Are social media and mobile applications threatening retail websites?

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Abstract

The use of mobile applications and social media platforms is reshaping the access to the Internet. This study aims to analyze if consumers prefer to use a mobile application/social media platform or a retail website to search for a product or service and what are the reasons supporting their choice. Data was collected through unstructured interviews applied to Internet consumers. 770 replies were returned with their perspective and analyzed through text mining to uncover hidden patterns of knowledge. The outcome revealed that the vital aspect that makes consumers prefer a retail website is due to service quality. The choice for mobile applications/social media platforms is its system quality in the act of searching for a product or service online. The demographic analysis exposed that younger generations prefer mobile applications/social media, suggesting a different future for retail websites.

Keywords: retail website; social media; mobile application; consumer behavior; text mining.

1. Introduction

Due to changes that have been happening in the digital and technological spheres over the last years, new tools emerged and disseminated among people and organizations. In this context, the growth of Social Media (SM) and Mobile Applications (MA) is observed (Moro et al., 2018; Rita et al., 2018).

Social Media platforms have been revealing characteristics that replace the traditional websites (Nah and Saxton, 2013), and ninety percent spent on a smartphone is on Mobile Applications (Stocchi et al., 2018), exceeding the role of websites on sales influence (He and Liu, 2017). This evidence reveals the growing importance of SM and MA for users and a new dynamic on consumers when accessing the Internet (Ramos et al., 2019).

A retail website is owned and controlled by its owner with the purpose of leverage electronic commerce, business communication, and permit a client contact (Aksakallı, 2012). MA/SM platforms are composed by people and organizations that share values and familiar objects (Pentina and Koh, 2012), creating relationships in a horizontal and non-hierarchical way, allowing to read descriptions, commentaries or participate in conversation among others about products or services that a consumer is searching for (Schreiner et al., 2019).

Taking this into consideration, the objective of this paper is to uncover what Internet communication channel consumers prefer, within the options retail website or SM / social MA. 770 Internet consumers were inquired to understand what they would choose between both options to search for a product or service online, and what were the reasons to make such a choice. Text Mining (TM) and topic modeling (Santos et al., 2018) was used to analyze the collected data and provided the outcome concerning their opinion. The revelation of the characteristics that influence the use of retail websites, MA, and SM platforms, through the customers' perspective, is relevant for the understanding of the new dynamic in the Internet. For professionals it is pertinent to understand the behavioral change that is shaping the use of these Internet channels,

and for academia, the outcome of this study, adds a conceptual value for researchers to align their future research towards the identified dynamic occurring on the Internet.

2. Literature review

2.1. The role of online information search on consumer behavior

Consumers search for the information of a product or service online for different reasons, depending on goals, predispositions, and purposes (Tarafdar and Zhang, 2005). Empowered by the Web 2.0, the Internet has become a powerful tool to search for information and is a critical predictor of Internet consumer behavior, highlighted by the interest of recent studies (Lemon and Verhoef, 2016; Vázquez et al., 2014). Information-seeking behavior in online platforms enables the consumer to find objective data concerning the searched product or service, increasing the product knowledge, minimizes time and travel costs, and influences the characteristics such as prior experience, attitude toward shopping and social influence (Shim et al., 2001). The degree of Internet search is influenced by the consumer characteristics such as prior experience, social influence, or product knowledge (Yang, 2010) but also by the media attributes such as interactivity, speed, reliability, aesthetics, among others (Huang and Benyoucef, 2013).

2.2. Retail websites, SM and MA characteristics that influence user behavior

Retail websites, SM platforms, and MA have turned into a place common to a user who is searching for a product or service (Ramos et al., n.d.). The reasons for the choice of an Internet platform may vary, but it is dictated by the nature of consumer perception, goals and, purpose.

A retail website can be defined as an Internet site with convergent related web pages that share a common Internet domain, managed and controlled by its owner, to conduct electronic commerce (e-commerce) (Aksakallı, 2012), where consumers expect to find relevant and clear information to facilitate their purchases (Belanche et al., 2012).

SM and MA have revolutionized how people interact with each other, which has led to a profound change in companies' role when reaching consumers (He et al., 2017). Others' opinions highly influence consumers, and SM permits the access to the judgment of others way beyond their friends and relatives closed circle, expanding the range of people that consumers trust (Calefato et al., 2015). In the retailing context, consumers perceive the retailer's MA as valuable (Saarijärvi et al., 2014). To engage in the action of purchasing and for information activities, consumers tend to use a MA (He and Wang, 2016).

The quality of an online channel, such as retail website, SM, and MA, enhances trust, which in turn, has an impact on the behavioral intention to use (Hameed, 2017; Park et al., 2018). System quality, information quality, and service quality are part of the multi-dimensional construct constituted by an online channel. The greater the quality of these three constructs, the higher are the expectations and perceptions of the overall quality, influencing the online user behavior (Hsu et al., 2012).

In every online channel, system quality influences the perception of the overall performance, reflecting the speed, ease of use, visual appeal, and navigation, meaning the consumers' friendliness during interaction (Hernández et al., 2009). Information quality reflects the perception of the quality of information, referring to the relevance, sufficiency, accuracy, and up-to-date. Quality of the content is valued by consumers and may lead to more consumer engagement and favorable attitudes toward the content, resulting in greater interactivity (Tafesse and Wien, 2018). Service quality focuses the evaluation of the online service delivered by the online channel, including reliability, responsiveness, assurance, and personalization, implying the customers' judgment of the quality of the online service offered (Blut et al., 2015; Chen et al., 2017).

A sample of characteristics regarding system quality, information quality, and service quality are highlighted in Table 1.

