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A Systematic Review of the Research Models of Brands Subject Doctoral Theses Published in 2020-2023 at the YÖK National Thesis Center

YÖK Ulusal Tez Merkezinde 2020-2023 Yıllarında Yayımlanan Marka Konulu Doktora Tezlerinin Araştırma Modellerinin Sistematik Bir İncelemesi

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Abstract

The aim of this study is to examine the research models of doctoral theses published on brands subject in 2020-2023. For this aim, the content analysis of the doctoral theses retrieved from the database of the YÖK National Thesis Centre was carried out using PRISMA 2009 Flow Diagram. Secondary data sources obtained from 85 doctoral theses evaluated were analyzed using VOSviewer and UCINET programs. As a result of the analyses, a total of 40 brand concepts were evaluated in the research models of doctoral theses published on brand concepts. It can be seen that some similar brand concepts have been evaluated in the research models of relevant theses in all years. Brand loyalty, brand equity, brand image, brand quality, brand trust, brand satisfaction, brand experience, brand awareness, brand attitude and brand love are the common motor structures with high link strength that are evaluated in most of the dissertations. However, the concepts of brand loyalty, brand trust, brand quality, brand image, which have a higher number of direct ties and eigenvector values, are the leading actors. The results of the study are discussed and implications are provided.

Keywords: Doctoral Theses, Brand Concepts, PRISMA 2009 Flow Diagram, VOSviewer, UCINET

Öz

Bu çalışmanın amacı marka konusunda 2020-2023 yıllarında yayımlanan doktora tezlerinin araştırma modellerini incelemektir. Bu amaçla YÖK Ulusal Tez Merkezi veri tabanından alınan doktora tezlerinin içerik analizi PRISMA 2009 Akış Diyagramı kullanılarak yapılmıştır. Değerlendirilen 85 doktora tezinden elde edilen ikincil veri kaynakları VOSviewer ve UCINET programları kullanılarak analiz edilmiştir. Yapılan analizler sonucunda marka kavramları üzerine yayımlanan doktora tezlerinin araştırma modellerinde toplam 40 marka kavramı değerlendirilmiştir. İlgili tezlerin araştırma modellerinde tüm yıllarda benzer bazı marka kavramlarının değerlendirildiği görülmektedir. Marka sadakati, marka denkliği, marka imajı, marka kalitesi, marka güveni, marka memnuniyeti, marka deneyimi, marka farkındalığı, marka tutumu ve marka aşkı, tezlerin çoğunda değerlendirilen yüksek bağlantı gücüne sahip ortak motor yapılardır. Ancak doğrudan bağ sayısı ve özvektör değerleri daha fazla olan marka sadakati, marka güveni, marka kalitesi, marka denkliği ve marka imajı kavramları önde gelen aktörlerdir. Araştırmanın sonuçları tartışılarak önerilerde bulunulmuştur.

Anahtar Kelimeler: Doktora Tezleri, Marka Kavramları, PRISMA 2009 Akış Diyagramı, VOSviewer, UCINET

Introduction

It is well known in the literature that the theoretical foundations of some brand concepts have a long history. For example, the theoretical foundations of the concepts of brand loyalty (Cunningham, 1956) and brand personality (Martineau, 1958) can be traced back to studies published in the 1950s. Moreover, many researchers pioneered the concept of brand equity with studies in the late 1989s and early 1990s (Farquhar, 1989; Aaker, 1991; Keller, 1993). Brand equity was first defined by Farquhar (1989, p. 24) as the added value that a particular brand adds to a product. At the same time, in the early 1990s, the concept of brand identity was mentioned by Aaker (1991). In the late 1990s, Schmitt (1999) conducted a study on the concept of brand experience. In this respect, it is worth noting that many brand concepts have been the subject of research, especially since the 1990s.

Bibliometric analyses of previously conducted studies attract the attention of researchers because they provide comprehensive and meaningful insights into research areas (Paul and Bhukya, 2021). Literature reviews not only provide a comprehensive overview of a topic/theme, theory and/or method, but also help to strengthen the knowledge base by synthesizing previous studies (Paul and Criado, 2020). Hence, this study aims to review the research models of doctoral dissertations on brands published in the period 2020-2023, thus providing a comprehensive insight into the future research directions. Although there is a bibliometric study that examines doctoral dissertations on brands published at the YÖK National Thesis Centre between 1995 and 2019 (Öcel, 2019), the current study is completely different from the previous one. This is because, unlike the previous study, this study aims to answer the following questions:

1. Which brand concepts have been evaluated in the research models of the doctoral theses published on the subject of brands at the YÖK National Thesis Centre in 2020-2023?

2. Which brand concepts have been evaluated in the research models of relevant doctoral theses published in all years (separately for each year)?

3. Which brand concepts stand out as common structures according to the total link strength?

4. Which brand concepts play the role of an actor with the highest number of direct ties and the highest eigenvector value?

This study, which seeks to answer the above questions, is important to provide a clear picture of the brand concepts evaluated in the research models of doctoral theses published on brands in recent years. The remainder of this study is structured as follows. The theoretical literature is reviewed and the research methodology is explained. The secondary data obtained are then analyzed and reported. The results are then discussed. Finally, directions for future research are provided based on the limitations of the research.

1. Theoretical Literature Review

In recent years, the use of bibliometric analysis in national and international literature is increasing. Below are some examples of bibliometric studies on the topic of 'brand'.

Bişkin et al. (2023) conducted a bibliometric analysis of postgraduate theses on brand experience. The study scanned a total of 72 theses from the Thesis Centre of the Council of Higher Education database, which were completed between 2008 and 2022. The analysis revealed that the majority of the theses were at the master's level, and that there were more female researchers. Additionally, the highest number of theses were conducted in 2019. It has been determined that there has been limited research conducted on the topic of brand experience within the tourism industry.

Toksarı (2022) examined a literature review on brand love between the first quarter of 2006 and 2022. Toksarı stated that researchers have recently given more emphasis to studies on brand love (2017 and later). As a result of the analysis, the country with the most publications is the United States with 74 studies. Considering the studies related to brand love, the keyword "brand love" was the most used word with 239 keywords out of 361 studies. This keyword is followed by brand loyalty, brand trust, social media, satisfaction, brand experience, word of mouth communication, brand image, loyalty keywords, respectively.

Akıncı and Yıldız (2021) conducted a study on the topic of brand advocacy between 2007-2021, analyzing book chapters, papers, and articles. The results of the study showed that the University of Western Australia had the highest concentration of studies on this subject, while universities in the USA contributed the most to academic research. The Journal of Product and Brand Management was identified as the most influential journal in this field.

Cici Karaboğa (2021) used a bibliometric analysis of 276 articles on the concept of Brand Love published between 2009 and 2021. The study found that Batra and Bagozzi's research was the most cited article on the topic. The research also revealed that the concept of brand love has gained significant attention in studies since 2013.

The study conducted by Baş and Aksoy (2021) examined postgraduate theses on 'brand management' written between 2005-2020. The study found that the majority of theses were written in 2019, with a higher number of master's level theses, and a preference for quantitative research methods. The theses covered various sub-topics, including "brand personality", "brand awareness", "brand ethics", "corporate" "brand management", "museum brand management", and "luxury brand management".

In the study conducted by Temizkan and Avci (2021), theses and articles written on "brand loyalty" between 2002 and 2020 were analyzed. Accordingly, it was concluded that the highest number of studies were conducted in 2019, the studies were mostly written in Turkish, the studies were mostly published in the Journal of Business Research, the quantitative research method was mostly used in articles and theses, and the survey technique was mostly used.

