

B2B versus B2C digital communication: approaches and dimensions used

Dissertação de Mestrado

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Mestrado em

Gestão de Empresas (MBA)



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RESUMO

O comportamento dos consumidores nos contextos digitais evoluiu com a própria evolução tecnológica e a sua maturidade enquanto utilizador. Como tal é necessário procurar entender como diferentes abordagens no Marketing Digital afetam a perceção dos consumidores e sua consequente reação às iniciativas das empresas. Neste trabalho aborda-se a evolução do Marketing Digital, e alguns dos temas mais mutáveis associados ao mesmo: o *eWord of Mouth*, as redes sociais e o poder dos *influencers* nas comunidades online. Para responder às questões de pesquisa que nortearam este trabalho, recolheram-se comentários partilhados por membros de diversas comunidades on-line com relação a um produto de lazer (PS5) e um educacional (PC), tendo ambos sofrido uma escassez de oferta. A análise de conteúdo foi desenvolvida com recurso a uma abordagem mista. Com a análise quantitativa procurou-se entender as diferenças em termos de distribuição e dimensão (número de palavras) dos comentários em algumas das plataformas sociais existentes. E com a análise qualitativa, com recurso ao programa Wordstat, analisaram-se os sentimentos confluentes nos comentários. Em geral, os produtos de lazer tendem a atrair mais atenção, com comentários sendo principalmente curtos, diretos a relatar problemas experienciados com o produto. Por seu turno, os comentários relacionados ao produto educacional foram notavelmente mais negativos, extensivamente mais longos e tendencialmente abordavam problemas terceiros. Este estudo exploratório sugere que o Marketing Digital nas redes sociais capta a atenção dos consumidores. No entanto, também salienta a necessidade da gestão de marcas e equipas de gestão de redes sociais de aumentarem os esforços para solidificar os relacionamentos com seus consumidores/membros das comunidades online, de modo a induzir a atitudes mais positivas e promover um *e-WoM* mais positivo.

PALAVRAS-CHAVE

Análise de Sentimentos; Comunidades Online; Marketing Digital; Redes Sociais; *eWord of Mouth*.

ABSTRACT

Internet caused a paradigm shift in consumer behavior and attitude towards brands; it gave consumers a voice and space to actively share their experiences. Brand managers are challenged to keep up with consumers in this mutating arena. This work looks into the Digital Marketing evolution, picking upon eWord of Mouth, Social Media, and the power of influencers in online communities; it seems clear that firms explore digital marketing in many different ways. Some have a more compelling and interactive approach, while others limit online interactions. This study aims to unveil how different approaches to Digital Marketing can affect consumers' perception and their consequential reactions. Thus, the online community members' comments about a leisure product (PS5) and an educational one (PC) suffered a shortage of supply. Using quantitative analysis, we understood the differences in distribution and length (number of words) of the comments throughout some of the existing social media platforms. Then, applying a qualitative analysis and resourcing to the program WordStat, we conducted a sentiment analysis on all comments. Overall, leisure products tend to attract more attention, with comments being mainly short and direct to report issues with the product. In contrast, statements related to the educational product were notably more negative, extensively longer, and tended to divert to third-party problems. This study proves that Digital Marketing in social media is capturing consumers' attention. Yet, brands and social media management should increase their efforts to solidify relationships with their consumers/members to induce a more positive attitude in their communities.

KEYWORDS

Digital Marketing; Online Communities; Sentiment Analysis; Social Media; eWord-of-Mouth

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TABLE OF CONTENTS

CHAPTER I – INTRODUCTION	1
CHAPTER II – LITERATURE REVIEW	4
2.1 How digitalization opened marketing possibilities	4
2.2 Approaches to the modern client	7
CHAPTER III - METHODOLOGY	9
3.1 Type of research made	9
3.2 How data was collected	9
CHAPTER IV – DATA PROCESS	12
Statistical Analysis	12
CHAPTER V - WORDSTAT ANALYSIS	14
5.1 The Shortage of PS5 stock	14
5.1.1 Frequency Table / WordCloud	14
5.1.2 Topic Extraction	17
5.1.3 Dendrogram	17
5.1.4 Link Analysis & Proximity Plot	19
5.1.5 Sentiment Analysis	20
5.2 The lack of PCs for students at home	24
5.2.1 Frequency Table / WordCloud	24
5.2.2 Topic Extraction	25
5.2.3 Dendrogram	26
5.2.4 Link Analysis & Proximity Plot	27
5.2.5 Sentiment Analysis	30
CHAPTER VI - RESULTS	32
CHAPTER VII - CONCLUSION	36

Figures Index

Figure 1. Structure of the work	3
Figure 2. Summary of Methodology	11
Figure 3. WordCloud of most utilized words in ps5 comments.....	14
Figure 4. Rate of word "PS" in every 10.000 words	16
Figure 5. Platform appearance percent of word "PS"	16
Figure 6. Dendrogram of words related to the 4 biggest topics in the sample	18
Figure 7. Link analysis of between most relevant words in the sample.....	19
Figure 8. Proximity plot with objects "PS " and "STOCK"	20
Figure 9. Divided sections of Wordstat Sentiments v3 dictionary	21
Figure 10. Wordcloud of the most utilized words in "PC" comments.....	24
Figure 11. Dendrogram related to PC topic	27
Figure 12. Link analysis of the most interconnected words.....	28
Figure 13. Proximity plot of the words "CLASSES" and "ONLINE"	29
Figure 14. Range of comments size	33

Table Index

Table 1. Comments collected per post per platform	10
Table 2. Number of data verified and collected	12
Table 3. Frequency table of most utilized words in PS5 comments	14
Table 4. Topic extration of sample.....	167
Table 5. Categorization of words connotation	21
Table 6. Second level of categorization of words connotation	22
Table 7. Third level of categorization of words connotation	22
Table 8. Frequency table of most utilized words in PC comments	20
Table 9. Topic extration of sample.....	21
Table 10. Categorization of words connotation	30
Table 11. Second level of categorization of words connotation	30
Table 12. Third level of categorization of words connotation	31
Table 13. Sentiment comparison of the two topics in study	34
Table 14. Comparison of negative connotation of the two topics in study	35

CHAPTER I – INTRODUCTION

Digital marketing has seen its importance grow exponentially over the last few decades and is now considered a fundamental area for most companies. By first taking baby steps with the introduction of the Web 1.0 during the 90s, marketing in the virtual world was considered monotonous and not too appealing (Kingsnorth, 2019) for companies to promote themselves and their products. With the introduction of Web 2.0 and the rise of social media platforms such as Facebook and Twitter, a transfer of power began to withdraw from firms over to the communities and their biggest weapon, word of mouth (WoM). Nowadays, E-commerce, mobile devices, the Internet of Things (IoT), and Artificial Intelligence (AI) shape the world that is digital marketing, striking a new reality on companies and the way they convey to their customers (Herhausen, Miočević, Morgan, & Kleijnen, 2020). In this sense, strategies began to be called to reach the masses, ultimately leading to customer value. Firms must become actively committed to new technologies to pursue and take full advantage of digital marketing strategies. Several authors found evidence that business-to-consumer (B2C) adopted faster digital marketing and e-commerce initiatives than business-to-business (B2B) (Cawsey & Rowley, 2016; Chaffey, Ellis-Chadwick, Mayer, & Johnston, 2009; Pandey, Nayal, & Rathore, 2020). Part of this formula for success resides in the approach and dimensions firms use. Pop-up advertisements and companies' profile pages on social media platforms and web sites became an obvious way of reaching these communities. However, evidence from a study that inferred what advertisements Millennials found welcoming and enticing (Smith, 2011), demonstrated that businesses do not always embrace the best strategy. During this segment's development, a clear realization is that a singular marketing strategy is not a universal success. In recent years, a specific marketing concept began to mold itself into one of the most crucial steps for companies to achieve higher brand loyalty – creating perceived value (Aulia, Sukati, & Sulaiman, 2016; Liaw & Le, 2017). Formerly consisting of the main information about the product and its benefits (functional/utilitarian value), brand communication lacked the opportunity to connect with the community. Currently, firms depend not only on information but also on emotional value. It is based on consumers' experience with the product/brand, aiming to establish “loyalty beyond reason” (Fernandes & Moreira, 2019; Pawle & Cooper, 2006).