Table 1 - Sample characteristics that influence the use of Online platforms

Dimension	Reference	Characteristics
System quality	Alnawas and Aburub (2016)	Efficiency, speed
	Chen et al. (2017)	Ease of use, navigability, usability, visual appeal
	Harrison, Flood, and Duce (2013)	Connectivity, error rate, memorability
	Hernández et al. (2009)	Accessibility, interface design, response time, graphics and colors
	Hsu and Lin (2016)	Productivity
	Huang and Benyoucef (2013)	Aesthetic, appearance, error prevention, error recovery
	Kim, Baek, and Choi (2012)	Design
	Ku, Chen, and Zhang (2013)	Arrangement of information, consistency, layout
	Zhou (2011)	Performance, screen resolution
Information Quality	Chen et al. (2017)	Accuracy, information, relevance
	Gerlich, Drumheller, Babb, and De'Armond (2015)	Pass time
	Hernández et al. (2009)	Content, sufficiency, up-to-date
	Huang and Benyoucef (2013)	Simplicity
	Ku et al. (2013)	Clarity, ease of reading
	Tafesse and Wien (2018)	Quality of content
Service Quality	Ahmad and Khan (2017)	Convenience, privacy
	Alnawas and Aburub (2016)	Feedback, innovation, personalization
	Belanche et al. (2012)	Satisfaction
	Gerlich et al. (2015)	Knowledge
	Harrison et al. (2013)	Consumption rate
	Hsu and Lin (2016)	Entertainment, perceived value
	Huang and Benyoucef (2013)	Reliability, control
	Lee and Kozar (2006)	Security
	Seckler, Heinz, Forde, Tuch, and Opwis (2015)	Trust
	Watson, McCarthy, and Rowley (2013)	Usefulness
	Yang H. C. (2013)	Enjoyment
	Wu, Kang, and Yang (2015)	Interactivity

Characteristic such as download delay is relevant in the mean that users do not have the patience to wait more than just a few seconds for a website response (Palmer, 2002) while ease of

navigation is crucial and determines if a user commits or abandon (Cuddihy and Spyridakis, 2012). Clarity, ease of reading, the arrangement of information, and layout are other essential requirements (Ku et al., 2013). Ratings and reviews provide comprehensive information about products or services, helping other potential customers to make a final decision concerning their search (Yu et al., 2018). Recommendations and referrals minimize the impact of consumers when to choose a product or service that they cannot touch or experience (Jing et al., 2018; Karakaya and Barnes, 2010).

Consumers feel more positive towards an online channel when they are entertaining and useful (Watson et al., 2013) when they help the consumer to complete an action (Taylor and Levin, 2014), and with an information/user-centered style, focusing the consumer attention (Bellman et al., 2011).

3. Methodology

3.1. Data Collection

This research was conducted using unstructured interviews, which implies that respondents have the flexibility to answer the questions (Alsaawi, 2014). Following a frequent procedure used in social sciences, a convenience snowball sampling was employed (Gravetter and Forzano, 2016). The email database consisted of the various emails shared by family, friends, and colleagues from their email account. A consent form outlining the content and nature of this project was emailed to participants. This non-probability convenient sample (Zikmund and Babin, 2012) was contacted to understand consumers' opinion concerning the option that they would take to search for a product or service online, in this case, between a MA / SM platform or a retail website, and the reasons for their choice. The use of email to conduct the unstructured interview allows the collection of a large sample, assures that respondents are Internet users, and guarantees the contact to a determined target (Skonnord et al., 2016). A total of 770 Internet consumers replied and returned the unstructured interviews, providing the dataset of this investigation. The age of the

respondents ranged from 13 to 64 years old (M = 35.25 years; 60.1% were from 13 to 38 years old and 39.87% from 39 to 64 years old), 61.8% were males, and 38.2% were females.

3.2. Data Analysis

A corpus consisting of 770 opinions made by Internet consumers was built and, according to their choice, two groups (retail website and MA/SM platform) of data were created. From the 770, 60.1% preferred a retail website to search for a product or service, while 39.9% chose a MA / SM platform as their preferred platform. Both groups of data were analyzed separately using TM. This technique allows to discover hidden information, trends and patterns among a large amount of data (Moro et al., 2015), ideal for analyzing unstructured or semi-structured text (Fan et al., 2006), and this experiment was conducted using "R" statistical software, an open-source platform with several packages for data analysis (Cortez, 2014). The corpus was cleaned by removing extra white spaces, converting all words to lower case for direct matching, removing "stopwords" (prepositions, common words, etc.), and stemming, i.e., reducing words to their root (e.g., "cleaned" to "clean").

Based on the written text in consumers' opinions, a document-term matrix (DTM) was built. The DTM enables to access the frequency of a term and the number of comments that appear (Moro et al., 2015). Given the large lexica exhibited in consumers' opinions, to further reduce the matrix, sparse terms were removed, in a procedure similar to what Guerreiro and Moro followed (2017). The final data set revealed 1,258 different terms, and the aggregated frequency corresponded to 3,782.

Afterward, topic modeling was applied. Specifically, the latent Dirichlet allocation (LDA) was adopted to produce the topics that revealed the findings of this research. Topic modeling used the DTM as its input and revealed the conclusions by gathering the collected data with the most

relevant topics (Amado et al., 2018). The LDA outcome was crossed with the collected data to conduct their analysis.

4. Results

4.1.1. Website – Consumers' Opinion

From the 770 responses, 463 (60.1%) chose a retail website as the preference to search for a product or a service on the Internet. From this sample (463), 66.7% were male, and 34.3% female. The age average was 37.2 years old. Two levels of analysis were applied to analyze the option of using a retail website as the primary choice to search for a product/service through the Internet. The first level of analysis provided the frequency of the terms captured by the TM analysis (Table 2).