Öcel (2019) conducted a bibliometric analysis of 221 PhD theses published on branding and registered in the National Thesis Centre database (1995-2018). According to the results of the research, the most studied topics in the field of branding are "brand value", "branding" and "consumer behaviour", "brand image". "brand loyalty" and "brand communication". On the other hand, the least studied brand topics are "brand ethics", "brand culture", "branding and social media", "brand loyalty", "brand experience" and "destination branding".

Khurana and Kumar (2019) conducted bibliometric analysis of articles published with the concept of brand personality. They summarized the dimensions of brand personality in their study, which they examined using the analysis method. They stated that the most frequently expressed brand personality dimensions are "sophisticated", "exciting" and "sincerity".

Gürbüz and Bozkurt (2018) used bibliometric analysis techniques to examine 75 articles published in the Journal of Marketing and Marketing Research between 2008 and 2016. They found that the majority of studies covered the topics of 'consumer behaviour', 'brand management' and 'marketing research'.

Çatı and Öcel (2018) examined the articles published on marketing in Turkey in their study involving bibliometric analysis. According to the results of the research, it was concluded that the most studied topics were "marketing management and strategy", "marketing communication", "social marketing and green marketing" and "brand and brand management".

Barahona et al. (2018) analyzed 1169 abstracts published in marketing and marketing research journals between 2005 and 2014. They found that the most frequently used terms were 'consumer', 'product', 'customer', 'impact', and 'brand'.

Bakır (2013) evaluated doctoral theses in the field of marketing between 1994 and 2012. The theses mostly covered the topics of 'marketing communication', 'consumer behaviour', and 'brand and brand management'.

Chabowski et al. (2013) conducted a bibliometric analysis of branding studies. The research revealed that these studies are typically concerned with international branding strategy, brand positioning, brand origin, brand image, and brand performance.

Bozyiğit and Yaşa (2012) stated in their study on "Postgraduate Theses on Marketing" after 2000 that studies were conducted in the fields of "consumer behaviour" and "advertising and brand".

In addition to these studies, other bibliometrically analysed studies on branding include city branding (Şentürk and Kartal, 2020; Crippa et al., 2023; Görgülü and Aydın, 2023), brand trends (Majerova et al., 2021), brand equity (Neme-Chaves and Rodríguez-González, 2019), retro branding (Erdoğan, 2022), brand citizenship behavior (Hırlak and Çolakoğlu, 2023), brand experience (Salam, 2020), brand loyalty (Siemieniako, 2018), luxury brand (Aliyev et al., 2019).

As a result, although bibliometric studies have been conducted in the national literature since the 1990s (Yılmaz, 2017, p. 67), as can be seen from these studies, researchers tend to focus on specific brand concepts in their studies. Therefore, in order to fill this gap in the national literature, it is considered necessary to systematically examine studies on brands from a broad perspective, without distinguishing between brand concepts. In this context, this study was carried out within the framework of a purpose and methodology.

2. Methodology

An attempt was made to access doctoral theses published in 2020-2023 through the database of the YÖK National Thesis Centre. In addition, the PRISMA 2009 Flow Diagram shown in Figure 1 was used to systematically review the literature. As can be seen in Figure 1, 85 doctoral theses out of a total of 203 doctoral theses were evaluated in the current study. However, there is one study that evaluated only 17 studies at the end of the process by applying different filters according to the PRISMA 2009 Flow Diagram (Reyes-Menendez et al., 2019), so the number of studies evaluated in this study is considered good enough.

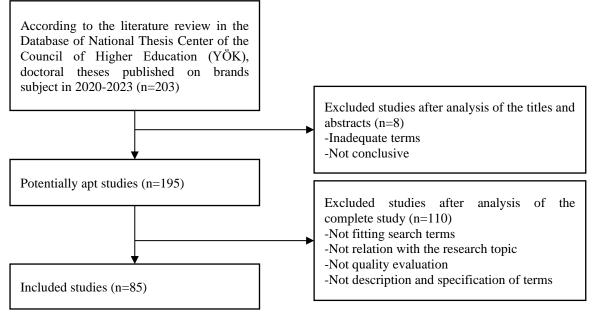


Figure 1. PRISMA 2009 Flow Diagram

For this study, secondary data sources from 85 doctoral theses were manually entered into separate EndNote extension files for each study to be run in VOSviewer. At the same time, in order to run the secondary data in UCINET, the data was first entered into the Excel file to create a matrix. The data set in Excel format was then converted to UCINET format using the DL tab in the UCINET interface. In this way, the secondary data was run with UCINET. The results of the analysis using VOSviewer and UCINET are reported on the following pages.

3. VOSviewer Analysis Results

Table 1 shows that 15 different brand concepts were evaluated in the research models of 25 doctoral theses published on the subject of brands in 2020. The number of dissertations is higher than the number of brand concepts evaluated. This shows that some brand concepts were evaluated in the research model of more than one dissertation. Accordingly, in the research models, these 15 brand concepts are divided into 4 clusters based on simultaneous evaluation. In fact, each cluster shows brand concepts with a similar common structure, which are often evaluated together in research models. However, a brand concept in one cluster may be related to a brand concept in another cluster. Since it is known that the number of dissertations evaluating each brand concept is not equal, a brand concept can be evaluated with more brand concepts even if it is evaluated in fewer dissertations. So much so that in cluster 1, although brand trust is evaluated in fewer dissertations (documents), the total link strength is higher. However, brand attitude in cluster 2, brand love in cluster 3 and brand image in cluster 4 are the brand concepts are evaluated in the most dissertations and have the highest total link strength. As a result, a number of brand concepts are evaluated in more than one dissertation in 2020 and have both a high total link strength and a common structure.

Clusters	Brand Concepts (15 items)	Documents (n=25)	Total Link Strength	
	1. Brand equity	9	15	
	2. Brand identification	2	3	
Classien 1 (Citama)	3. Brand loyalty	9	16	
Cluster 1 (6 items)	4. Brand preference	3	5	
	5. Brand satisfaction	7	13	
	6. Brand trust	7	18	
	1. Brand attitude	4	8	
Cluster 2 (3 items)	2. Brand awareness	3	7	
	3. Brand perception	2	4	
Cluster 3 (3 items)	1. Brand experience	4	7	
	2. Brand love	4	9	
	3. Brand value	1	4	
Cluster 4 (3 items)	1. Brand image	9	21	
	2. Brand prestige	1	2	
	3. Brand quality	5	14	

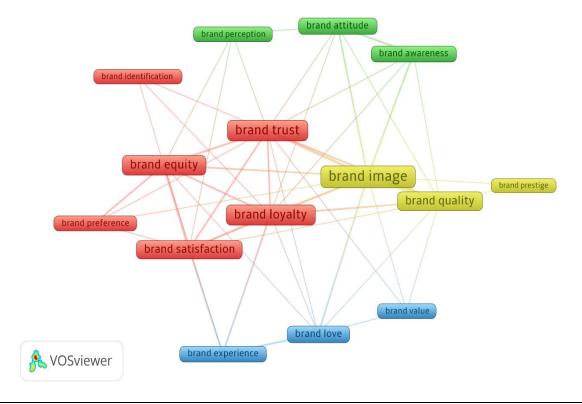


Table 2 shows that a total of 26 brand concepts were evaluated in 19 doctoral theses on brands subject published in 2021. Although the number of theses published in 2021 is lower than in 2020, the number of brand concepts evaluated is higher. Moreover, while the number of brand concepts evaluated in only one thesis this year is quite high, the number of clusters formed by the concepts is also higher (7 clusters). This year, brand trust, brand loyalty, brand experience, brand equity and brand image are the concepts with the highest total link strength. At the same time, these concepts have the most common structure in the clusters in which they are included.