In 2017, researchers concluded that a post's argumentative quality, attractiveness, and popularity do share a relationship with sympathy, which mediates the level of empathy within the communities (Keskin, Akgun, Ayar, & Etlioglu, 2017). Another study, conducted in 2018, linked

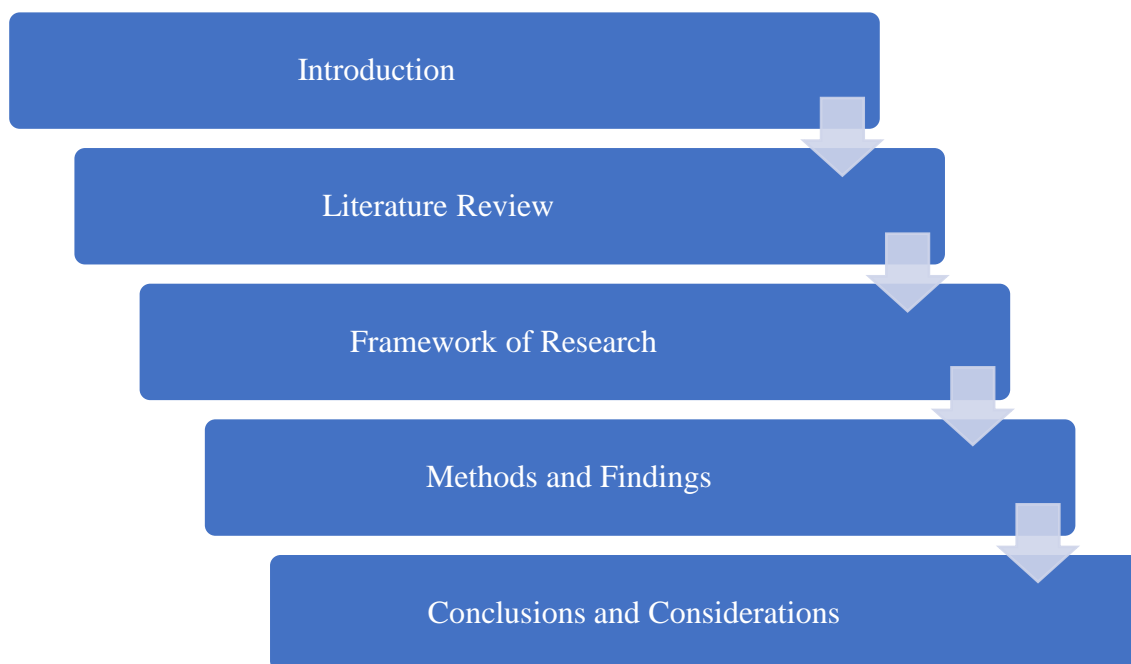
cognitive and emotional factors to stakeholder engagement in posts. In this case, cognitive stimulation played a more significant role, and external sources (i.e. influencers) endorse more active participation in a comment (Viglia, Pera, & Bigné, 2018). Moreover, in 2020 a study focused on attention towards ads with and without celebrities. Overall, ads containing a person (celebrity or not) increased the awareness given to the ad, captured by eye-tracking behavior. However, their presence increased time processing, causing more negative hedonic attitudes, and the use of celebrity in the ad negatively impacted utilitarian attitudes (Ferguson & Mohan, 2020).

In 2020, a group of researchers gathered information on how the Hierarchy of Emotions (HoE) theory could be used to improve the quality of B2B advertising and social media (Juntunen, Ismagilova, & Oikarinen, 2020). Results shown valuable insights in terms of the utilization of tactics such as awareness, knowledge and trust, interest, and liking (components of the hierarchy) were used throughout most and least engaging tweets. In addition to that, elements like awareness, preference and conviction were more present in more engaging tweets.

However, a growing number of firms operate in both markets, leading to question if their digital marketing strategy is tailored to the type of market they are trying to attend or if there is only one strategy that applies successfully to both markets. Thus, this study's main objective is to assess how different products affect users' emotions, considering the two domains of action: B2B and B2C. For this purpose, this work will focus on the communication process and examine the differences between B2B and B2C digital communication. Furthermore, the analysis will establish if the content communicated presents differences in utilitarian and emotional aspects since it has been reported that marketing communications can attain optimal results depending on the market and the combination of the dimensions explored, marketing communications can attain optimal results (Rèklaitis & Pilelienè, 2019). Throughout a hybrid approach, combining qualitative and quantitative analysis, this research will be based on data gathered directly from Portuguese retail firm's social media operating in both markets.

The remaining work reflects the pursuit of these goals (Figure 1). Next section is dedicated to the review of the literature. Based on the main theories and concepts that arose from the literature review, the analysis framework was composed and is present in chapter 3 of this work. Afterwards, the method employed and the results obtained are exposed. The last chapter is dedicated to the conclusions and considerations, highlighting the main theoretical and managerial contributions of this work and presenting some limitations and future paths of research.

FIGURE 1. STRUCTURE OF THE WORK



CHAPTER II – LITERATURE REVIEW

2.1 How digitalization opened marketing possibilities

In the most recent years, the Digital Era has overwhelmed all industries in one way or another. From Architecture, with the development of technologies that can revamp the way we design and execute our constructions (Picon, 2010), to Tourism and the immersive trips to the past that a country's heritage has to offer (Bec et al., 2019), for example.

Traditional Marketing can be described in a straightforward way as any type of publicity that ever existed before the invention of the Internet. In conformity with this claim, television, radio, newspapers / magazines and direct mail are all methods of catching an audience's attention (Bhayani & Vachhani, 2014). This way of marketing came with a lot of disadvantages, especially due to lack of customization, since, in the example of billboards, it cannot be specified to a single person, and the high costs associated with it. Adding to that thought, traditional marketing is considered to be static in the sense of having little to no interaction between buyers and sellers. With that in mind, the idea of “being in the right place at the right time” falls apart since firms are not armed with the necessary tools to provide the best offers at the right time (Todor, 2016).

Nonetheless, Todor believes that it is necessary to maintain traditional marketing and its coexistence with the new generation of marketing, the Digital; it's a must at least for now. A study conducted in 2020 compared the performance of Conventional (Traditional) and Digital Marketing in the promotion of a certain company's products. Results found no major disparities between one another, coming so to the conclusion that both segments were effective (Fauziah & Nugraha, 2020).

Now, more than ever, marketing is being accepted as a key focus area for the success of any business (Kaur, 2017). The Millennials and Generation Z (GenZ) together, just in the United States of America, represented around 178 million ($\approx 54\%$) of a total of 327 million people by 2018 (Munsch, 2021). It is important to keep in mind that these last two generations have been in contact with the rise of the Internet in firsthand. As so, digital marketing as also begun to shape the way companies and other organizations present their products/service or simply communicate with these masses (Chaffey & Ellis-Chadwick, 2019; Karjaluoto, Ulkuniemi, & Mustonen, 2015; Tiago & Veríssimo, 2014).

Digital marketing is considered to be a prolongation of the traditional ways of doing marketing (Piñeiro-Otero & Martínez-Rolán, 2016), that is the promotion of goods and services

through digital technologies (Ritz, Wolf, & McQuitty, 2019), being generalized by anything marketing related being connected to the Internet.

As so, Digital Marketing gathers several advantages towards its side:

- **Adaptable and improvable:** Many companies have failed at some point of their life span in the marketing department strategy. With the adoption of Digital Marketing, all content can be either removed or editable in order to please the masses and their feedback.
- **Co-creation / Community produced value:** Users get the chance to talk openly on the world wide web about a certain company and easily collaborate with it.
- **Cost efficiency:** With every company being able to create its own website and having social media print for free in most platforms, the cost to create content is greatly reduced when compared to Traditional Marketing.
- **Easily measurable:** The Internet offers all types of data analysis that allow to understand a firm's target audience and adapt to the circumstances.
- **Have it your way:** Due to the gathered data previously mentioned, it is easier to provide a customized offer that appeals to the consumer based on their profile and preferences.
- **Right place at any given time:** Information has switched from being delivered to the consumers at a certain moment to now being available permanently whenever the users desire to at a click of a button. In addition to this, it is the user's choice when to interact with the company and its content.
- **From everyone to everyone:** The Internet has become accessible to most people. Small and Medium-sized Enterprises (SMEs) get the chance to "steal" a piece of the market share since Digital Marketing allows for these smaller businesses to also shine.

(Todor, 2016; Veleva & Tsvetanova, 2020; Yasmin, Tasneem, & Fatema, 2015)

Its' most import trait, and one of the big reasons for the success of Digital Marketing, thrives on the fact that what was once one of the most overwhelming barriers, delt by the name of globalization, is now overcome by the adoption of digital marketing, increasing businesses' target audience exponentially. Some firms relied heavily on this digitalization process to make them top-tier companies in their industries today, topping most of their competition (Bala & Verma, 2018). Enterprises such as Booking (the platform that facilitated traveling and accommodation, interconnecting buyers and sellers), Facebook (a well-known social media currently with 2.80 billion users worldwide), Uber (an app designed to take you anywhere at "the tap of a button") and many more come to mind to most of the population.

Since the population migrated in mass from the real-world towards the virtual one (Tiago & Veríssimo, 2014), companies naturally followed (Smith, 2011). As the Internet boomed in terms of importance, it is believed that since this event, we have entered a “whole new world” where power has been shifted from the companies towards their clients (Kartajaya, Kotler, & Hooi, 2019; Kingsnorth, 2019). Competition and fear of falling behind have put all businesses on a race towards innovation and improvement of their digital tools to capture clients’ trust and loyalty (Leefflang, Verhoef, Dahlström, & Freundt, 2014).

One of the main reasons for this “race for arms” relies on the rise of social media. It is considered to be a collection of technologies and data presented in the form of apps and websites (Appel, Grewal, Hadi, & Stephen, 2020) that allows for the exchange of user-generated content between an online community (Kaplan & Haenlein, 2010; Olanrewaju, Hossain, Whiteside, & Mercieca, 2020). This removed demographic barriers between people and allowed links, in the forms of opinions and sentiments, between communities that were once unlikely (Kaplan & Haenlein, 2010; Li, Larimo, & Leonidou, 2021).

The introduction of Artificial Intelligence, E-commerce, the Internet of Things (IoT), and mobile devices delivered new possibilities for companies to add value to their customers and gather new ones (Herhausen et al., 2020).

These events opened the ways for a new type of marketing, one that bases on Word-of-Mouth (WoM) as a vehicle to spread the word about a company and its products, capable of influencing human behavior (Augusto & Torres, 2018; Filieri, Raguseo, & Vitari, 2018). It is considered an invaluable tool to consumers that now migrate towards the digital when evaluating and selecting a product (Roy, Datta, & Mukherjee, 2019). A recent study investigated the principal factors in e-WoM (electronic Word of Mouth) that led to the intention to buy. Results found that credibility, emotional trust, attitude towards the website and attitude towards online shopping were the strongest correlations out of a total of 19 traits (Ismagilova, Slade, Rana, & Dwivedi, 2019).