Table 2 - Top 10 terms associated to Website

#	Term	Frequency	
		Number	Percent
1.	Website	154	6.51
2.	Search	140	5.92
3.	Social Media	127	5.37
4.	Inform	104	4.40
5.	Product	88	3.72
6.	Reliable	51	2.16
7.	App	49	2.07
8.	Habit	36	1.52
9.	Facebook	36	1.52
10.	Service	35	1.48
	Total	820	34.67

The analysis of the 463 respondents who chose a retail website as their primary choice to search for a product/service and check alternatives revealed that the top 10 most pertinent terms included

"Website" as the most referred term, with 154 matches, followed by "Search" with 140. In third place came "Social Media" term with 127 matches. Combined, these three terms corresponded to 17.8% of the total.

In the second level of analysis, the LDA outcome was investigated (Table 3). For each topic, the six dominant terms were revealed, and the beta (β) value shows the closeness of the term to the topic. A β value closer to zero corresponds to a strong correlation to the topic. The number of topics was defined to eight, and the six terms with a higher correlation to each topic were considered for analysis. Age groups segmented the aggregated information from each topic. Each topic provided a research proposition that reflects the choice of Internet consumers to prefer a retail website when searching for a product or service.

Table 3 - Retail website LDA outcome

Topic	#	1st term		2nd term		3rd term		4th term		5th term		6th term		Age groups								
		term	β	Term	β	term	β	term	β	term	β	term	β	13 / 18	19 / 24	25 / 30	31 / 36	37 / 42	43 / 48	49 / 54	55 / 60	61 / 66
1.	50	Product	1.69	Website	1.99	Service	2.67	Complete	3.01	Specific	3.58	Detail	3.58	0	9	3	8	3	7	3	0	0
2.	35	Website	2.36	Opinion	2.78	Practice	2.85	Reliable	3.54	Source	3.54	Knowledge	3.72	5	7	12	10	5	11	9	1	0
3.	90	Fast	2.43	Secure	2.53	Easy	2.64	Credible	2.83	Comprehend	3.27	Result	3.35	3	7	11	13	11	15	13	4	2
4.	44	Search	0.94	Social Media	2.29	Website	3.60	Google	3.67	Engine	3.92	Info	3.93	0	7	12	6	9	8	8	2	0
5.	110	Inform	1.29	Reliable	1.93	Habit	2.28	Website	2.80	Trust	3.12	Work	4.07	1	8	4	9	5	5	12	3	0
6.	37	Facebook	2.16	Product	2.42	Website	2.56	Inform	2.87	Service	3.07	Available	3.20	2	16	8	10	20	13	11	3	0
7.	46	App	1.94	Phone	2.34	Access	2.51	Website	3.17	Social	3.36	Install	3.53	2	12	3	7	12	7	5	3	0
8.	51	Social Media	1.40	Website	2.47	Direct	2.98	Less	3.32	General	3.87	Opinion	3.89	2	4	11	13	4	12	5	7	0
													Total	15	70	64	76	69	78	66	23	2

On the first topic, “Product”, “Website”, “Service”, “Complete”, “Specific”, and “Detail” are correlated with fifty Internet consumers’ opinions. The highest β value of this topic is 3.58 for the term “Detail”, providing evidence of a strong correlation of the terms with the topic. These results show that Internet consumers prefer to use a retail website to search for products or services and check alternatives because they find a retail website more complete, specific, and detailed. This information is validated by a consumer that stated, “*I prefer the website because I can better see the features and models of the product and service available”,* and other highlighted that the websites have “*more accurate and targeted information for what you want*”. This highlights the importance of the product or service specification attributes to be available on retail websites since this characterization stimulates web browsing, which in turn leads to impulse buying behavior, and minimizes the impact of the impossibility of touching products in the online context (Park et al., 2012).

Hence, these results highlight one research proposition:

P1: Completeness, specifications, and detailed information have a direct effect on the use of a retail website to search for a product or service online.

From the analysis of the second topic, “Website”, “Opinion”, “Practice”, “Reliable”, “Source”, and “Knowledge”, are the terms with most correlation from thirty-five opinions. The highest β value of these topics is 3.72 (“knowledge”). This topic suggests that there are groups of Internet consumers who prefer a retail website as a source to search for the opinion of professionals because they find it more practical, reliable, and an excellent place to get professional and technical knowledge of the product or service they are looking for. A consumer opinion validates this information: “*I prefer a retail website due to the increased reliability of connection to the company product/service and contents*”, reinforced by another consumer that mentioned that her preference is because she “*can better see the features and models of the product and service available*”.

The preceding observations suggest the following proposition:

P2: Practicability, reliability, and access to professional and technical knowledge have a direct effect on the use of a retail website to search for a product or service online.

Analyzing topic three, its terms were “Fast”, “Secure”, “Easy”, “Credible”, “Comprehend”, and “result”. The β values ranged from 2.43 (“Fast”) and 3.35 (“Comprehend”), showing a strong correlation between the topic and the terms, and consistency among the six terms. These results provide evidence that Internet consumers choose a retail website as the primary source to search for a product or service because they consider it faster, secure, easy to use, credible, and comprehensive. The security and credibility issues are highlighted by a consumer that expressed the opinion that to “*search for a product or service in a social network, the information is more susceptible to doubts. There is a greater probability of suffering impressions and modifications”.* Security leads to trust (Hameed, 2017) while message characteristics and structure features increase credibility, indicating that firms should put more effort to make the retail website safe, invest in quality content (Rauniar et al., 2013) and features, such as privacy policy statements.

This interplay is captured in the next research proposition:

P3: Speed, security, ease of use, credibility, and comprehension have a direct effect on the use of a retail website to search for a product or service online.

The fourth topic aggregated the opinion of forty-four consumers, and the terms more referenced were “Search”, “Social Media”, “Website”, “Google”, “Engine”, and “Inform”, and the highest β value was 3.93. Internet consumers mention that instead of using SM, they prefer to search on Google´s search engine for a product or service where the information provided on the search result page, often leads them to a retail website. One consumer mentioned that “*The use of search engines, such as Google, makes it easy to search, giving me examples of the most popular websites*”, reinforcing that “*the search engine allows you to search more information about a particular service*”. A retail website, to be placed on the first result page of a search engine and be found, must be optimized in a way that the search page algorithm considers the retail website relevant (Page et al., 1998).