Table 2. Brand Concepts in Research Models of Doctoral Theses Published in 2021				
Clusters	Brand Concepts (26 items)	Documents (n=19)	Total Link Strength	
	1. Brand equity	4	9	
	2. Brand experience	4	13	
	3. Brand identification	1	2	
Cluster 1 (7 items)	4. Brand indulge	2	6	
	5. Brand love	1	4	
	6. Brand prestige	1	4	
	7. Brand trust	6	17	
	1. Brand attitude	2	4	
	2. Brand awareness	2	2	
Cluster 2 (4 items)	3. Brand preference	3	6	
	4. Brand recall	1	2	
	1. Brand attachment	1	3	
Chuston 2 (4 itoms)	2. Brand avoidance	1	3	
Cluster 3 (4 items)	3. Brand hate	1	3	
	4. Brand revenge	1	3	
	1. Brand congruity	1	2	
Cluster 4 (4 items)	2. Brand quality	2	5	
Cluster 4 (4 Items)	3. Brand satisfaction	2	6	
	4. Brand value	3	7	
	1. Brand benefit	1	2	
Cluster 5 (3 items)	2. Brand connection	1	2	
	3. Brand enjoyment	1	2	
Cluster 6 (2 items)	1. Brand advocacy	2	6	
Chuster 0 (2 heilis)	2. Brand loyalty	6	15	
Cluster 7 (2 items)	1. Brand image	4	7	
Cluster / (2 Items)	2. Brand personality 2		1	



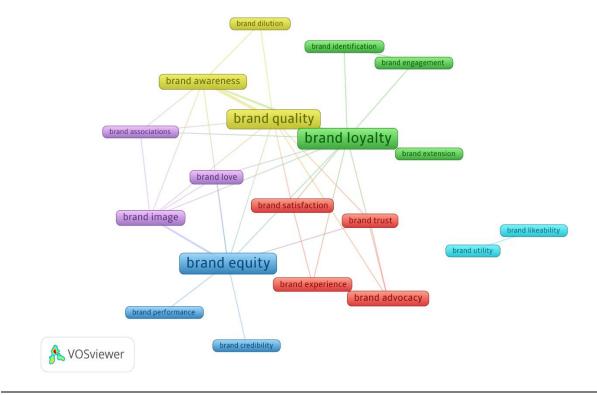
Looking at the 2022 data in Table 3, a total of 24 brand concepts were evaluated in 22 published doctoral theses. The number of doctoral theses published in this year is lower than the number of doctoral theses published in 2020, but higher than the number of doctoral theses published in 2021. However, in contrast to 2020, the number of brand concepts evaluated in doctoral theses published in 2022 is higher. On the other hand, unlike in 2021, the number of brand concepts evaluated in doctoral theses published in 2022 is lower. It is different from 2020, but as in 2021, the number of brand concepts evaluated in only one thesis is higher in 2022. In addition, the number of clusters formed by the 22 brand concepts evaluated in theses published in 2022 (7 clusters) is similar to the number of clusters formed by the brand concepts for 2021. In 2022, brand loyalty, brand image, brand quality, brand equity, brand awareness, brand satisfaction and brand attitude are the common structures with the highest total link strength.

Clusters	Brand Concepts (24 items) Documents (n=22)		Total Link Strength	
	1. Brand bond	1	1	
	2. Brand equity	7	7	
	3. Brand experience	2	3	
Cluster 1 (6 items)	4. Brand love	1	1	
	5. Brand preference	1	1	
	6. Brand satisfaction	4	6	
	1. Brand advocacy	1	2	
	2. Brand attitude	2	6	
Cluster 2 (5 items)	3. Brand image	5	11	
	4. Brand prestige	1	4	
	5. Brand trust	1	4	
	1. Brand attachment	1	2	
	2. Brand awareness	4	7	
Cluster 3 (5 items)	3. Brand quality	4	11	
	4. Brand reputation	1	2	
	5. Brand value	1	1	
	1. Brand benefit	1	3	
Cluster 4 (4 items)	2. Brand identification	1	3	
Cluster 4 (4 items)	3. Brand loyalty	6	12	
	4. Brand personality	1	3	
Cluster 5 (2 items)	1. Brand authenticity	1	1	
Cluster 5 (2 items)	2. Brand community	1	1	
Cluster 6 (1 items)	1. Brand happiness	1	0	
Cluster 7 (1 items)	1. Brand recall	2	0	



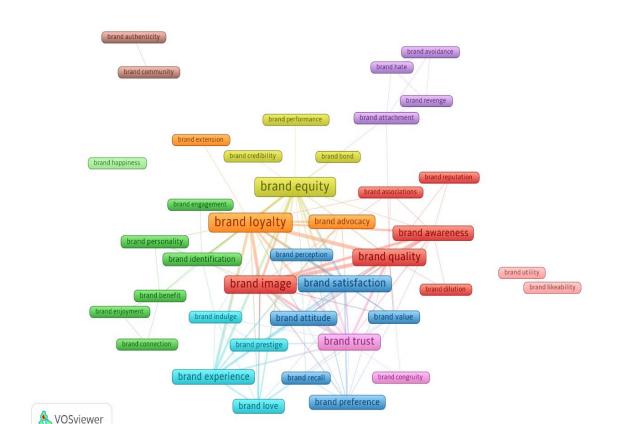
Looking at the data in Table 4, a total of 19 brand concepts were evaluated in 19 doctoral theses on the subject of brands published in 2023. These 19 brand concepts form six different clusters. In order of importance, brand loyalty, brand quality, brand equity, brand awareness and brand image are the common structures with the highest total strength of link with other brand concepts. On the other hand, the number of doctoral theses published in 2023 is lower than the number of doctoral theses published in 2020 and 2022, but it is the same as the number of doctoral theses published in 2021. However, the total number of brand concepts used in the research models of doctoral theses published in 2023 is higher than in 2020. On the contrary, the total number of brand concepts used in the research models of doctoral theses published in 2023 is lower than in 2021 and 2022.

Table 4. Brand Concepts in Research Models of Doctoral Theses Published in 2023				
Clusters	Brand Concepts (19 items)	Documents (n=19)	Total Link Strength	
	1. Brand advocacy	3	4	
Charten 1 (Aliterra)	2. Brand experience	2	3	
Cluster 1 (4 items)	3. Brand satisfaction	2	3	
	4. Brand trust	2	3	
	1. Brand engagement	1	2	
Cluster 2 (4 items)	2. Brand extension	1	1	
Cluster 2 (4 items)	3. Brand identification	1	2	
	4. Brand loyalty	7	15	
	1. Brand credibility	1	1	
Cluster 3 (3 items)	2. Brand equity	7	9	
	3. Brand performance	1	1	
	1. Brand awareness	3	9	
Cluster 4 (3 items)	2. Brand dilution	1	2	
	3. Brand quality	6	13	
Cluster 5 (3 items)	1. Brand associations	1	4	
	2. Brand image	3	7	
	3. Brand love	2	3	
Cluster (2 items)	1. Brand likeability	1	1	
Cluster 6 (2 items)	2. Brand utility	1	1	



According to Table 5, 40 brand concepts were evaluated in a total of 85 doctoral theses published on the subject of brands in 2020-2023. These 40 concepts form 11 clusters. The leading brand concepts, as common structures with a high total link strength, evaluated in the research models of doctoral theses on the subject of brands subject published in 2020-2023, are as follows: (1) brand loyalty, (2) brand image, (3) brand quality, (4) brand trust, (5) brand equity, (6) brand satisfaction, (7) brand experience, (8) brand awareness, (9) brand love, (10) brand attitude, (11) brand preference, (12) brand advocacy, (13) brand value, (14) brand identification, and (15) brand prestige. Among these 15 brand concepts, five brand concepts (brand attitude, brand value, brand advocacy, brand preference, brand prestige) were not evaluated in the relevant theses for all years, while the remaining 10 brand concepts were evaluated in the relevant theses for all years. However, out of a total of 85 published dissertations, there are 19 brand concepts that are only evaluated in the research model of one dissertation and whose total link strength is low. The concept of brand perception in 2020, the concepts of brand connection, brand enjoyment, brand avoidance, brand hate, brand revenge, brand indulge and brand congruity in 2021, the concepts of brand reputation, brand bond, brand authenticity, brand community and brand happiness in 2022 and finally the concepts of brand associations, brand dilution, brand engagement, brand credibility, brand extension, brand likeability and brand utility in 2023 were evaluated in theses published in other years.