2.2 Approaches to the modern client

Online communities started out as a basic creation of new groups or chat rooms within the Web 2.0., a place where peoples' voice could be heard, with the purpose of nullifying the distance one could face (Harris & Rae, 2009). This procedure of "Networking" opens doors to the possibility of strangers sharing a particular theme in common without ever meeting in real life (Nguyen & Rose, 2011). Nonetheless, in order to become part of any community, you must adapt to the rules implied and learn their language. A study conducted by Nguyen & Rose (2011) to one of the largest breast cancer forums found online (<http://community.breastcancer.org>) came to the conclusion that language learning in online communities come as the 'accumulation of local processes of accommodation', as they compared the time a member has been part of the forum with the language they displayed. Later on, another study analyzed a large-scale of groups from the platform Reddit., providing evidence of the linguistic styles in communities being the best feature of an online community's longevity, considered to be one of the keys to a successful community (Cunha, Jurgens, Tan, & Romero, 2019).

With Social Media being home to increasingly more groups from all over the world, it also eases the spreading of companies' products and their subsequent reviews (Knowles, Ettenson, Lynch, & Dollens, 2020). Firms such GoPro, Nike and Starbucks thrive every year, creating an ever-flowing income of new deeply connect network of followers through customer engagement. This method rises in priority as a way to get in contact both physically, emotionally and cognitively in order to conquer the attention of the masses (Arora, Agarwal, & Kumar, 2018). Currently, Social Media Marketing is divided into 5 categories:

- a) eWord of Mouth Marketing – defined as a statement done by future, current or ex-customers about a certain product or brand, which is public to a variety of users and institutions via the Internet (Babić Rosario, de Valck, & Sotgiu, 2020; Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004);
- b) Influencer Marketing – an influencer is a targetable member of social media by advertisers, "who posts content in the internet in exchange for a compensation" (Campbell & Farrell, 2020; Campbell & Grimm, 2019). This group of people are perceived to be more authentic and, consequently, present a more realistic connection than traditional movie stars or singers (Jin, Muqaddam, & Ryu, 2019). This approach to Marketing bases its success on the capability of an influencer to persuade his/her followers to purchase the promoted product (De Veirman, Hudders, & Nelson, 2019; Schouten, Janssen, & Verspaget, 2020);

- c) Viral Marketing – following the footsteps of eWord of Mouth, Viral Marketing has the particularity of expanding its reach globally, similarly to a pandemic, causing overall a bigger impact in viewers perception provoking more emphasized emotions in polar opposites of the spectrum (Bhattacharya, Gaurav, & Ghosh, 2019);
- d) Videos – extremely effective form of marketing due to brains' capacity to retain visual cues over text. Divided into either paid media or earned media (e.g.: TikTok), can be used as way to transmit/aspire action (Lovett & Staelin, 2016; Sedej, 2019); and
- e) Content Marketing – tends to deviate consumers' focus onto the idea of value creation within a brand through its marketing, creating long-term consumer engagement (Hollebeek & Macky, 2019; Naidoo & Hollebeek, 2016). It is perceived as a premise of adding value to consumers' lives in a meaningful way in order to capture new consumers or retain existing ones (Lou & Xie, 2021).

CHAPTER III - METHODOLOGY

3.1 Type of research made

How can different consumed products affect followers' displayed emotions?

This section will look to framework the different number of activities that were phased to gather and process all the data related to the emotions displayed in word-of-mouth (WoM) in social media, accordingly to similarly related topics, in this case, shortage of product.

This research will be based on both a quantitative and a qualitative analysis, assisted by the platform Wordstat, a text analysis software. Quantitative in a sense that this investigation will take into consideration the number of replies to each post, in every social media platform, in the search to find any discrepancies between the different platforms and the two topics. Also, in an initial qualitative analysis, all comments were run through dedicated software, looking to evaluate the meaning/context utilized in certain identified words.

In order to establish a more in-depth analysis, this study consists of several different data collection procedures and analyses that will assess the emotional feedback of the followers in user-generated content (in the form of comments). All the procedures will act as a mean to evaluate what emotions are shown through them, as well as identify the predominant emotion displayed.

3.2 How data was collected

In order to collect the data needed for this **case study**, several digital social media platforms were utilized. In the case of the shortage of supply of PS5, information (**716 comments out of 4813**) was gathered from comments sections of posts from one of the technology retailers from Portugal, **Worten**. These posts were related to some degree with gaming / digital events, since this was where the biggest cluster of comments would gather. This type of approach was repeated in all three major social media platforms, namely, Facebook, Instagram, and Twitter. Due to the display of comments from the Facebook platform, some would not be presented by any of their comments' organizational methods. Data was also collected from **Worten's official website**, extracted from the comment section of the product's display page. This process was repeated for both versions of the console: the PS5 (825GB) and PS5 Digital Edition (825GB).

Some of the data had to be removed due to a lack of relevancy (such as comments only identifying a person of his/her interest to the post) to the **case study** conducted. Follow-up comments to the main comment were eliminated. This reasoning was also applied to comments that were unrelated to the PS5 (except the mention of Xbox consoles, due to being its direct competition) nor the company's performance to this subject (such as complaints about other products). Comments containing only swears were also removed due to the impossibility of understanding the emotion/opinion behind a single expression only if not followed by the use of an emoji. On **Worten's official website**, comments originating from **Worten Spain (Worten.es)** were also excluded since stocks and distribution of the product differ from country to country. Finally, in all social platforms, comments responding to other people's comments were not considered to this study.

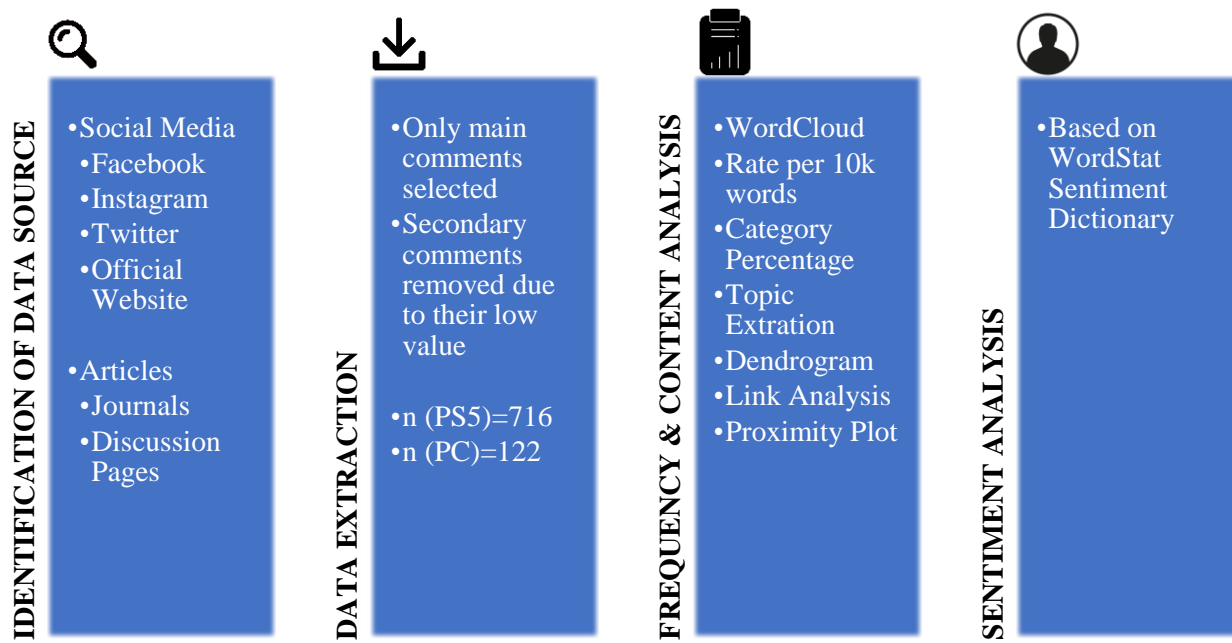
Related to the topic of lack of computers in schools of Portugal, since no evidence of **Worten's** approach to it was found, data (**120 comments out of 226**), in the form of comments, was taken from several Portuguese digital journals (as seen in Table 2), such as **Jornal Observador, Público**, etc. Only journals with a presence of comments in their posts, related to the topic in question were considered. This time, sub-comments related to the topic were considered in order to increase the amount of data about the subject.

TABLE 1. COMMENTS COLLECTED PER POST PER PLATFORM

	Facebook	Instagram	Twitter	Website	Journals
1	21	1	100	7	9
2	33	1	34	26	7
3	1	2	27	-	6
4	32	1	2	-	1
5	121	1	3	-	2
6	6	-	1	-	8
7	-	-	2	-	32
8	-	-	4	-	30
9	-	-	164	-	1
10	-	-	35	-	4
11	-	-	49	-	1
12	-	-	23	-	14
13	-	-	10	-	2
14	-	-	1	-	2
15	-	-	8	-	1
16	-	-	-	-	2
TOTAL	214	6	463	33	122

As so, Figure 2 comprises of a summary of the different steps utilized throughout the study. The different methods contained in “Frequency & Content Analysis” will be explained previous to the results obtained with it.

FIGURE 2. SUMMARY OF METHODOLOGY



CHAPTER IV – DATA PROCESS

Statistical Analysis

The following chapter will be dedicated to data analysis of the collected information. Resourcing firstly to an Excel spreadsheet and later carried out to Wordstat.