The results suggest the fourth proposition:

P4: Google has a direct effect on the use of a retail website to search for a product or service

Topic number five is the topic with the highest number of opinions (110), and the highest β value corresponds to the term "work" (4.07). This topic revealed that Internet consumers use a retail website because of the habit acquired by performing searches on the Internet, but also consider that a retail website works everywhere, and the information is reliable and trustworthy. Although many consumers specified habit has one of the main reasons to choose a website to conduct their searchers, others highlighted trust for their reason mentioning "*I do not trust or feel safe on social networks*" and revealing assurances that by not using a MA "*you are not running in the background without my permission*".

P5: Habit, reliability, and trust of information have a direct effect on the use of a retail website to search for a product or service.

Topic six corresponds to thirty-seven responses. The term with the highest β value is "Available" with 3.07. From the opinion of these consumers, they prefer to choose a retail website to find a product or service, although they use Facebook as a secondary platform to get extra information concerning the product or service that they are looking for. A retail website, in their opinion, has the advantage of providing the availability of the product or service at the moment of search. This result is supported by the opinion of a consumer that specified that his choice is associated with the fact that "*the website is more reliable with regard to availability and range of choices*".

P6: Access to availability on time has a direct effect on the use of a retail website to search for a product or service

Forty-six opinions are associated with topic seven, and the highest β value is 3.53. Consumers do not like to install MA on their smartphone for memory space reasons and consider that the access to the product or service is better on a retail website than on a SM platform. Memory space limitation is mentioned by a consumer that preferred a website due to "*the little ability of the*

phone to install an app". Other indicated that his preference for a website is associated with the fact that he "*would have to download an app and take up space on the phone*".

P7: Lack of memory space in smartphones and access to the product or service has a direct effect on the use of a retail website to search for a product or service

The terms "Social Media", "Website", "Direct", "Less", "Generic", and "Opinion" are associated with the topic eight. The data provided for this topic was from fifty-one opinions, and the highest β value is 3.89. When searching for a product or service, consumers prefer to go directly to a retail website and less to a SM platform because they consider SM more general and used to collect the opinion of others, as one consumer mentioned, a retail website is "*less exposed to public opinion and social commentary*".

P8: The focus and no interest in the opinion of others has a direct effect on the use of a retail website to search for a product or service.

In general, the majority of the respondents who chose to use a retail website as a primary source to search for a product or a service came from the age range between 43 to 48, with seventy-eight matches, followed by the interval between 19 to 24 and 31 to 36, with seventy and seventy-six opinions, respectively.

4.1.2. Social Media and Mobile Application – Consumers' opinion

307 (39.87%) of the 770 Internet consumers that replied to the unstructured interview chose SM and MA as their first option to search for a product or a service on the Internet. Of the 307 consumers who chose this option, 56% were male, and 44% female. The age average was 32.3 years old. Two levels of data analysis were conducted. In the first analysis, the recurrence of terms was analyzed, and on the second level of analysis, the LDA outcome was dissected.

Table 4 presents the top 10 frequent terms of the data analysis from a universe of 520 different terms. From the analysis of this table, “Easy” and “App” are the most common terms with 72 matches each. In third place comes “Fast” term with 62 matches. These three terms correspond to 14.3% of the total of matches.

Table 4 - Top 10 terms associated to Social Media and Mobile Application

#	Term	Frequency	
		Number	Percent
1.	Easy	72	4.98
2.	App	72	4.98
3.	Fast	62	4.29
4.	Access	56	3.87
5.	Product	45	3.11
6.	Website	42	2.90
7.	Practical	41	2.83
8.	Social Media	40	2.77
9.	Phone	37	2.56
10.	Search	37	2.56
	Total	504	34.85

In the following positions, are “Access”, “Product”, “Website”, “Practical”, “Social Media”, “Phone”, and “Search”. The top 10 terms correspond to 34.9% of the total (1,446).

In the second level of analysis, the LDA outcome was scrutinized (Table 5). Each topic provided a research proposition that reflects the choice of Internet consumers to prefer a Social MA / SM platform when searching for a product or service.

Table 5 - Social Media and Mobile Application LDA outcome

Topic	#	1st term		2nd term		3rd term		4th term		5th term		6th term		Age groups							
		term	β	Term	β	term	β	term	β	term	β	term	β	13 / 18	19 / 24	25 / 30	31 / 36	37 / 42	43 / 48	49 / 54	55 / 60	61 / 66
1.	52	Practice	1.29	Website	3.61	Phone	3.83	Review	3.91	Service	3.97	Adapt	4.24	1	17	9	8	6	6	3	2	0
2.	24	Social Media	1.70	Product	1.76	Opinion	2.80	Service	2.81	Inform	2.98	Comment	3.31	6	8	2	2	2	1	3	0	0
3.	49	Fast	1.17	Much	2.57	App	2.89	Habit	3.02	Navigate	3.13	Website	3.39	1	16	11	6	6	5	2	1	1
4.	34	App	1.76	Friend	2.96	Simple	3.08	Inform	3.37	Website	3.48	Open	3.56	2	7	8	9	4	0	4	0	0
5.	32	Search	1.52	Website	2.55	Easy	3.16	Inform	3.37	Opinion	3.39	Comfort	3.75	1	11	4	5	4	5	2	0	0
6.	39	Time	2.46	Practical	2.94	Facilitate	3.23	Feedback	2.39	Direct	3.35	Familiar	3.92	1	9	5	6	8	6	1	3	0
7.	57	Easy	1.44	Access	1.54	Phone	2.04	App	2.39	Website	3.77	Facebook	4.18	2	14	13	7	6	3	6	2	4
8.	20	Convenient	2.36	Service	2.36	Product	2.96	App	3.23	Fast	3.28	Facebook	3.53	1	8	4	0	3	3	1	0	0
													Total	15	90	56	43	39	29	22	8	5

The number of topics was characterized to eight, and the six terms with a more noteworthy relationship to every topic were considered for analysis. Age groups were considered to provide extra information.