	Brand Concepts (40	Documents The Little Standard		Used in Research Models			
Clusters	items)	(n=85)	Total Link Strength	2020	2021	2022	2023
	1. Brand associations	1	4	No	No	No	Yes
	2. Brand awareness	12	25	Yes	Yes	Yes	Yes
Cluster 1	3. Brand dilution	1	2	No	No	No	Yes
(6 items)	4. Brand image	21	46	Yes	Yes	Yes	Yes
	5. Brand quality	17	43	Yes	Yes	Yes	Yes
	6. Brand reputation	1	2	No	No	Yes	No
	1. Brand benefit	2	5	No	Yes	Yes	No
	2. Brand connection	1	2	No	Yes	No	No
Cluster 2	3. Brand engagement	1	2	No	No	No	Yes
(6 items)	4. Brand enjoyment	1	2	No	Yes	No	No
	5. Brand identification	5	10	Yes	Yes	Yes	Yes
	6. Brand personality	3	4	No	Yes	Yes	No
	1. Brand attitude	8	16	Yes	Yes	Yes	No
	2. Brand perception	2	4	Yes	No	No	No
Cluster 3	3. Brand preference	7	12	Yes	Yes	Yes	No
(6 items)	4. Brand recall	3	2	No	Yes	Yes	No
	5. Brand satisfaction	15	28	Yes	Yes	Yes	Yes
	6. Brand value	5	12	Yes	Yes	Yes	No
	1. Brand bond	1	1	No	No	Yes	No
Cluster 4	2. Brand credibility	1	1	No	No	No	Yes
(4 items)	3. Brand equity	27	40	Yes	Yes	Yes	Yes
	4. Brand performance	1	1	No	No	No	Yes
	1. Brand attachment	2	5	No	Yes	Yes	No
Cluster 5	2. Brand avoidance	1	3	No	Yes	No	No
(4 items)	3. Brand hate	1	3	No	Yes	No	No
	4. Brand revenge	1	3	No	Yes	No	No
	1. Brand experience	12	26	Yes	Yes	Yes	Yes
Cluster 6	2. Brand indulge	2	6	No	Yes	No	No
(4 items)	3. Brand love	8	17	Yes	Yes	Yes	Yes
	4. Brand prestige	3	10	Yes	Yes	Yes	No
Cluster 7	1. Brand advocacy	6	12	No	Yes	Yes	Yes
(3 items)	2. Brand extension	1	1	No	No	No	Yes
(J nems)	3. Brand loyalty	28	58	Yes	Yes	Yes	Yes
Cluster 8	1. Brand authenticity	1	1	No	No	Yes	No
(2 items)	2. Brand community	1	1	No	No	Yes	No
Cluster 9	1. Brand congruity	1	2	No	Yes	No	No
(2 items)	2. Brand trust	16	42	Yes	Yes	Yes	Yes
Cluster 10	1. Brand likeability	1	1	No	No	No	Yes
(2 items)	2. Brand utility	1	1	No	No	No	Yes
Cluster 11 (1 items)	1. Brand happiness	1	0	No	No	Yes	No



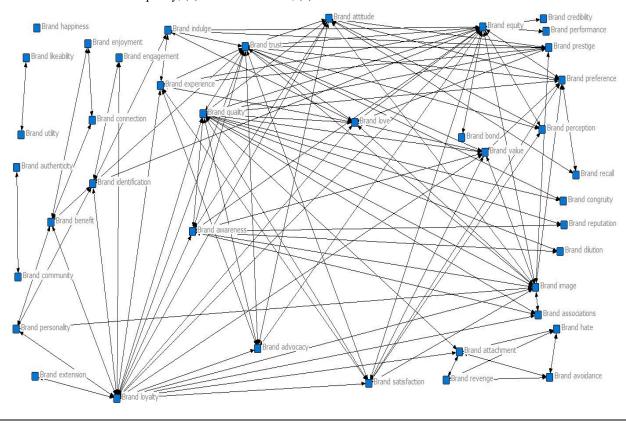
4. UCINET Analysis Results

Before performing analyses with UCINET (Borgatti et al., 2002), it is necessary to define some terms. Related terms can be defined as follows (Güzeller et al., 2016, p. 18, 135): Density describes the proportion of potential ties that are actual ties in a network. Degree centrality is the number of direct ties an actor has with other actors. Betweenness centrality is the degree to which an actor is on the shortest path between two different actors. Closeness centrality is the degree to which an actor is close to other actors or can easily reach other actors. Eigenvector centrality is the degree of an actor in the network.

Looking at Table 6, it appears that the total number of ties is 222. The density of the network according to the total number of ties is 0.142, which is not close to 1. This indicates that there is a low connection among the actors. Table 6 also shows which actors are directly connected to which actors.

Table 6. Density Measures of the Brand Concepts Network				
Density Measures	Density: 0.142 Number of Ties: 222			
Density Measures	Average Degree: 5.550			
Actors	Actors with a Direct Link to the Actor			
Brand advocacy	(1) Brand attitude, (2) brand equity, (3) brand experience, (4) brand loyalty, (5) brand quality, (6) brand trust			
Brand associations	(1) Brand awareness, (2) brand image, (3) brand loyalty, (4) brand quality			
Brand attachment	(1) Brand avoidance, (2) brand hate, (3) brand loyalty, (4) brand quality, (5) brand revenge			
Brand attitude	(1) Brand advocacy, (2) brand awareness, (3) brand image, (4) brand loyalty, (5) brand perception, (6) brand preference, (7) brand prestige, (8) brand quality, (9) brand recall, (10) brand trust			
Brand awareness	(1) Brand associations, (2) brand attitude, (3) brand dilution, (4) brand equity, (5) brand image, (6) brand loyalty, (7) brand quality, (8) brand reputation, (9) brand trust, (10) brand value			
Brand avoidance	(1) Brand attachment, (2) brand hate, (3) brand revenge			
Brand authenticity	(1) Brand community			
Brand benefit	(1) Brand connection, (2) brand enjoyment, (3) brand identification, (4) brand loyalty, (5) brand personality			
Brand community	(1) Brand authenticity			
Brand bond	(1) Brand equity			
Brand congruity	(1) Brand quality, (2) brand trust			
Brand connection	(1) Brand benefit, (2) brand enjoyment			
Brand credibility	(1) Brand equity			
Brand dilution	(1) Brand awareness, (2) brand quality			
Brand engagement	(1) Brand identification, (2) brand loyalty			
Brand enjoyment	(1) Brand benefit, (2) brand connection			
Brand equity	 (1) Brand advocacy, (2) brand awareness, (3) brand bond, (4) brand credibility, (5) brand experience, (6) brand identification, (7) brand image, (8) brand indulge, (9) brand love, (10) brand loyalty, (11) brand perception, (12) brand performance, (13) brand preference, (14) brand quality, (15) brand satisfaction, (16) brand trust 			
Brand experience	(1) Brand advocacy, (2) brand equity, (3) brand indulge, (4) brand love, (5) brand loyalty, (6) brand prestige, (7) brand satisfaction, (8) brand trust			
Brand extension	(1) Brand loyalty			
Brand happiness	With neither			
Brand hate	(1) Brand attachment, (2) brand avoidance, (3) brand revenge			
Brand identification	(1) Brand benefit, (2) brand engagement, (3) brand equity, (4) brand indulge, (5) brand loyalty, (6) brand personality, (7) brand trust			
Brand image	(1) Brand associations, (2) brand attitude, (3) brand awareness, (4) brand equity, (5) brand love, (6) brand loyalty, (7) brand personality, (8) brand preference, (9) brand prestige, (10) brand quality, (11) brand satisfaction, (12) brand trust, (13) brand value			
Brand indulge	(1) Brand equity, (2) brand experience, (3) brand identification, (4) brand love, (5) brand prestige, (6) brand trust			
Brand likeability	(1) Brand utility			
Brand love	(1) Brand equity, (2) brand experience, (3) brand image, (4) brand indulge, (5) brand loyalty, (6) brand prestige, (7) brand quality, (8) brand trust, (9) brand value			
Brand loyalty	 (1) Brand advocacy, (2) brand associations, (3) brand attachment, (4) brand attitude, (5) brand awareness, (6) brand benefit, (7) brand engagement, (8) brand equity, (9) brand experience, (10) brand extension, (11) brand identification, (12) brand image, (13) brand love, (14) brand personality, (15) brand quality, (16) brand satisfaction, (17) brand trust, (18) brand value 			
Brand perception	(1) Brand attitude, (2) brand equity, (3) brand satisfaction, (4) brand trust			
Brand performance	(1) Brand equity			