As it can be seen in Table 2, out of 4807 comments related to the topic of the PS5, 716 comments were analyzed, being split by the following platforms: 214 comments from Facebook; 6 comments from Instagram; 463 comments from Twitter, and 33 comments from the company's (selling the PS5) official webpage.

TABLE 2. NUMBER OF DATA VERIFIED AND COLLECTED

	Facebook		Instagram		Twitter		Website		Journals	
	Retrieved	Total	Retrieved	Total	Retrieved	Total	Retrieved	Total	Retrieved	Total
1	21	113	1	10	100	116	7	58	9	17
2	33	306	1	31	34	42	26	317	7	12
3	1	93	2	22	27	31	-	-	6	7
4	32	235	1	19	2	6	-	-	1	1
5	121	2600	1	11	3	6	-	-	2	3
6	6	69	-	-	1	23	-	-	8	16
7	-	-	-	-	2	100	-	-	32	70
8	-	-	-	-	4	27	-	-	30	68
9	-	-	-	-	164	260	-	-	1	1
10	-	-	-	-	35	45	-	-	4	4
11	-	-	-	-	49	150	-	-	1	1
12	-	-	-	-	23	61	-	-	14	18
13	-	-	-	-	10	27	-	-	2	2
14	-	-	-	-	1	3	-	-	2	3
15	-	-	-	-	8	32	-	-	1	1
16	-	-	-	-	-	-	-	-	2	2
TOTAL	214	3416	6	93	463	929	33	375	122	226

Based on the total number of comments per platform, Facebook stands out of the remaining platforms, representing around 70,98% of the total comments related to the subject, followed by 19,30% of Twitter.

However, due to the way the platform selected their comments, Facebook tends to hide a certain number of comments whenever the post their referencing to is flooded by then. Neither of

the different comment ordering tools was enough to go around this issue. On the other hand, although it was a smaller community of Portuguese users on Twitter, it was possible to retrieve a larger number of comments. Also, the social media platform revealed a bigger activity in terms of posts, strengthening the community.

On the other hand, Instagram neglected to publish any post regarding the product launch or associated games. In this sense, only comments referring to the PS5 were collected, resulting on the table above. Worten's website gathered some more in-depth comments regarding the pros and cons of purchasing/utilization of the product. The two links are associated with the PS5 Digital and PS5, respectively.

CHAPTER V - WORDSTAT ANALYSIS

5.1 The Shortage of PS5 stock

5.1.1 Frequency Table / WordCloud

To start off analyzing the data retrieved, frequency analysis of the words was utilized. The WordCloud below contains the most frequent words found in our sample (Figure 3). For more in-depth data, a frequency table (Table 3) will soon follow.

FIGURE 3. WORDCLOUD OF MOST UTILIZED WORDS IN PS5 COMMENTS

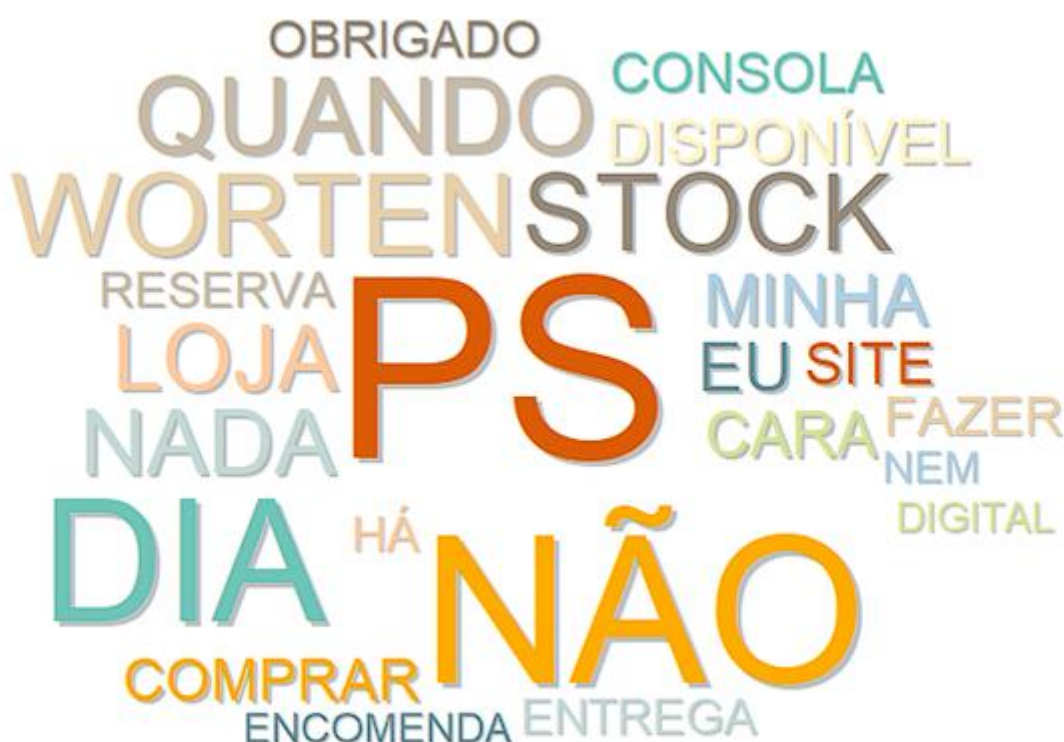


TABLE 3. FREQUENCY TABLE OF MOST UTILIZED WORDS IN PS5 COMMENTS

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
PS	182	3,74%	1,76%	1,76%	172	24,02%	112,7
NÃO	148	3,04%	1,43%	1,43%	128	17,88%	110,7
DIA	123	2,52%	1,19%	1,19%	96	13,41%	107,3
WORTEN	81	1,66%	0,78%	0,78%	79	11,03%	77,5
STOCK	77	1,58%	0,74%	0,74%	75	10,47%	75,4
QUANDO	75	1,54%	0,72%	0,72%	71	9,92%	75,3
NADA	65	1,33%	0,63%	0,63%	61	8,52%	69,5
LOJA	64	1,31%	0,62%	0,62%	60	8,38%	68,9

MINHA	50	1,03%	0,48%	0,48%	44	6,15%	60,6
EU	48	0,99%	0,46%	0,46%	46	6,42%	57,2
CARA	45	0,92%	0,43%	0,43%	44	6,15%	54,5
DISPONÍVEL	43	0,88%	0,42%	0,42%	42	5,87%	53,0
COMPRAR	41	0,84%	0,40%	0,40%	41	5,73%	50,9
SITE	41	0,84%	0,40%	0,40%	40	5,59%	51,4
CONSOLA	39	0,80%	0,38%	0,38%	33	4,61%	52,1
FAZER	38	0,78%	0,37%	0,37%	34	4,75%	50,3
OBRIGADO	37	0,76%	0,36%	0,36%	36	5,03%	48,0
ENTREGA	35	0,72%	0,34%	0,34%	33	4,61%	46,8
RESERVA	35	0,72%	0,34%	0,34%	33	4,61%	46,8
HÁ	34	0,70%	0,33%	0,33%	30	4,19%	46,8
NEM	32	0,66%	0,31%	0,31%	30	4,19%	44,1
DIGITAL	30	0,62%	0,29%	0,29%	30	4,19%	41,3
ENCOMENDA	30	0,62%	0,29%	0,29%	27	3,77%	42,7

TABLE 3. (CONTINUATION)

The word “PS”, relating to the PlayStation 5 is the more commonly used word in the comments analyzed, making an appearance in 24,02% of the cases analyzed; followed by the word “NO” with an appearance in 17,88%. Third most utilized is the word “DAY” relating to availability dates (13,41%). Following words to those above are: “WORTEN”, referring to the company which is selling the product (11,03%); “STOCK”, again referring to availability (10,47%) and “WHEN” (9,92%), respectively. It is also important to take notice of other words that are going to be analyzed throughout the study such as the word “THANKS”.

Being the word “PS” the most seen word throughout the comments that compose the data, a comparison between the platforms was conducted in order to understand in which platform the word was most utilized. Figure 4 gives out the rate of the word in every 10.000 words, while Figure 5 presents a category percent of the word.