Topic one comprehends fifty-two opinions. The term with the highest β value was "Adapt" (4.24). Internet consumers who prefer to use a MA to conduct their search acknowledge that MA are adapted to their smartphones and that looking for service reviews on a MA is more practical than to conduct the same search on a retail website. These revelations are confirmed by one consumer who states that he "*believes that app adapted to the functionalities of the smartphone*" while other highlight that "*that mobile websites are not practical for search and many are not adapted for a smartphone version*".

P9: The adaptability, practical use, and access to reviews on a MA have a direct effect on the use of a MA/SM platform to search for a product or service.

Twenty-four consumers contributed to the second topic, and the highest β value is 3.31, showing a close relationship between the terms and the topics. Consumers reveal that when looking for a product or a service, they search for information on SM attempting to find opinions and comments of others who have shared their experience, expecting to find relevant information that could help them to make the final decision, confirming previous research (Xu and Li, 2016). A consumers' opinion supports this result: "*we have access to many tests and reviews of other individuals that will help us in the decision making*" adding that the others' opinion is "*more sincere*" considering them relevant.

P10: Opinions and comments of others have a direct effect on the use of a MA/SM platform to search for a product or service

Topic number three comprehends the answers of forty-nine consumers and revealed the terms "Fast", "Much", "App", "Habit", "Navigate", and "Website" as the closest to the topic, having the highest β value 3.39 among the six terms, revealing that consumers prefer to use a MA because

they are used to it, consider them much faster and navigable than retail websites. One consumer told that his choice for a MA is mainly "*because this would be more adapted to the smartphone, in terms of navigation it is better and more intuitive*", confirming these results.

P11: Habit, speed, and navigation have a direct effect on the use of a MA/SM platform to search for a product or service.

Analyzing topic four, the term with the highest β value is "Open" (3.56). This topic reveal that consumers prefer to use a MA because it is user-friendly, accessible, simpler, and it is more informative than a retail website, confirming previous research findings (Alnawas and Aburub, 2016). The authors confirmed that among the critical factors for downloading/using MA are the acquisition of knowledge, while user-friendliness and accessibility are vital technical attributes that motivate the use of a particular MA. The opinion of a consumer stresses the result of this topic: "*Nowadays, due to the enormous impact that social networks have on society, they are already prepared, faster and efficient, to respond to the most issues that arise daily*", reinforcing that "*social networks let you know (...) what other consumers think of the product/service in question*" highlighting the informative question of this topic.

P12: User-friendliness, access, simplicity, and richness of information have a direct effect on the use of a MA/SM platform to search for a product or service.

Topic five, provide evidence that consumers prefer to search on a SM platform since they feel more comfortable and find them easier to access. They consider reading the opinion of others on SM is more informative than the information provided in a retail website, following the view of a consumer that stated: "*it is possible to access consumer reviews, which often help to clarify any questions/curiosities you may have about a product that you think to acquire*". Topics two and five confirm that electronic word of mouth is perceived as more credible and trustworthy (Ellonen et al., 2010; Yahia et al., 2018).

P13: Comfort, easy to access, and quality of information have a direct effect on the use of a MA/SM platform to search for a product or service.

The sixth topic, with thirty-nine matching opinions, provides evidence that "Time", "Practical", "Facilitate", "Feedback", "Direct", and "Familiar" have a positive correlation with the choice of using a MA to search for a product or a service and assess alternatives. Consumers have the opinion that using a MA is more practical, direct, time saver, facilitates the process to get feedback from others, and feel more familiarized using such platforms. Concerning the time saver characteristic highlighted by this topic, one consumer revealed that his choice is influenced by "*too much information on the website loads too slow and I just want the basics fast*", while other confirmed the familiarity of the MA by stating "*a social app (…) is more familiar and easier to download and to use than a website*". Research has revealed that smartphone MA has become a social phenomenon among generation Y and that this generation has a positive attitude towards a MA if they find it useful and engaging (Carter and Yeo, 2015).

P14: Practicability, focus, time saver, and access to feedback of others has a direct effect on the use of a MA/SM platform to search for a product or service.

The topic with the most matching answers is topic seven, with fifty-seven matching opinions. The highest β value is 4.18. Consumers acknowledge that through their smartphone, it is easier to access their Facebook MA than to search on a retail website, characteristics highlighted by a consumer who mentioned that a MA has "*easier access, more intuitive, organized information, and allows to see the opinion of others"*.

P15: Facebook ease of use, intuition, organization, and access to information have a direct effect on the use of a MA/SM platform to search for a product or service.

The eighth topic has twenty matching opinions. This topic revealed "Convenient", "Service", "Product", "App", "Fast", and "Facebook" as the terms with the highest correlation to the topic. The highest β value is 3.53 for the term "Facebook". Consumers have the sentiment that to search

for a product or service online, the use of Fakebook's MA is more convenient and provide faster access. A consumer opinion supports the result obtained by this topic: "*it is easier for users (...) they can have faster access to the platform. Apps are like a functional, convenient, and fast-paced tool*".

P16: Facebook convenience and speed of access have a direct effect on the use of a MA/SM platform to search for a product or service.

In general, most respondents came between the ages of 19 to 24, with ninety matches, followed by the range between 25 to 30, with fifty-six opinions.

5. Discussion

After analyzing the 770 collected opinions of Internet consumers regarding their option to choose a retail website or a MA/SM platform to search for a product or service and assess alternatives, we have reached exciting conclusions.