Brand personality	(1) Brand benefit, (2) brand identification, (3) brand image, (4) brand loyalty
Brand preference	(1) Brand attitude, (2) brand equity, (3) brand image, (4) brand quality, (5) brand recall, (6) brand satisfaction, (7) brand trust, (8) brand value
Brand prestige	(1) Brand attitude, (2) brand experience, (3) brand image, (4) brand indulge, (5) brand love, (6) brand quality, (7) brand trust
Brand quality	(1) Brand advocacy, (2) brand associations, (3) brand attachment, (4) brand attitude, (5) brand awareness, (6) brand congruity, (7) brand dilution, (8) brand equity, (9) brand image, (10) brand love, (11) brand loyalty, (12) brand preference, (13) brand prestige, (14) brand reputation, (15) brand satisfaction, (16) brand trust, (17) brand value
Brand recall	(1) Brand attitude, (2) brand preference
Brand reputation	(1) Brand awareness, (2) brand quality
Brand revenge	(1) Brand attachment, (2) brand avoidance, (3) brand hate
Brand satisfaction	(1) Brand equity, (2) brand experience, (3) brand image, (4) brand loyalty, (5) brand perception, (6) brand preference, (7) brand quality, (8) brand trust, (9) brand value
Brand trust	(1) Brand advocacy, (2) brand attitude, (3) brand awareness, (4) brand congruity, (5) brand equity, (6) brand experience, (7) brand identification, (8) brand image, (9) brand indulge, (10) brand love, (11) brand loyalty, (12) brand perception, (13) brand preference, (14) brand prestige, (15) brand quality, (16) brand satisfaction, (17) brand value
Brand utility	(1) Brand likeability
Brand value	(1) Brand awareness, (2) brand image, (3) brand love, (4) brand loyalty, (5) brand preference, (6) brand quality, (7) brand satisfaction, (8) brand trust



As seen in Table 7, brand trust, brand quality, brand loyalty, brand equity and brand image, evaluated in the research models of doctoral theses, are the first five variables with the highest eigenvector centrality, respectively. These five variables have the most impact as they are the nodes where the relationship between variables is most important during the development of research models. In other words, including these variables are also the variables that interact the most with other variables, that is, have the highest number of ties. Interestingly, however, these variables have lower degrees of closeness centrality than other variables. In contrast, brand happiness has the highest closeness centrality measure, with a degree centrality of zero (0). Since there is only one tie between brand authenticity and brand community, and similarly between brand likeability and brand utility, i.e. these actors have no ties to other actors, the closeness centrality measures of all four actors are high and similar. On the other hand, although the betweenness degrees of brand image and brand trust are low, it should be known that twenty of the forty variables do not have betweenness centrality.