FIGURE 4. RATE OF WORD "PS" IN EVERY 10.000 WORDS

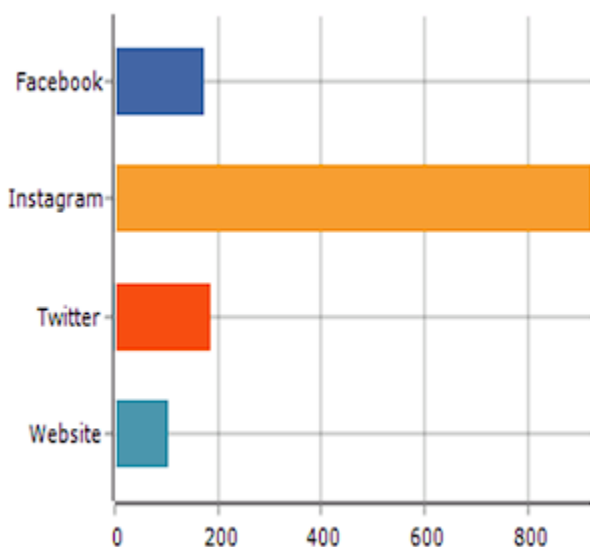
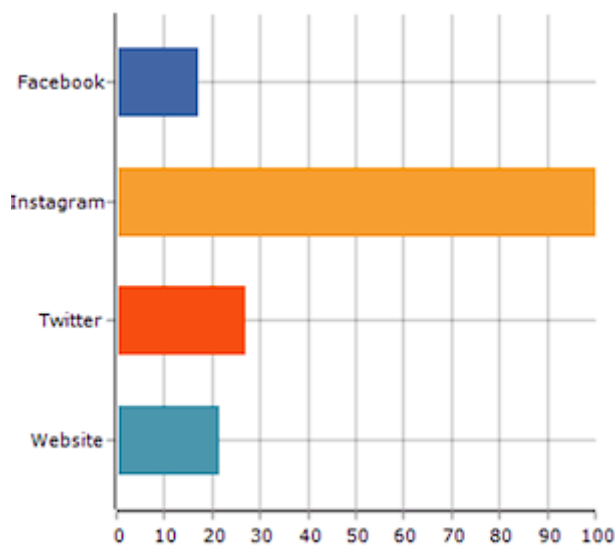


FIGURE 5. PLATFORM APPEARANCE PERCENT OF WORD "PS"



As it can be seen, Instagram is the social media with the biggest result, whoever due to the low number of comments related to the topic, allied to the fact that there were no actual posts related to the release or lack of stock of the product, its value is inflated. Figure 5 represents a better picture giving out a category percentage. The 100% indicated by Instagram makes sense in the context mentioned previously. With that being said, Twitter is actually the platform in which the word “PS” appears more often than not, with 26,56% of the total comments retrieved from the posts belonging to this platform.

5.1.2 Topic Extraction

In order to take the analysis one step further, a topic extraction was conducted. The same sample was divided into 4 different hidden topics as Table 4 displays: Yesterday's problems, correlating to issues encountered while trying to acquire the product; Refreshing, the current problem at the moment of the comment, relating to the same issue; Pre-reservation, the group of comments looking to get their answers responded; and last the “Smiles” topic. The coherence is strongest, with a value of 0,677, on the topic related to problems faced after trying to buy the product, representing the connection of the words displayed with the topic.

“Refreshing” topic comes with a coherence of 0,386 between it and the keywords in the table. This result may be lower than expected because some of the actual posts being intriguingly related to the PS5 availability dates. This could result in a deterioration/reduction of the composition of the phrases written to a much simpler composition, such as “Doesn’t work.”.

The topic “Pre-reservation” shares similar coherence (0,376) with the previous one. Due to being a wider topic within the study context, many different words apply to it such as months of the year (November; December), expected date of pick-up, etc.

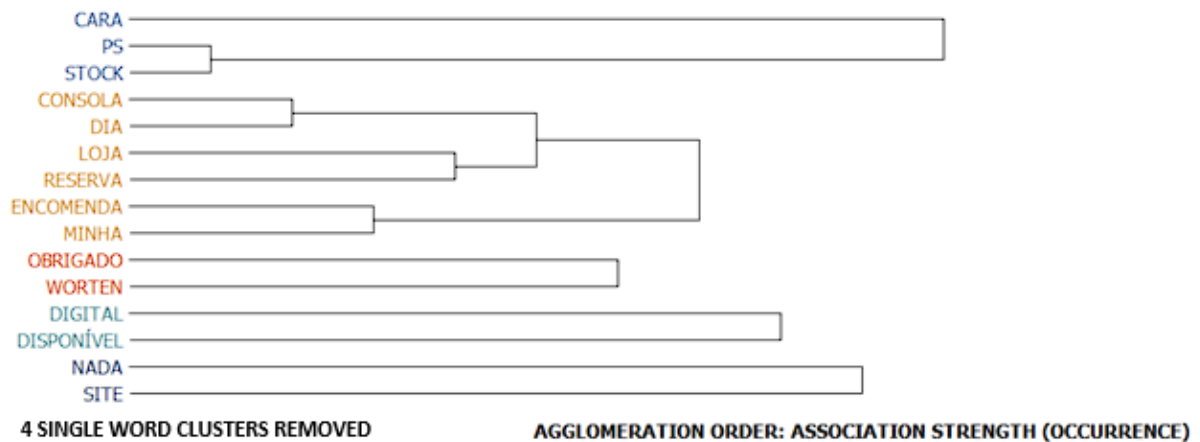
TABLE 4. TOPIC EXTRACTION OF SAMPLE

TOPIC	KEYWORDS	ORDER	COHERENCE	FREQ
DURANTE ONTEM (YESTERDAY PROBLEMS)	DURANTE; ONTEM; TARDE; ISSO; PARTIR; ENCOMENDA; MEU; LOGO; FIZ; VOU; NOITE; ANTES;	1	0,677	25
DAR REFRESH ESTOU (REFRESHING)	ESTOU; REFRESH; NADA; DESDE; DAR; MINUTOS; AQUI; ATÉ; CHORANDO; DAR REFRESH; ATÉ AGORA;	3	0,386	34
PRÉ RESERVA DIA (PRE-RESERVATION)	DIA; PRÉ; RESERVA; CONSOLA; LEVANTAR; LOJA; NOVEMBRO; FEZ; IR; FIZ; PREVISTA; RESERVAS; DEZEMBRO; PRÉ RESERVA; DATA PREVISTA;	2	0,376	79
CARA SORRIDENTE BOCA ABERTA E SUANDO FRIO (SMILES)	ABERTA; SORRIDENTE; BOCA; CARA; CARA SORRIDENTE; BOCA ABERTA E SUANDO FRIO;	4	0,015	43

5.1.3 Dendrogram

The dendrogram (or tree graph) below (Figure 6) displays words that tend to appear together throughout the comments.

FIGURE 6. DENDROGRAM OF WORDS RELATED TO THE 4 BIGGEST TOPICS IN THE SAMPLE



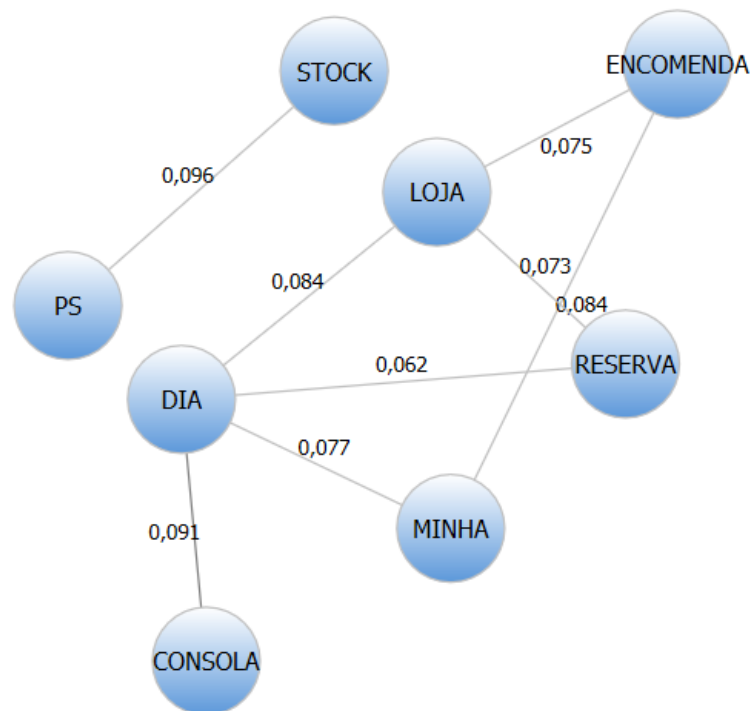
There are 5 main clusters identifiable from the sample:

- **Blue:** This agglomeration composes of words related to the first and fifth most used words: "PS" and "stock". This group gathers the most common question asked through when asking for availability. Note that, although "Cara" should technically translate to "expensive", throughout the study, the word would bare the meaning of "face" as in «face crying» relating back to the use of emojis.
- **Yellow:** Gathers different words related to clients' post-purchase of the product. Words such as "reservation" and "order" take on the same role, while the words "day" and "store" make up the doubts regarding the pick-up of the bought item.
- **Red:** The group indicates only two words "Thank you" and "Worten". This mainly shows appreciation for future responses made in advance (reminder that the sample consists only of main comments).
- **Green:** This agglomeration represents the niche of people asking for the availability of the product on its other version or confronting why only that version is available (timetable dependent).
- **Black:** Agglomeration connecting the dissatisfaction of customers after waiting impatiently for the release of new stock on Worten's announced dates.

5.1.4 Link Analysis & Proximity Plot

A link analysis was conducted to establish correlations differences along the data, and it's reproduced in the Figure 7 below.