Figure 1 reveals the visual outcome of retail website term frequency (Table 2). The terms that occupy the greater area are "Website", "Search" and "Social Media", revealing that search is a highly relevant functionality in retail websites, as well as that consumers seem to acknowledge the relevance of integrating SM plugins in retail websites. Social buttons such as Facebook Likes, share buttons, or the comments automatically shared on SM platforms through plugins connect retail websites to SM platforms (Bianchi and Andrews, 2018). If a consumer has a SM profile, the plugin will cross the consumer information between both platforms (SM platform and the retail website) in the form of cookies, that companies use to offer personalized content designed for a particular consumer. Although this information share between platforms implicates privacy concerns (Portokalidis et al., 2012), these results indicate that consumers are willing to sacrifice their privacy to be better served on the retail website.

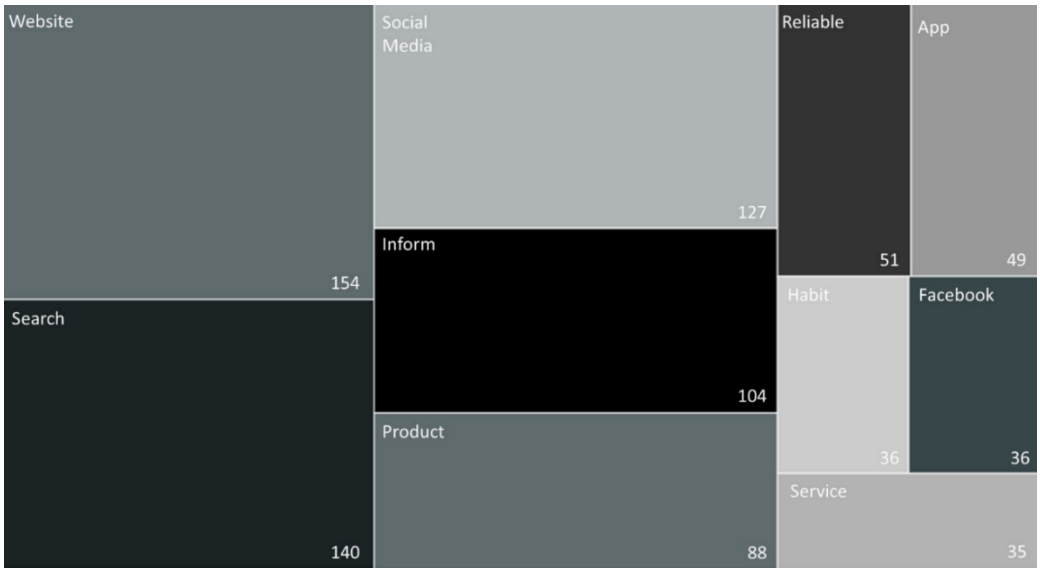

Figure 1 - Retail website proportional area chart (square) outcome

In turn, Figure 2 reveals the proportional area chart from the MA/SM term frequency (Table 4). The visual interpretation of the results showed "Easy", "App" and "Fast" as the terms most referenced, providing evidence that consumers prefer a MA to conduct their search due to the easiness to use and loading speed, confirming the studies of Alnawas and Aburub (2016) and Yang (2013). This reveals that consumers highlight technical features as one of the reasons to choose a MA/SM platform rather than the benefits and features exposed by those who chose the retail website.

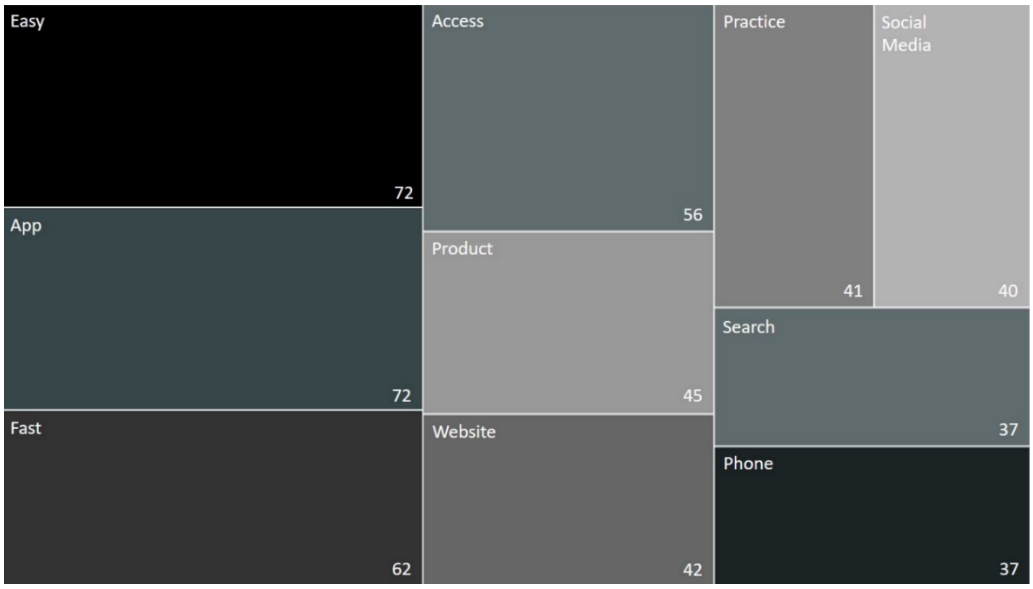

Figure 2 - SM and MA proportional area chart (square) outcome

The characteristics with the most relevance for Internet consumers who chose a retail website to conduct their search for a product or service are availability (propositions 6 and 7), completeness (propositions 1 and 3), and reliability (propositions 2 and 5). The access to the availability of the product or service at the time of the search and speed and ease of use were mentioned as characteristics that influence the consumers' choice, confirming previous research (Cho, 2015). This sample also acknowledges that the information on a retail website is more credible, detailed, trustworthy, and reliable, confirming previous results (Belanche et al., 2012; Hameed, 2017), highlighting that their choice is influenced by information quality. It is acknowledged that a retail website has all the necessary information concerning the products and services available.