ActorsDegreeBetweennessClosenessEigenvectorBrand associators40.000275.0000.171Brand associators40.000275.0000.117Brand associators1027.581266.0000.221Brand avaidance1023.707263.0000.226Brand avareness1023.707263.0000.008Brand avareness1023.707263.0000.008Brand avaidance30.0001521.0000.000Brand authenticity10.000276.0000.054Brand community10.000290.0000.030Brand comgruity20.000281.0000.066Brand connection20.000285.0000.030Brand dengement20.000285.0000.005Brand engegrenett20.000281.0000.006Brand engigement20.000285.0000.030Brand experience84.079268.0000.191Brand extension10.000283.0000.032Brand bate30.000302.0000.032Brand extension10.000285.0000.032Brand extension10.000285.0000.032Brand extension10.000285.0000.324Brand extension10.000285.0000.324Brand ideutification724.383267.0000.137 <t< th=""><th colspan="6">Table 7. Centrality Measures of the Brand Concepts Network</th></t<>	Table 7. Centrality Measures of the Brand Concepts Network					
Brand associations40.000275.0000.117Brand attachment593.000271.0000.068Brand attachment593.000326000.221Brand atvoidance30.000302.0000.008Brand atvoitance30.000302.0000.000Brand atvoitance30.0001521.0000.000Brand atvoitance564.000276.0000.054Brand atvoitance10.0001521.0000.000Brand community10.000290.0000.030Brand community20.000281.0000.068Brand connection20.000285.0000.030Brand dengement20.000285.0000.045Brand engegment20.000281.0000.045Brand engioyment20.000281.0000.030Brand extension10.000281.0000.032Brand engipment20.000308.0000.032Brand engipment20.000308.0000.032Brand atvetension10.000283.0000.032Brand atternsion10.000285.0000.322Brand atternsion10.000302.0000.008Brand identification724.383267.0000.129Brand identification724.383250.0000.321Brand breefit10.000250.0000.331	Actors	Degree	Betweenness	Closeness	Eigenvector	
Brand attachment 5 93.000 271.000 0.068 Brand attitude 10 27.581 266.000 0.221 Brand awareness 10 23.707 263.000 0.226 Brand authenticity 1 0.000 302.000 0.008 Brand authenticity 1 0.000 1521.000 0.000 Brand community 1 0.000 290.000 0.030 Brand community 1 0.000 281.000 0.0668 Brand conguity 2 0.000 281.000 0.030 Brand conguity 1 0.000 280.000 0.030 Brand engigment 2 0.000 281.000 0.045 Brand engigment 2 0.000 281.000 0.045 Brand engigment 2 0.000 285.000 0.030 Brand engigment 2 0.000 285.000 0.032 Brand engigment 1 0.000 285.000 0.032 Brand equity	Brand advocacy	6	1.236	267.000	0.171	
Brand attitude 10 27.581 266.000 0.221 Brand awareness 10 23.707 263.000 0.208 Brand avoidance 3 0.000 302.000 0.008 Brand authenticity 1 0.000 1521.000 0.000 Brand benefit 5 64.000 276.000 0.054 Brand community 1 0.000 290.000 0.030 Brand conguity 2 0.000 281.000 0.068 Brand concetion 2 0.000 285.000 0.030 Brand dengegement 2 0.000 285.000 0.055 Brand engegement 2 0.000 285.000 0.045 Brand engigement 2 0.000 285.000 0.032 Brand engigement 16 115.980 257.000 0.302 Brand experience 8 4.079 268.000 0.129 Brand didentification 7 24.383 267.000 0.322 Brand happines	Brand associations	4	0.000	275.000	0.117	
Brand awareness 10 23.707 263.000 0.226 Brand avoidance 3 0.000 302.000 0.008 Brand authenticity 1 0.000 1521.000 0.001 Brand benefit 5 64.000 276.000 0.054 Brand community 1 0.000 290.000 0.030 Brand community 2 0.000 281.000 0.068 Brand connection 2 0.000 281.000 0.068 Brand credibility 1 0.000 285.000 0.030 Brand enjoyment 2 0.000 285.000 0.005 Brand enjoyment 2 0.000 308.000 0.006 Brand engagement 2 0.000 283.000 0.032 Brand sperience 8 4.079 268.000 0.191 Brand happiness 0 0.000 32.000 0.032 Brand identification 7 24.383 267.000 0.137 Brand identification<	Brand attachment	5	93.000	271.000	0.068	
Brand avoidance 3 0.000 302.000 0.008 Brand authenticity 1 0.000 1521.000 0.000 Brand benefit 5 64.000 276.000 0.054 Brand benefit 0.000 1521.000 0.000 Brand congruity 2 0.000 290.000 0.030 Brand congruity 2 0.000 308.000 0.006 Brand congruity 1 0.000 290.000 0.030 Brand congruity 1 0.000 285.000 0.055 Brand engagement 2 0.000 308.000 0.006 Brand engagement 2 0.000 308.000 0.006 Brand engayment 2 0.000 308.000 0.030 Brand engayment 1 0.000 283.000 0.031 Brand engapment 2 0.200 302.000 0.032 Brand engapmines 0 0.000 1560.000 0.000 Brand experience 8	Brand attitude	10	27.581	266.000	0.221	
Brand authenticity10.0001521.0000.000Brand benefit564.000276.0000.054Brand community10.000290.0000.030Brand congruity20.000281.0000.068Brand concition20.000290.0000.030Brand concitinty10.000290.0000.030Brand credibility10.000290.0000.030Brand engagement20.000281.0000.045Brand engagement20.000285.0000.045Brand experience84.079268.0000.191Brand extension10.0001560.0000.000Brand tiltification724.383267.0000.302Brand identification724.383267.0000.137Brand likeability10.0001560.0000.000Brand likeability10.0001521.0000.327Brand love95.790250.0000.337Brand love95.790250.0000.337Brand love95.790250.0000.030Brand perception40.667282.0000.110Brand perception40.657283.0000.328Brand perception40.657253.0000.332Brand perception40.657253.0000.332Brand perception40.657253.0000.355Brand perce	Brand awareness	10	23.707	263.000	0.226	
Brand benefit 5 64.000 276.000 0.054 Brand community 1 0.000 1521.000 0.000 Brand congruity 2 0.000 281.000 0.068 Brand congruity 2 0.000 308.000 0.066 Brand connection 2 0.000 285.000 0.030 Brand credibility 1 0.000 285.000 0.030 Brand erdibility 1 0.000 285.000 0.045 Brand enjoyment 2 0.000 308.000 0.006 Brand equity 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.0129 Brand happiness 0 0.000 256.000 0.020 Brand happiness 0 0.000 302.000 0.028 Brand identification 7 24.383 267.000 0.137 Brand experience 13 0.0281 250.000 0.231 Brand identification	Brand avoidance	3	0.000	302.000	0.008	
Brand community 1 0.000 1521.000 0.000 Brand bond 1 0.000 290.000 0.030 Brand congruity 2 0.000 281.000 0.068 Brand congruity 1 0.000 281.000 0.030 Brand congruity 1 0.000 290.000 0.030 Brand engagement 2 0.000 285.000 0.045 Brand engagement 2 0.000 281.000 0.045 Brand engiyment 2 0.000 285.000 0.045 Brand experience 8 4.079 268.000 0.191 Brand extension 1 0.000 220.000 0.000 Brand identification 7 24.383 267.000 0.129 Brand induge 6 2.125 276.000 0.231 Brand induge 6 2.125 0.000 0.231 Brand induge 6 2.125 0.000 0.231 Brand induge 9	Brand authenticity	1	0.000	1521.000	0.000	
Brand bond 1 0.000 290.000 0.030 Brand congruity 2 0.000 281.000 0.068 Brand connection 2 0.000 308.000 0.006 Brand credibility 1 0.000 285.000 0.030 Brand engagement 2 0.000 285.000 0.045 Brand engagement 2 0.000 308.000 0.006 Brand engagement 2 0.000 308.000 0.006 Brand equity 16 115.980 257.000 0.302 Brand experience 8 4.079 268.000 0.032 Brand happiness 0 0.000 283.000 0.032 Brand iduefification 7 24.383 267.000 0.129 Brand indulge 6 2.125 276.000 0.327 Brand indulge 6 2.125 276.000 0.321 Brand preformance 1 0.000 285.000 0.327 Brand preformance	Brand benefit	5	64.000	276.000	0.054	
Brand congruity 2 0.000 281.000 0.068 Brand connection 2 0.000 308.000 0.006 Brand credibility 1 0.000 290.000 0.030 Brand credibility 1 0.000 285.000 0.055 Brand engagement 2 0.000 308.000 0.006 Brand engagement 2 0.000 308.000 0.006 Brand equity 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.032 Brand extension 1 0.000 283.000 0.032 Brand hate 3 0.000 302.000 0.000 Brand identification 7 24.383 267.000 0.129 Brand indulge 6 2.125 276.000 0.231 Brand lowler 9 5.790 265.000 0.231 Brand loyalty 18 189.929 250.000 0.327 Brand performance	Brand community	1	0.000	1521.000	0.000	
Brand connection 2 0.000 308.000 0.006 Brand credibility 1 0.000 290.000 0.030 Brand dilution 2 0.000 285.000 0.055 Brand engagement 2 0.000 281.000 0.045 Brand enjoyment 2 0.000 308.000 0.006 Brand enjoyment 2 0.000 308.000 0.006 Brand enjoyment 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.032 Brand happiness 0 0.000 283.000 0.032 Brand happiness 0 0.000 302.000 0.008 Brand identification 7 24.383 267.000 0.137 Brand indulge 6 2.125 276.000 0.231 Brand indulge 6 2.125 250.000 0.231 Brand loyalty 18 189.929 250.000 0.302 Brand perception	Brand bond	1	0.000	290.000	0.030	
Brand credibility 1 0.000 290.000 0.030 Brand dilution 2 0.000 285.000 0.055 Brand engagement 2 0.000 281.000 0.045 Brand enjoyment 2 0.000 308.000 0.006 Brand enjoyment 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.032 Brand experience 8 0.000 283.000 0.032 Brand happiness 0 0.000 302.000 0.008 Brand identification 7 24.383 267.000 0.129 Brand identification 7 24.383 267.000 0.137 Brand indulge 6 2.125 276.000 0.327 Brand likeability 1 0.000 1521.000 0.0231 Brand perception 4 0.667 282.000 0.110 Brand perception 4 0.363 275.000 0.398 Brand percep	Brand congruity	2	0.000	281.000	0.068	
Brand dilution 2 0.000 285.000 0.055 Brand engagement 2 0.000 281.000 0.045 Brand enjoyment 2 0.000 308.000 0.006 Brand equity 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.191 Brand extension 1 0.000 283.000 0.032 Brand happiness 0 0.000 302.000 0.000 Brand identification 7 24.383 267.000 0.129 Brand image 13 20.281 260.000 0.298 Brand indulge 6 2.125 276.000 0.321 Brand love 9 5.790 265.000 0.231 Brand perception 4 0.667 282.000 0.110 Brand performance 1 0.000 290.000 0.980 Brand preformance 1 0.000 292.000 0.198 Brand prestige	Brand connection	2	0.000	308.000	0.006	