FIGURE 7. LINK ANALYSIS OF BETWEEN MOST RELEVANT WORDS IN THE SAMPLE

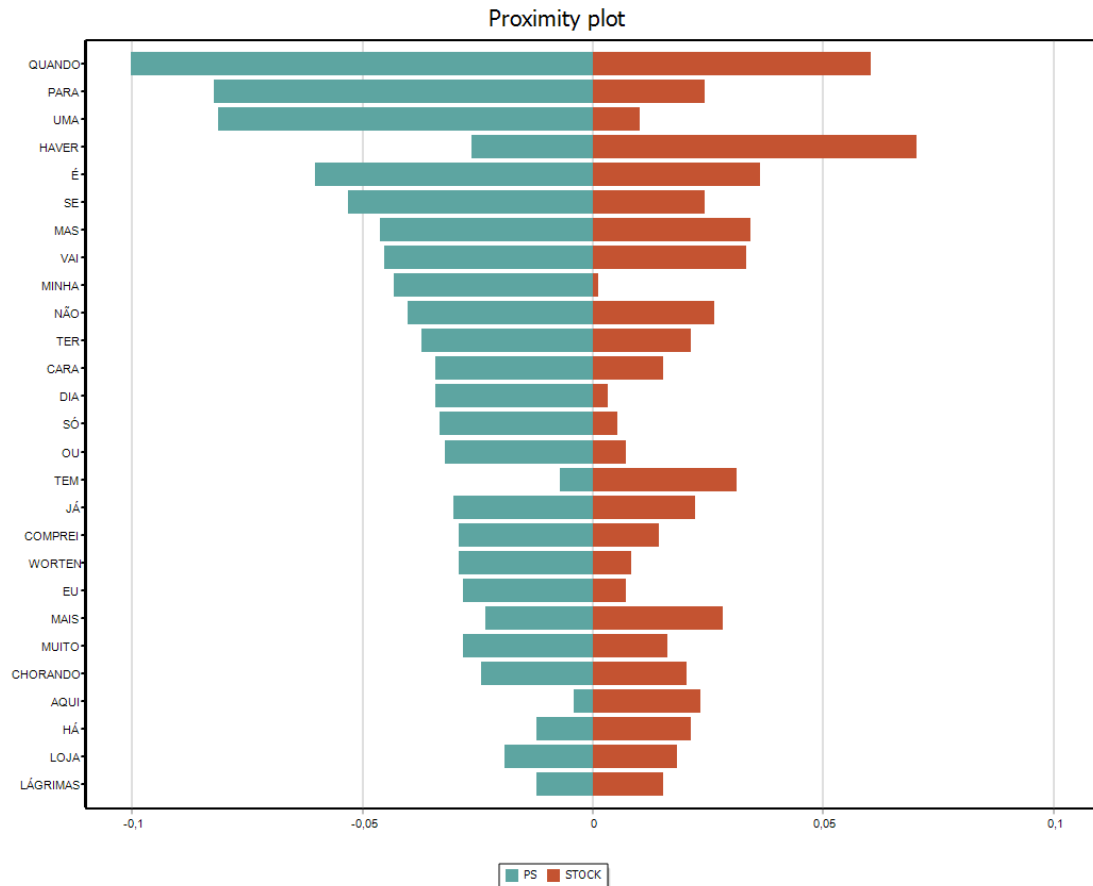


All words that did not have a single correlation were removed. The strongest link found in the study was between the product name “PS” and the word “stock” (coefficient = 0,096). This means that from all the times each of the words appeared, 9,60% of the times, the linked word would appear as well. However, both words are interconnected only to each other. Other words such as “day” and “store” were connected to each other plus two other distinct words, obtaining relatively similar correlations to each, while sharing the word “reservation” in common.

In order to more accurately understand the connection between the words “PS” and “STOCK”, the proximity plot was designed to more easily identify other words shared between the two (Figure 8). The “PS” displays a larger variety of coefficients, a common result being the topic at hand. At the end of the spectrum, the word “STOCK” does not display the same results, with only

2 other words presenting a coefficient above 0,06. This indicates that the relatively high proximity of these words does not spread on to others utilized, being the only exception the word “WHEN”.

FIGURE 8. PROXIMITY PLOT WITH OBJECTS "PS " AND "STOCK"

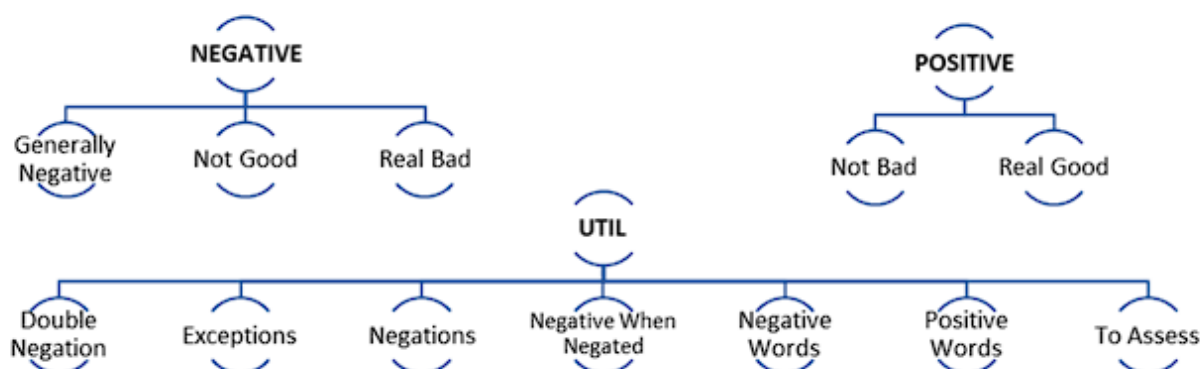


5.1.5 Sentiment Analysis

Step two in this research sought to identify the main sentiment displayed by followers of the page. As so, in order to make it possible the utilization of the Provalis Dictionary “WordStat Sentiments v3” (Figure 9). This tool composes of three different trees:

- Negative connotation
- Positive connotation
- Util: This category aims to access, through the combination of different words, a further comprehension of the intentional meaning behind a certain sentence. For example, a negative word such as “bad” can be considered as an actual positive comment if it is paired with a negation such as “not”, making the pairing “not bad”.

FIGURE 9. DIVIDED SECTIONS OF WORDSTAT SENTIMENTS V3 DICTIONARY



Previous translation was needed to conduct this analysis. For that, all comments went through the website “tradukka.com”, translating from Portuguese to American English. After that, all comments were verified by human control in order to fix errors such as misspellings, translations of inherited Portuguese sayings to their American/British synonymous counterpart and correcting the own translator’s translation. With that, Table 5 follows:

TABLE 5. CATEGORIZATION OF WORDS CONNOTATION

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
NEGATIVE	517	57,83%	4,69%	4,69%	297	41,48%	197,6
POSITIVE	377	42,17%	3,42%	3,42%	232	32,40%	184,5

In the sample in the study was gathered a total of 517 words with a negative connotation and 377 words with a positive connotation, on 73,88% of total comments, in a ratio of 58/42 (Negative/Positive). Not all cases were considered to represent either one of these sentiments, with 26,12% of cases being considered neutral. This first table reads a utilization of 1,74 negative connotated words per comment. On the other hand, positively connotated words appear at a rate of 1,63 words per comment.

As to achieve a total analysis of the categorization, it was necessary to expand the level of categorization of the comments to include the second level (Table 6), as discussed previously.

TABLE 6. SECOND LEVEL OF CATEGORIZATION OF WORDS CONNOTATION

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
NEGATIVE							
GENERALLY NEGATIVE	174	6,86%	1,58%	1,58%	129	18,02%	129,5
NOT GOOD	17	0,67%	0,15%	0,15%	16	2,23%	28,1
REAL BAD	326	12,84%	2,96%	2,96%	219	30,59%	167,7
POSITIVE							
NOT BAD	17	0,67%	0,15%	0,15%	17	2,37%	27,6
REAL GOOD	360	14,18%	3,27%	3,27%	222	31,01%	183,1
UTIL							
DOUBLE NEGATION	13	0,51%	0,12%	0,12%	12	1,68%	23,1
EXCEPTIONS	21	0,83%	0,19%	0,19%	21	2,93%	32,2
NEGATIONS	307	12,10%	2,79%	2,79%	243	33,94%	144,1
NEGATIVE WHEN NEGATED	373	14,70%	3,39%	3,39%	256	35,75%	166,6
NEGATIVE WORDS	364	14,34%	3,30%	3,30%	238	33,24%	174,1
POSITIVE WORDS	376	14,81%	3,41%	3,41%	231	32,26%	184,7
TO ACCESS	190	7,49%	1,72%	1,72%	159	22,21%	124,2

At first glance, data reveals a pattern of polar opposites, with both sentiments being mainly displayed by single words that display a view of either «REAL BAD» or «REAL GOOD», with the presence of 30,59% e 31,01%, respectively. In the middle of the spectrum, there is a noticeable lack of usage of « NOT GOOD » and «NOT BAD», both registering a frequency of 17, spread over 2,23% and 2,37%. This difference results from the presence of 2 or more «NOT BAD» connotation words in the same comment/case.

Category denominated “TO ACCESS” consists of words that would normally relate to either one of the spectrums. Due to the value displayed in **TF • IDF**, it was in the best interest of this study to better understand the main feeling present in comments. Through WordStat, it was possible to obtain a list of all the words that were needed to access case by case. Human analysis was required, resulting in Table 7, as it follows:

TABLE 7. THIRD LEVEL OF CATEGORIZATION OF WORDS CONNOTATION

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
TO ACCESS	190	7,66%	3,00%	1,72%	159	22,21%	124,2
NEGATIVE	70	2,82%	1,11%	0,63%	58	8,10%	-
POSITIVE	43	1,73%	0,68%	0,39%	36	5,03%	-
NEUTRAL	77	3,10%	1,22%	0,70%	72	10,06%	-

Upon first look, there is a slightly more numerous usage of negative connotative words when compared with the its polar opposite, representing 2,82% of the words analyzed into context. However, it is relevant to reveal that the number of words (with connotation) in each case had similar results, with negative connotation representing a ratio of 1,21 words per sentence while positive connotation presents 1,19 words per sentence, supporting previous results.