However, characteristics from system quality, such as visual appeal or navigation, were not mentioned by customers, and there were few features highlighted by consumers concerning the technical component of retail websites that could influence their choice. Although other authors have referred system quality for being relevant in several contexts, in this context does not reveal any relevance for consumers when they decide to choose a retail website for their search (Hsu et al., 2012; Sharma and Lijuan, 2015). It is possible to acknowledge that their choice is also

associated to the fact that usually, to search on the Internet, they use Google search engine, and a search result page frequently leads them to a retail website. The results also acknowledge that consumers feel that SM is more general and are used to collect the idea from others, revealing that the opinion of others is not relevant for their decisions. Nevertheless, consumers that prefer retail websites highlight that Facebook is used as a second option to getting extra information, confirming the relevance of Facebook in the worldwide panorama. Also, do not like to install MA on their smartphones for memory space reasons, revealing one of the limitations of smartphones, since it can determine how many applications can be downloaded, affecting consumers' decision (Woodcock et al., 2012).

The most relevant characteristics highlighted by Internet consumers to choose a MA/SM platform to conduct their search are the user-friendliness of such platforms (propositions 11, 12, 13, and 15), the access to reviews (propositions 9, 10, 12, 14, and 15), and time efficiency (propositions 11, 14, and 16). This data confirms that customers like the aggregated value brought by SM and MA, and aim to be part of real-time participation, answering and asking questions, sharing their experiences and opinions, adding value to the process (Huang and Benyoucef, 2015). When they search for a product or service through SM it is because they do not mind to be influenced by a third party (Lurie and Wen, 2014; Reichelt et al., 2014). Online product reviews in the form of a critic, evaluation, or on a non-seller website, have a significant impact on customers' decisions (Huang and Benyoucef, 2015).

This sample do not highlight hedonic benefits to search for a product or service, contradicting, in this context, findings such as the ones found by Yang (2013) and Hsiao et al. (2016) who revealed the importance of fun, enjoyment, and entertainment as the factor that motivate consumers to use a MA. Another fact is that consumers have not mentioned that they use SM and MA to watch videos or pictures of the products or services in their search. It is usual for consumers to use video platforms, such as YouTube, for product reviews, to get extra information to help with their

decision (Alnawas and Aburub, 2016). However, these results indicate that the possibility of watching videos does not influence the choice of using a MA / SM platform.

A model, based on the propositions, was developed (Figure 3).

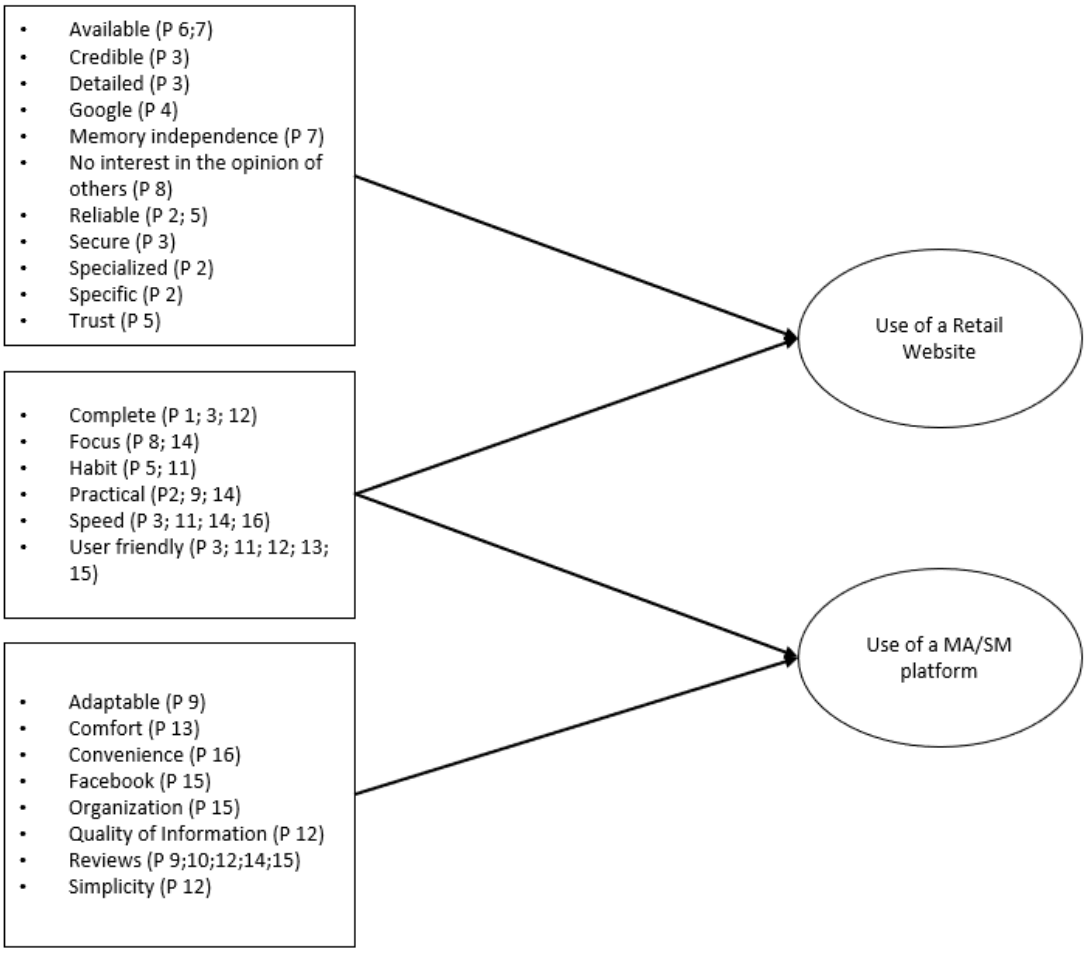

Figure 3 - Research proposition model

Analyzing the characteristics considering their relation to system quality, information quality, and service quality, consumers who chose a retail website give more relevance to service quality (available, reliable, secure, specific, trust, and focus). Those who selected a MA/SM platform give more importance to characteristics associated with system quality (adaptable, organization, speed, and user-friendly) and less to service quality (comfort, convenience, and focus). Regarding information quality, each sample highlighted the same number of characteristics associated with this dimension (four), although they are different.