Brand engagement 2 0.000 281.000 0.045 Brand enjoyment 2 0.000 308.000 0.006 Brand equity 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.191 Brand experience 8 4.079 268.000 0.032 Brand experience 0 0.000 1560.000 0.000 Brand happiness 0 0.000 302.000 0.008 Brand hate 3 0.000 302.000 0.129 Brand induet 7 24.383 267.000 0.129 Brand induge 6 2.125 276.000 0.231 Brand likeability 1 0.000 1521.000 0.000 Brand love 9 5.790 250.000 0.331 Brand performance 1 0.000 290.000 0.303 Brand performance 1 0.000 290.000 0.030 Brand prestige 7	Brand credibility	1	0.000	290.000	0.030	
Brand enjoyment 2 0.000 308.000 0.006 Brand equity 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.191 Brand experience 8 4.079 268.000 0.032 Brand extension 1 0.000 283.000 0.032 Brand happiness 0 0.000 1560.000 0.000 Brand hate 3 0.000 302.000 0.129 Brand identification 7 24.383 267.000 0.129 Brand induge 6 2.125 276.000 0.298 Brand lowe 9 5.790 265.000 0.231 Brand love 9 5.790 280.000 0.302 Brand perception 4 0.667 282.000 0.303 Brand performance 1 0.000 290.000 0.303 Brand performance 1 0.000 290.000 0.328 Brand preference 8 <td>Brand dilution</td> <td>2</td> <td>0.000</td> <td>285.000</td> <td>0.055</td>	Brand dilution	2	0.000	285.000	0.055	
Brand equity 16 115.980 257.000 0.300 Brand experience 8 4.079 268.000 0.191 Brand extension 1 0.000 283.000 0.032 Brand happiness 0 0.000 1560.000 0.000 Brand happiness 0 0.000 302.000 0.008 Brand hate 3 0.000 302.000 0.298 Brand identification 7 24.383 267.000 0.129 Brand inage 13 20.281 260.000 0.298 Brand likeability 1 0.000 1521.000 0.000 Brand love 9 5.790 265.000 0.231 Brand perception 4 0.667 282.000 0.110 Brand perconality 4 2.383 275.000 0.030 Brand performance 1 0.000 290.000 0.175 Brand perference 8 13.929 270.000 0.175 Brand prestige <	Brand engagement	2	0.000	281.000	0.045	
Brand experience84.079268.0000.191Brand extension10.000283.0000.032Brand happiness00.0001560.0000.000Brand hate30.000302.0000.008Brand identification724.383267.0000.129Brand image1320.281260.0000.298Brand indulge62.125276.0000.137Brand ikeability10.0001521.0000.000Brand love95.790265.0000.231Brand love95.790250.0000.327Brand perception40.667282.0000.110Brand perception40.333275.0000.030Brand performance10.000290.0000.030Brand perfermce813.929270.0000.198Brand preference813.929253.0000.328Brand quality17110.035253.0000.328Brand revenge30.000292.0000.042Brand revenge30.000302.0000.055Brand revenge30.000302.0000.038Brand revenge30.000302.0000.035Brand revenge30.000302.0000.038Brand revenge30.000302.0000.035Brand revenge30.000302.0000.038Brand ruitiry10.000 <t< td=""><td>Brand enjoyment</td><td>2</td><td>0.000</td><td>308.000</td><td>0.006</td></t<>	Brand enjoyment	2	0.000	308.000	0.006	
Brand extension10.000283.0000.032Brand happiness00.0001560.0000.000Brand hate30.000302.0000.008Brand identification724.383267.0000.129Brand image1320.281260.0000.298Brand indulge62.125276.0000.137Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand love95.790250.0000.327Brand preception40.667282.0000.110Brand performance10.000290.0000.030Brand preformance10.000290.0000.030Brand preformance10.000290.0000.042Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand recall20.000302.0000.055Brand revenge30.000302.0000.008Brand revenge30.000302.0000.025Brand revenge30.000302.0000.0231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000		16	115.980	257.000	0.300	
Brand happiness00.0001560.0000.000Brand hate30.000302.0000.008Brand identification724.383267.0000.129Brand image1320.281260.0000.298Brand indulge62.125276.0000.137Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand lovalty18189.929250.0000.327Brand perception40.667282.0000.110Brand perception42.383275.0000.030Brand preformance10.000290.0000.030Brand preference813.929270.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand recall20.000292.0000.055Brand revenge30.000302.0000.008Brand revenge30.000302.0000.035Brand revenge30.000302.0000.0231Brand revenge30.000302.0000.231Brand revenge30.000302.0000.035Brand revenge30.000302.0000.035Brand revenge30.000302.0000.231Brand trust1745.023256.0000.353Brand trust140.0001	Brand experience	8	4.079	268.000	0.191	
Brand hate30.000302.0000.008Brand identification724.383267.0000.129Brand image1320.281260.0000.298Brand indulge62.125276.0000.137Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand love95.790250.0000.327Brand perception40.667282.0000.110Brand perception40.667282.0000.030Brand perception42.383275.0000.080Brand perception43.363274.0000.175Brand perceptige73.363274.0000.175Brand quality17110.035253.0000.042Brand recall20.000292.0000.042Brand revenge30.000302.0000.038Brand revenge30.000302.0000.0353Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand extension	1	0.000	283.000	0.032	
Brand hate30.000302.0000.008Brand identification724.383267.0000.129Brand image1320.281260.0000.298Brand indulge62.125276.0000.137Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand love95.790250.0000.327Brand perception40.667282.0000.110Brand perception40.667282.0000.030Brand perception42.383275.0000.080Brand perception43.363274.0000.175Brand perceptige73.363274.0000.175Brand quality17110.035253.0000.042Brand recall20.000292.0000.042Brand revenge30.000302.0000.038Brand revenge30.000302.0000.0353Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand happiness	0	0.000	1560.000	0.000	
Brand image1320.281260.0000.298Brand indulge62.125276.0000.137Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand loyalty18189.929250.0000.327Brand perception40.667282.0000.110Brand performance10.000290.0000.030Brand performance10.000290.0000.030Brand performance13.63275.0000.198Brand performance73.363274.0000.175Brand perference813.929253.0000.328Brand perference80.000292.0000.042Brand recall20.000285.0000.055Brand recult20.000302.0000.008Brand revenge30.000302.0000.035Brand trust1745.023256.0000.353Brand trust140.0001521.0000.000	Brand hate	3	0.000	302.000	0.008	
Brand induge62.125276.0000.137Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand loyalty18189.929250.0000.327Brand perception40.667282.0000.110Brand performance10.000290.0000.030Brand performance10.000290.0000.030Brand performance13.363275.0000.080Brand performance813.929270.0000.175Brand preference83.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand identification	7	24.383	267.000	0.129	
Brand likeability10.0001521.0000.000Brand love95.790265.0000.231Brand loyalty18189.929250.0000.327Brand perception40.667282.0000.110Brand performance10.000290.0000.030Brand personality42.383275.0000.080Brand preference813.929270.0000.198Brand preference813.929270.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand revenge30.000302.0000.055Brand revenge30.000302.0000.038Brand trust1745.023256.0000.353Brand trust10.0001521.0000.000	Brand image	13	20.281	260.000	0.298	
Brand love95.790265.0000.231Brand loyalty 18189.929 250.000 0.327 Brand perception40.667282.0000.110Brand performance10.000290.0000.030Brand personality42.383275.0000.080Brand preference813.929270.0000.198Brand prestige73.363274.0000.175Brand quality 17110.035 253.000 0.328 Brand recall20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust 17 45.023256.000 0.353 Brand trust10.000 1521.000 0.000	Brand indulge	6	2.125	276.000	0.137	
Brand loyalty18189.929250.0000.327Brand perception40.667282.0000.110Brand performance10.000290.0000.030Brand personality42.383275.0000.080Brand preference813.929270.0000.198Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand likeability	1	0.000	1521.000	0.000	
Brand perception40.667282.0000.110Brand performance10.000290.0000.030Brand personality42.383275.0000.080Brand preference813.929270.0000.198Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand revenge30.000302.0000.005Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand love	9	5.790	265.000	0.231	
Brand performance10.000290.0000.030Brand personality42.383275.0000.080Brand preference813.929270.0000.198Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand revenge30.000302.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand loyalty	18	189.929	250.000	0.327	
Brand personality42.383275.0000.080Brand preference813.929270.0000.198Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand reputation20.000302.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand perception	4	0.667	282.000	0.110	
Brand preference813.929270.0000.198Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand reputation20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand performance	1	0.000	290.000	0.030	
Brand prestige73.363274.0000.175Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand reputation20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand personality	4	2.383	275.000	0.080	
Brand quality17110.035253.0000.328Brand recall20.000292.0000.042Brand reputation20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand preference	8	13.929	270.000	0.198	
Brand recall20.000292.0000.042Brand reputation20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand prestige	7	3.363	274.000	0.175	
Brand reputation20.000285.0000.055Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand quality	17	110.035	253.000	0.328	
Brand revenge30.000302.0000.008Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand recall	2	0.000	292.000	0.042	
Brand satisfaction96.868264.0000.231Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand reputation	2	0.000	285.000	0.055	
Brand trust1745.023256.0000.353Brand utility10.0001521.0000.000	Brand revenge	3	0.000	302.000	0.008	
Brand utility 1 0.000 1521.000 0.000	Brand satisfaction	9	6.868	264.000	0.231	
•	Brand trust	17	45.023	256.000	0.353	
Brand value 8 1.640 268.000 0.218	Brand utility	1	0.000	1521.000	0.000	
	Brand value	8	1.640	268.000	0.218	

