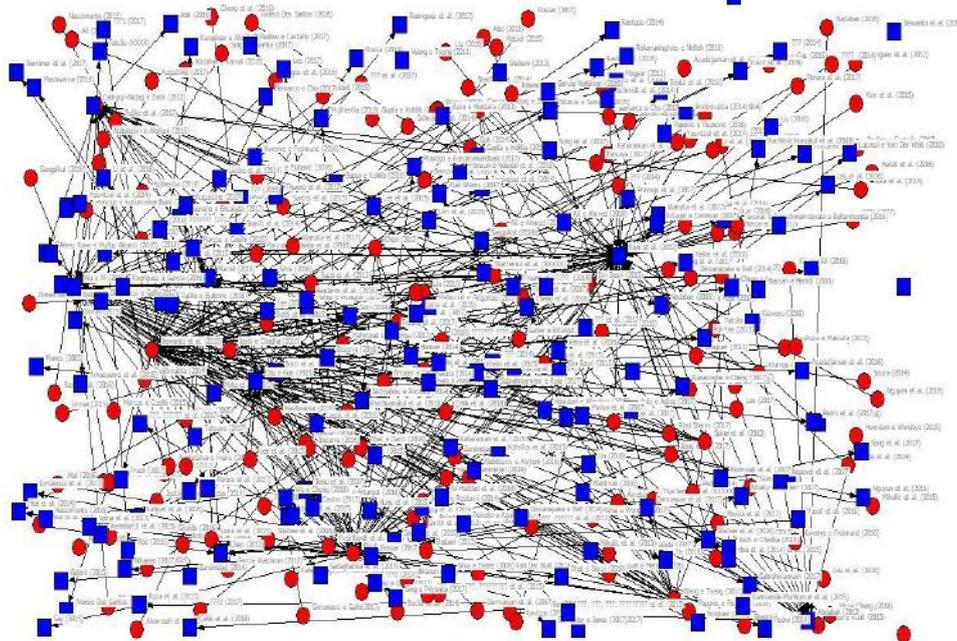
Fig. 6: Cluster structure of the citation network

The results show that, although the macroenvironment is characterized by several links, there is insufficient evidence to support the existence of a specific type of pattern or differentiate. Thus, these results also give rise to the existence that the analyzed literature has a wide influence among them. However, to broaden the reflections on the understanding of this existence, a polarization of components of social networks was made (Figure 7).
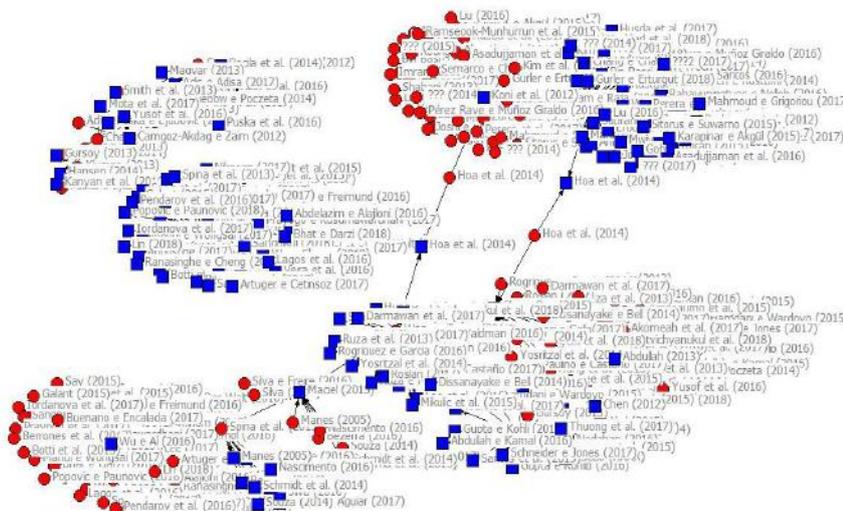

Fig. 7: Polarized cluster structure of the citation network

When the polarization of the network of citations was realized (Figure 7), isolated environments were revealed in comparison to the initial cluster. And, from this revelation, it was also possible to verify that the connections between these environments are tenuous, suggesting the existence of little interrelation between the citations of the themes contained in the literatures of the final portfolio. From these links were identified the seven literatures that aided this polarization (Table 5).

Table.5: Synthesis of the literature used to support the polarization of the network of citations

Author(s)	Method, technique and /or tools	Application
Abdullah (2013)	*Fuzzy logic and Multicriteria method*	Decision making about consumer purchasing positioning.
Chen (2012)	*Fuzzy logic and Structural Equation Modeling*	Analysis of the repurchase rate to maximize services.
Ramseook-Munhurrun et al. (2015)	*Structural Equation Modeling*	Appreciation of constructs that influence the satisfaction and loyalty of tourists.
Jiewanto et al. (2012)	*Structural Equation Modeling*	Verification of the influence of quality parameters on the university service offer.
Wang e Tseng (2011)	*Fuzzy Importance-Performance Analysis*	Examine the dynamics that attract foreign students to higher education.
Camgoz-Akdag e Zaim (2012)	*Structural Equation Modeling*	To verify satisfaction based on the identification of variables that determine perceived quality.
Spina et al. (2013)	*Survey* and Quality tool	Evaluation of the relationship between quality and customer satisfaction.

Customer satisfaction and loyalty are areas that are complex enough to include multiple variables, which are and are, most of the time, interrelated and mutually dependent. For this reason, the efforts of the scientific community so far have been directed to the investigation and identification of these variables, as well as the relationships between them and their influence on and for the client.

V.   FINAL CONSIDERATIONS

The bibliometric analysis of customer satisfaction and loyalty in this work examined the evolution of scientific production over a 10-year period, based on academic publication observations. From our analysis, we conclude that literature reviews on client satisfaction and loyalty are limited to the presentation of some context. The increase in the number of publications that has as its starting point contexts related to customer satisfaction and loyalty, suggests the interest and relevance of this work and, from this, the indication of existing gaps in the literature. Therefore, some insights and research paths are indicated. For example, a positive growth trend has been observed since 2007 and the number of publications has reached 45 in 2017. A plausible explanation for this trend can be supported by the recession and in the period of economic slowdown that businesses and enterprises faced.

However, the investigations showed that client satisfaction and loyalty is moderately exploited in the scientific environment, reflecting perspectives that present multidimensional quantitative approaches. Thus, this context may still have an investigative continuity, in which evidence tends to emerge and, from them ramifications in several areas of research, which perpass topics related to customer satisfaction and loyalty.

It is therefore not surprising that the number of high-impact publications, and thus the journals dealing with this subject, is still small. However, the results of our inquiries shed light on a relatively new area of research, however, fascinating about the interrelationships existing between clients and dimensions and variables that influence the feeling of satisfaction and loyalty.

One of the main contributions of this work was the realization of research with subsequent creation of a framework, which presents the status quo and the indications of paths of literature on the researched topic, drawn from comprehensive literature review. These findings may be used for further research on the subject and other related topics of interest to the academy.

Other important findings are related to the most common methods applied and the data sources employed. Thus, analyzing the final literature portfolio, the most frequent search methods were multivariate data analysis and quantitative data collection, these methods were based on semi-structured interviews and surveys using closed questionnaires.

The research limitations of this work are related to the focus of publications and databases present in the CAPES Newspapers platform. Thus, it is suggested for future researches: (*i*) the replication to other contexts from annals of congresses, theses, dissertations and books; (*ii*) the expansion of bibliometric analysis through the use of other databases of scientific publications and, consequently, the identification of scientific research gaps.

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