Figure 4 reveals the age trends for the use of a retail website or MA/SM platforms to search for a product or service and check alternatives. From its analysis, it is observable the beginning of a trend towards SM and MA. The ages between 19 and 24 years old reveal a greater willingness to use SM and MA instead of retail websites, confirming the recent statistical evidence. However, after the age of 31, the desire of consumers to use MA and SM platforms drop to numbers below the use of retail websites, which, on the other hand, have been revealing a very constant use between the ages of 19 until 54 years old.

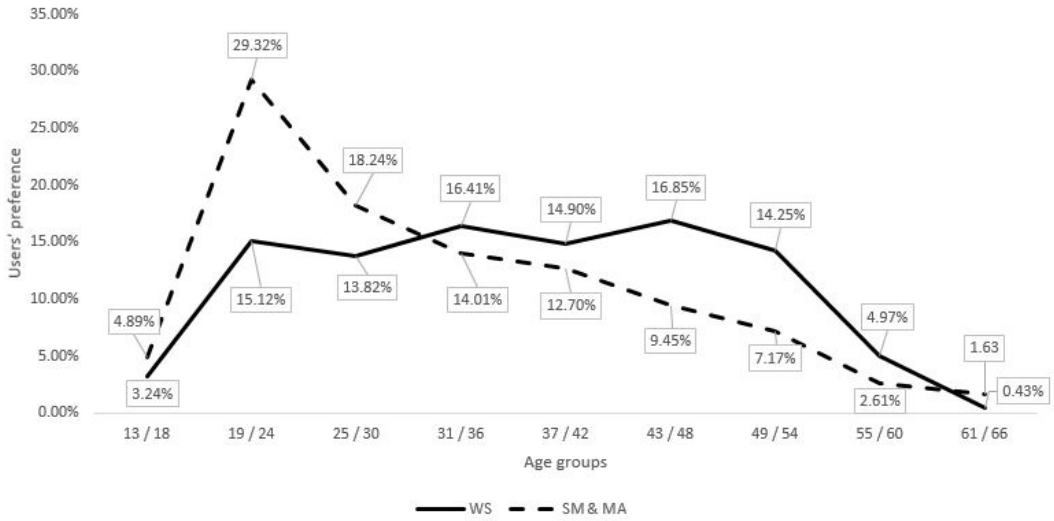

Figure 4 - Age trends

Overall, the main conclusions are that there are relevant differences between consumers who chose a retail website versus MA/SM platform to search for a product or service, although there are some convergent features that are highlighted by both types of consumers. In general, consumers prefer a retail website due to content quality and because it can be accessed from every device (desktop, laptop, smartphone, tablet), while SM platforms are used to access ratings, reviews, and recommendations from others, which access is facilitated by the technical aspects of a MA. Nevertheless, according to previous research (Alnawas and Aburub, 2016), it would be expected that consumers would choose a MA/SM platform due to the possibility of watching videos and reviews in the search for extra information.

From the analysis of Figure 4, in the long run, there is the perspective of consumers opting to use MA and SM platform as a primary choice to conduct their searches, turning retail websites to a secondary option, and irrelevant when compared to the use of MA/SM platforms. Younger generations have different behaviors compared to previous generations since shopping has become an experiential activity (Noh et al., 2014).

A final major point that arises from this study is that previous studies tend to examine the characteristics that influence the use of each platform isolated from each other. Nonetheless, this study suggests an analysis in a broad sense, capturing all the features that affect the use from the consumers' point of view, implying a complex interplay between and among the uncovered characteristics, as suggested in Figure 3.

6. Conclusions

The range and availability of MA and SM platforms are spreading rapidly, leading to changes in consumer behavior. Establishing the behavior change as the focus of this investigation, this paper aimed to understand what Internet consumers would choose between a SM / MA or a retail website to search for a product or service and revealed the reasons to make such choice.

The achieved findings allowed us to understand what is influencing the behavioral change from the consumers' perspective and revealed the characteristics that can be improved to enhance the use of retail websites, MA, and SM platforms. In turn, these findings make a conceptual addition to academia, by confirming the behavioral change, and what characteristics are influencing such behavior. Adding this, by the analysis of the sample age, we can confirm that a trend has begun, heading towards the use of MA/SM platforms. These findings also make a valuable contribution to Internet professionals by revealing the characteristics that Internet consumers highlight from a retail website and MA/SM platforms and how to align their online strategies toward the Internet consumer experience and expectations.

Based on these findings, for future research, it would be worth understanding the opinion of users contextualized to a particular area of business, product or service, adding an objective criterion, and contrast the results with these findings. Second, it would be interesting to examine the preference of users to other search options search for a product or service, namely, Voice Assistants, such as Siri, Cortana, or Alexa. Third, understand this dynamic in each step of the consumer decision journey (Edelman and Singer, 2015) and its influence to lead consumers to bond and become loyal to a brand.

Despite the contributions of this study, limitations need to be stated. First, the unstructured interviews used to collect data were designed for a general data collection and not for a particular product, service, or company. Therefore, in future research, the unstructured interview should be applied to a specific product, service, or company to address different product categories and make a comparison of results between them. Second, the collection of a representative sample of the Internet consumers will represent an essential step for understanding more accurately the Internet consumers' choice and the reasons that support such a decision. Third, the conclusions were based on self-reported responses and may not be reliable. Consistently, data on records of online purchases by Internet consumers should be obtained in future research.

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