Discussion

In this study, it is known that 85 doctoral theses on the subject of brands published at the YÖK National Thesis Centre in the period 2020-2023 were evaluated and that a total of 40 variables related to brand concepts were included in the research models of these theses. As a result, the answers to the following questions were discussed in line with the results obtained.

Which variables have been most frequently evaluated in the relevant studies in all the years? Brand loyalty, brand equity and brand image evaluated in 9 studies among 25 studies published in 2020, brand loyalty and brand trust evaluated in 6 studies among 19 studies published in 2021, brand equity evaluated in 7 studies among 22 studies published in 2022, brand loyalty and brand equity evaluated in 7 studies among 19 studies published in 2022, brand loyalty and brand equity evaluated in 7 studies among 19 studies published in 2022, brand loyalty and brand equity evaluated in 7 studies among 19 studies published in 2023, and finally brand loyalty evaluated in 28 studies among 85 studies published in the 2020-2023 period, are the brand concepts evaluated in the most studies, unlike other brand concepts.

Which variable comes together with the highest total number of variables when looking at the clusters in which it is included? Looking at the clusters in which the relevant variable is included, the brand quality variable comes together with a total of 10 variables; each of the brand experience, brand image and brand awareness variables comes together with a total of 11 variables; each of the brand equity, brand love and brand satisfaction variables comes together with a total of 12 variables; the brand trust variable comes together with a total of 13 variables; the brand lovely variable comes together with a total of

14 variables; however, the brand identification variable comes together with a total of 15 variables. According to this information, the variable that comes together with the most variables is the brand identification variable. In addition, each of the other remaining variables comes together with a smaller total number of variables. As a result, the variables that the brand identification variable clusters with are as follows: Brand benefit, brand connection, brand engagement, brand enjoyment, brand equity, brand experience, brand extension, brand indulge, brand loyalty, brand love, brand personality, brand preference, brand satisfaction, and brand trust. Ultimately, it is known that brand identification is one of the variables included in the research models of some dissertations from all years.

Which variables have a higher total link strength? According to each variable included in the research models of studies published over the years, the total link strength of brand image is higher in 2020, brand trust in 2021 and brand loyalty in both 2022 and 2023. As a result, the total link strength of brand loyalty is higher in the period 2020-2023.

Which variables have more direct ties to other variables, and which variable has the highest total number of ties? While each of the brand trust and brand quality variables has direct ties with 17 variables, the brand loyalty variable has direct ties with 18 variables. These three variables are directly tied to each other. As a result, brand loyalty is the variable with the highest number of direct ties.

Which variables have higher closeness than other variables? While brand happiness has the highest closeness, after brand happiness, brand authenticity, brand community, brand likeability and brand utility have both the highest and similar closeness centrality measurement. Because in the network, brand happiness has no close relationship with any other actor (or variable), while brand authenticity and brand community, and brand likeability and brand utility have a close relationship only with each other.

Which variables act more as a bridge between any two variables, i.e. have the highest betweenness? As the betweenness values of brand loyalty, brand equity and brand quality are quite high, these variables, unlike other variables, provide more bridging functions in establishing the relationship between any two variables. Looking at the degree values, it is known that the direct ties of brand loyalty, brand equity and brand quality are also high.

Finally, and most importantly, which variables are the most dominant common structures and which of these variables have higher eigenvector values? Although brand image in 2020 (among 15 variables) and brand trust in 2021 (among 26 variables) are the most dominant common structures, the most dominant common structure in 2022 (among 24 variables), 2023 (among 19 variables) and the 2020-2023 period (among 40 variables) is brand loyalty. However, the largest eigenvector values are brand trust, brand loyalty and brand image, from largest to smallest. As a result, while brand loyalty is the most dominant common structure in 2022, 2023 and 2020-2023, the eigenvector value of brand trust is greater than the eigenvector value of brand loyalty.

Limitations and Future Research Directions

The main limitation of this study is that it only examines the research models of doctoral theses on brands subject published in the period 2020-2023. Another limitation is that some of the published theses were not evaluated because they were not related to the subject of this study. Given these limitations, directions for future research are provided in line with the results obtained. Firstly, this study provides an insight into which brand concepts are frequently evaluated in recent studies. In this context, researchers can develop new hypotheses and research models by choosing to evaluate brand concepts that have not been evaluated or have been under-evaluated in relevant studies. Secondly, this study gives an idea of which variables are likely to be related when developing hypotheses or research models to study new research topics. The answers to the questions raised in this study have been discussed and it is hoped that this discussion will inform future research. Thirdly, researchers are aware that they will contribute more to the literature and practice by generating pioneering studies on original, new research topics that have not been studied before. However, it is well known to researchers that scientific knowledge is in need of repeated testing for its truth or falsity.

Conclusion

This study shows that brand research is a subject that attracts the attention of researchers. There are many dissertations published on brand research in Türkiye. Although the brand concepts included in the research models of these dissertations vary greatly, the total of 40 brand concepts included in the research models is less than half of the 85 dissertations evaluated in this study. Even the fact that the studies are published in different disciplines does not change the truth of this information. This is an indication that each brand concept evaluated in some dissertations is repeatedly re-evaluated in many other research models. In order to maintain the originality of the study, new brand concepts can be evaluated and further contributions to the literature and new perspectives can be provided. There is a greater need for new studies similar to this one to provide more insight into brand research.

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