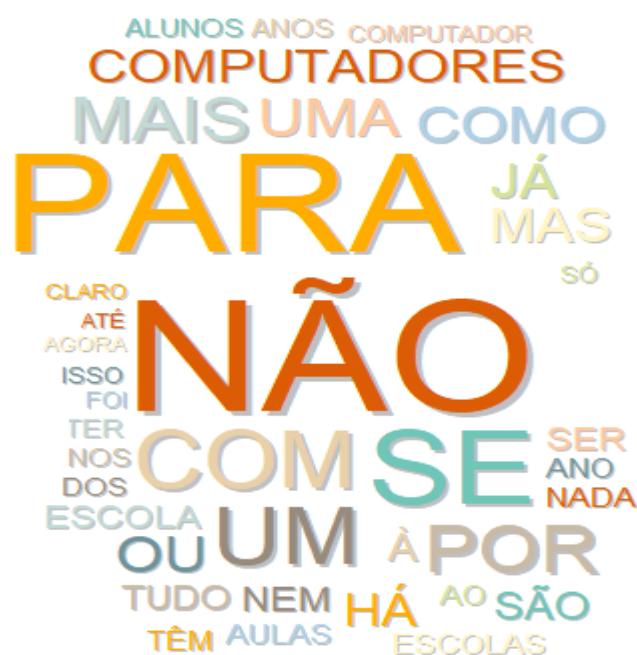
Due to this section being selected through human analysis, **TF • IDF** was excluded to avoid an incorrect mathematical approach.

5.2 The lack of PCs for students at home

5.2.1 Frequency Table / WordCloud

In the case of the shortage of portable computers for educational purposes, as was previously discussed, there was a distinctive variation of the number of comments. The WordCloud below (Figure 10) follows:

FIGURE 10. WORDCLOUD OF THE MOST UTILIZED WORDS IN “PC” COMMENTS



The appearance of several pronouns and conjunctions words links to the general depth of context that the comments have. The most common word found when analyzing the database was “NO”, appearing in 52,24% of the cases. Secondly, the word “FOR” comes as a close second, appearing in 53,73% of the cases, however, being utilized less times than the previous word analyzed. “IF” is the third most seen word with an appearance of 35,82% of the cases. Down the line, the word “BUT” is also noticeable, with a presence of 25,37% of the cases.

It is notable the presence of some other words, such as: “COMPUTER(S)”, being written a total of 38 times, 26 of them as a plural word; “SCHOOL(S)” 32 times, 17 times as a singular word; and “YEAR(S)” 28 times, 15 as a singular word”.

Once again, the frequency table (Table 8) follows in order to ease the display of data recovered.

TABLE 8. FREQUENCY TABLE OF THE MOST COMMON WORDS USED IN PC COMMENTS

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
NÃO	89	3,99%	2,02%	2,02%	35	52,24%	25,1
PARA	79	3,54%	1,80%	1,80%	36	53,73%	21,3
SE	58	2,60%	1,32%	1,32%	24	35,82%	25,9
COM	44	1,97%	1,00%	1,00%	31	46,27%	14,7
UM	44	1,97%	1,00%	1,00%	24	35,82%	19,6
POR	37	1,66%	0,84%	0,84%	23	34,33%	17,2
MAIS	35	1,57%	0,80%	0,80%	21	31,34%	17,6
UMA	30	1,35%	0,68%	0,68%	21	31,34%	15,1
COMO	28	1,26%	0,64%	0,64%	17	25,37%	16,7
OU	28	1,21%	0,64%	0,64%	16	23,88%	17,4
JÁ	27	1,21%	0,61%	0,43%	15	22,39%	17,5
MAS	27	0,88%	0,61%	0,61%	17	25,37%	16,1
COMPUTADORES	26	1,17%	0,59%	0,59%	16	23,88%	16,2
HÁ	24	1,08%	0,55%	0,55%	12	17,91%	17,9
SÃO	21	0,94%	0,48%	0,48%	15	22,39%	13,6
À	21	0,94%	0,48%	0,48%	16	23,88%	13,1
NEM	20	0,90%	0,45%	0,45%	8	11,94%	18,5
TUDO	18	0,81%	0,41%	0,41%	11	16,42%	14,1
ESCOLA	17	0,76%	0,39%	0,39%	10	14,93%	14,0
SER	17	0,76%	0,39%	0,39%	13	19,40%	12,1
AULAS	16	0,72%	0,36%	0,36%	9	13,43%	13,9
ANO	15	0,67%	0,34%	0,34%	13	19,40%	10,7
ESCOLAS	15	0,67%	0,34%	0,34%	9	13,43%	13,1

5.2.2 Topic Extraction

Following up on the previous order, the topic extraction was took into place. All comments related to PC stock shortage was divided into 4 different hidden topics as Table 9 displays: My needs, where the coherence was strongest (0,737), correlating to issues encountered while trying to acquire the product for the students; Schools (coherence = 0,608), blaming schools for not taking care of the current need; Life in Portugal (coherence = 0,535), where some comments blame the state of the country and the government behind it; and lastly, “Just like before” topic, comparing the situation in study to a previous one, when the PC Magalhães would take schools by storm. The coherence is strongest, with a value of 0,677, on the topic related to problems faced after trying to buy the product, representing the connection of the words displayed with the topic.

Overall, three of the four topics present a medium-high coherence, suggesting a similarity along the comments retrieved. Subjects would share similar emotions and express it similarly or utilize the exact words in order to write the comments.

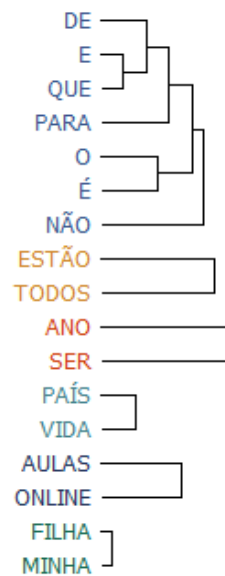
TABLE 9. TOPIC EXTRACTION OF THE SAMPLE

TOPIC	KEYWORDS	ORDER	COHERENCE	FREQ
MINHA PRECISO (MY NEEDS)	MINHA; PRECISO; ME; FILHA; EU; PORQUE; PASSADO; AINDA; ERA; UMA; ANO; TER; EUROS;	4	0,737	17
ESCOLAS (SCHOOLS)	ESCOLAS; ONLINE; AULAS; ESTÃO; ESTE; TODOS; COISA; ALUNOS; VER; SÓ; OS; PORQUE; AS; BEM; AOS; AO; FILHA; NEM; MUITO; É; O QUE; QUE OS; AS ESCOLAS; AULAS ONLINE; E NÃO; NÃO É; OS ALUNOS; OS OUTROS; PARA A; TODOS OS; É QUE; O QUE É; PARA OS; QUE NÃO; TAL COMO;	3	0,608	35
VIDA PAÍS (LIFE IN PORTUGAL)	VIDA; PAÍS; OUTROS; NOS; MUITAS; NO; DE; QUE; QUANDO; MUITO; SÃO; FAZER; É; E; NADA; O; À; TAMBÉM; DA; FOI; EU; UM; EM; AO; POR; PARA; ISSO; COISA; AS;	2	0,535	54
(JUST LIKE BEFORE)	VAI; OS; COMPUTADORES; JÁ; AINDA; MAS; ASSIM; COMO; ANOS; DEPOIS; EUROS; VÃO; SER; UM; PARA; DOS; TINHA; TUDO; ESCOLA; TODOS; NÃO; SE; NO; QUE; DO; PC;	1	0,388	52

5.2.3 Dendrogram

The dendrogram (or tree graph) below (Figure 11) displays words that tend to appear together throughout the comments.

FIGURE 11. DENDROGRAM RELATED TO PC TOPIC



82 SINGLE WORD CLUSTERS REMOVED

AGGLOMERATION ORDER: ASSOCIATION STRENGTH (OCCURRENCE)

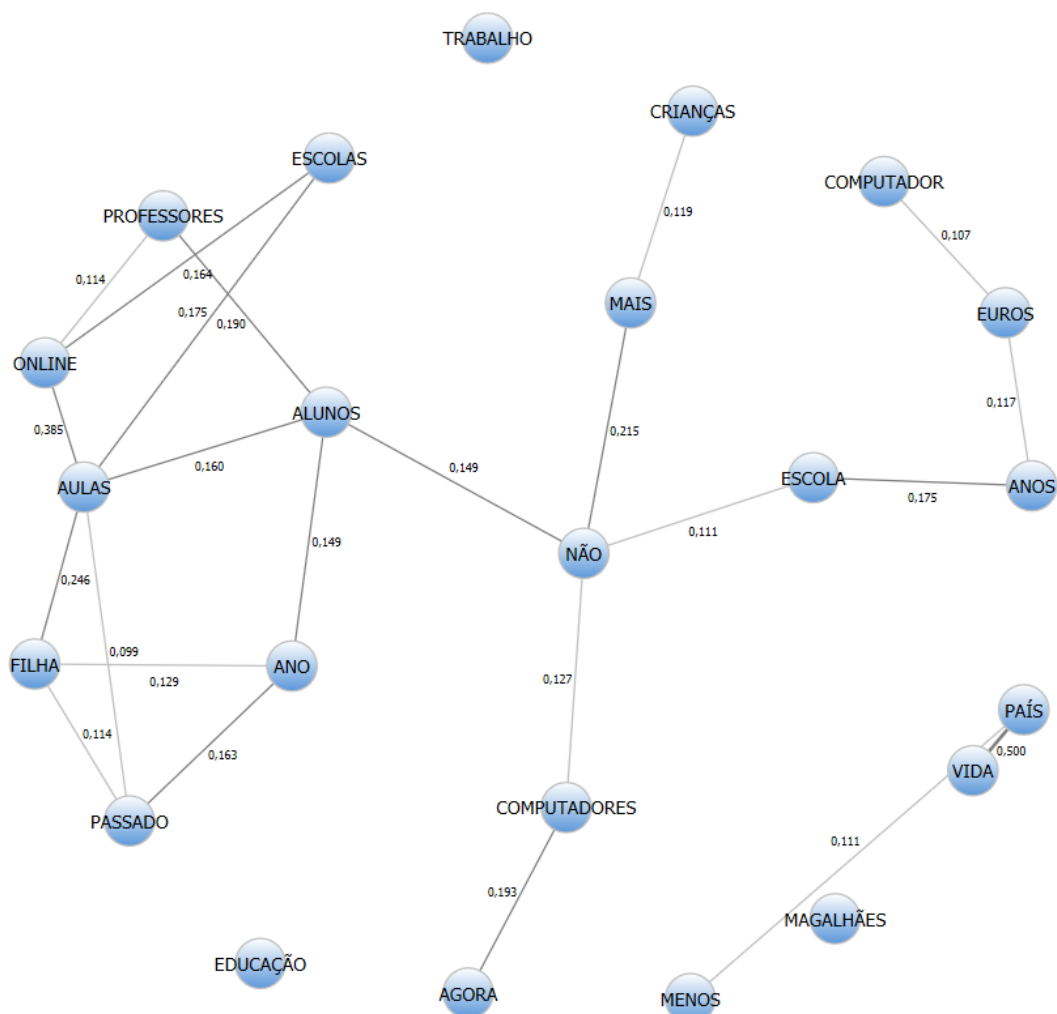
Not considering the first cluster in the figure above, there are 4 combinations of words worth mentioning from the sample:

- Yellow (IS + ALL): Comments regarding the lack of computers or acknowledging their idea of the situation, contrasting with the post.
- Light Blue (COUNTRY + LIFE): Group of comments that utilized the post to complain about the country's state as a whole.
- Black (CLASSES + ONLINE): Association created when discussing the flaws of classes addressed via online.
- Green (MY + DAUGHTER): Group of comments concerned about the effects of the lack of computers and the flaws displayed in the education sector.

5.2.4 Link Analysis & Proximity Plot

A link analysis was conducted in order to more easily comprehend how strong was the connection to each of the words. The group of words was selected according to the topic at hand. All links with a similarity below 0,099 were removed in order to facilitate the reading of Figure 12.

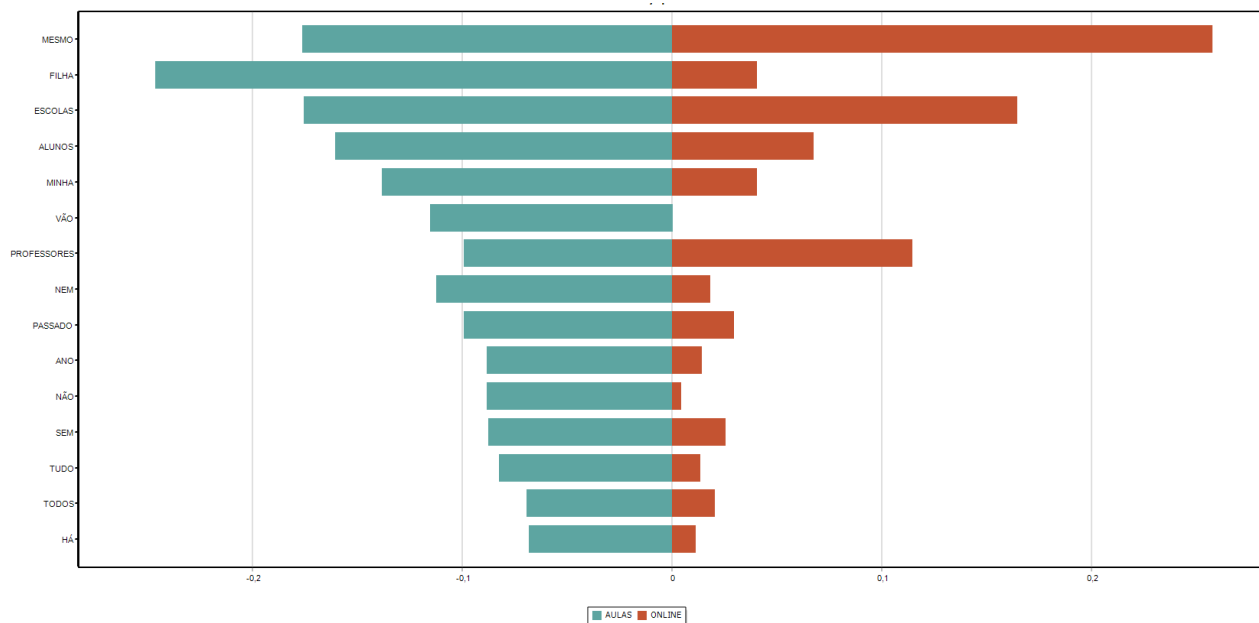
FIGURE 12. LINK ANALYSIS OF THE MOST INTERCONNECTED WORDS



Four links stand out from the majority above. As identified previously, LIFE + COUNTRY share a similarity of 0,500, meaning that of all paragraphs containing either one of those words, half of the times contained both words. ONLINE + CLASSES indicate a coefficient of 0,385, which indicates a close proximity in line with the topic at hand. Other mentions are the combination of NO + PLUS/MORE (coefficient = 0,215); and CLASSES + DAUGHTER (coefficient = 0,246), which in a broader sense would relate to the word KIDS. All other links presented above share a Jaccard coefficient ranging from 0,100 to 0,199.

Due to being intrinsically connected to the topic in hand, a closer look was taken with Figure 13, comparing side by side in a Proximity Plot the words CLASSES (left) and ONLINE (right).

FIGURE 13. PROXIMITY PLOT OF THE WORDS "CLASSES" AND "ONLINE"



At first sight, CLASSES share a larger number of proximities with other words, such as DAUGHTER, SCHOOLS, and STUDENTS. In fact, 8 of the 16 displayed matches share a coefficient over 0,100. On the other hand, only 3 out of 16 words correspond to the previous criteria when utilizing the word ONLINE. Both share higher coefficients with the words EVEN and SCHOOLS.

5.2.5 Sentiment Analysis

Following the previous steps taken, all comments retrieved were submitted through the translation website “tradukka.com”. Later it was inserted into WORDSTAT 9.0 for posterior analysis. First level of categorization was taken place in Table 10.

TABLE 10. CATEGORIZATION OF WORDS CONNOTATION

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
NEGATIVE	330	64,83%	9,02%	5,22%	89	73,55%	44
POSITIVE	179	35,17%	4,89%	2,83%	68	56,20%	44,8

A total of 330 words were gathered containing a negative connotation, while 179 words shared a positive one. As so this leads to a ratio of 65/35 (Negative/Positive). It is important to take note that some cases overlap with both negative and positive sentiments, with a bigger presence of negative comments (73,55% of cases). The table above presents utilization of 3,71 negative connotated words per comments and, in contrast, a 2,63 positive meaning words usage per sentence.

Table 11 below expands the categorization of the comments PC related to the second level of analysis:

TABLE 11. SECOND LEVEL OF CATEGORIZATION OF WORDS CONNOTATION

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
NEGATIVE							
GENERALLY NEGATIVE	68	4,73%	1,86%	1,08%	43	35,54%	30,6
NOT GOOD	21	1,46%	0,57%	0,33%	17	14,05%	17,9
REAL BAD	241	16,77%	6,59%	3,81%	79	65,29%	44,6
POSITIVE							
NOT BAD	8	0,56%	0,22%	0,13%	8	6,61%	9,4
REAL GOOD	171	11,90%	4,68%	2,70%	64	52,89%	47,3
UTIL							
DOUBLE NEGATION	6	0,42%	0,16%	0,09%	6	4,96%	7,8
EXCEPTIONS	13	0,90%	0,36%	0,21%	12	9,92%	13
NEGATIONS	211	14,68%	5,77%	3,34%	71	58,68%	48,9
NEGATIVE WHEN NEGATED	145	10,09%	3,96%	2,29%	62	51,24%	42,1
NEGATIVE WORDS	271	18,86%	7,41%	4,29%	83	68,60%	44,4
POSITIVE WORDS	188	13,08%	5,14%	2,97%	65	53,72%	50,7
TO ACCESS	94	6,54%	2,57%	1,49%	52	42,98%	34,5

Similarly to the previous topic, data reveals that both sentiments are mainly represented by either «REAL GOOD» or «REAL BAD» words, composing 11,90% and 16,77% of all words with a sentimental connotation, respectively. In contrast to the previous topic, there is a minor drop in usage of POSITIVE WORDS from category (UTIL) and a bigger percentage of NEGATIONS. Similarities include the lack of utilization of NOT GOOD and NOT BAD categories.

Once again, the category denominated TO ACCESS consists of words that normally relate to either of the spectrums. Due to the value displayed in **TF • IDF**, it was in the best interest of this study to better understand the main feeling present in comments. As so, Table 12 follows:

TABLE 12. THIRD LEVEL OF CATEGORIZATION OF WORDS CONNOTATION

	FREQUENCY	% SHOWN	% PROCESSED	% TOTAL	NO. CASES	% CASES	TF • IDF
TO ACCESS	94	6,54%	2,57%	1,49%	52	42,98%	34,5
NEGATIVE	11	0,77%	0,30%	0,17%	11	9,09%	-
POSITIVE	73	5,08%	2,00%	1,15%	44	36,36%	-
OTHER	10	0,70%	0,27%	0,16%	8	6,61%	-

Results shown a major usage of POSITIVE WORDS in this section with an appearance in 36,36% of all cases.

CHAPTER VI - RESULTS

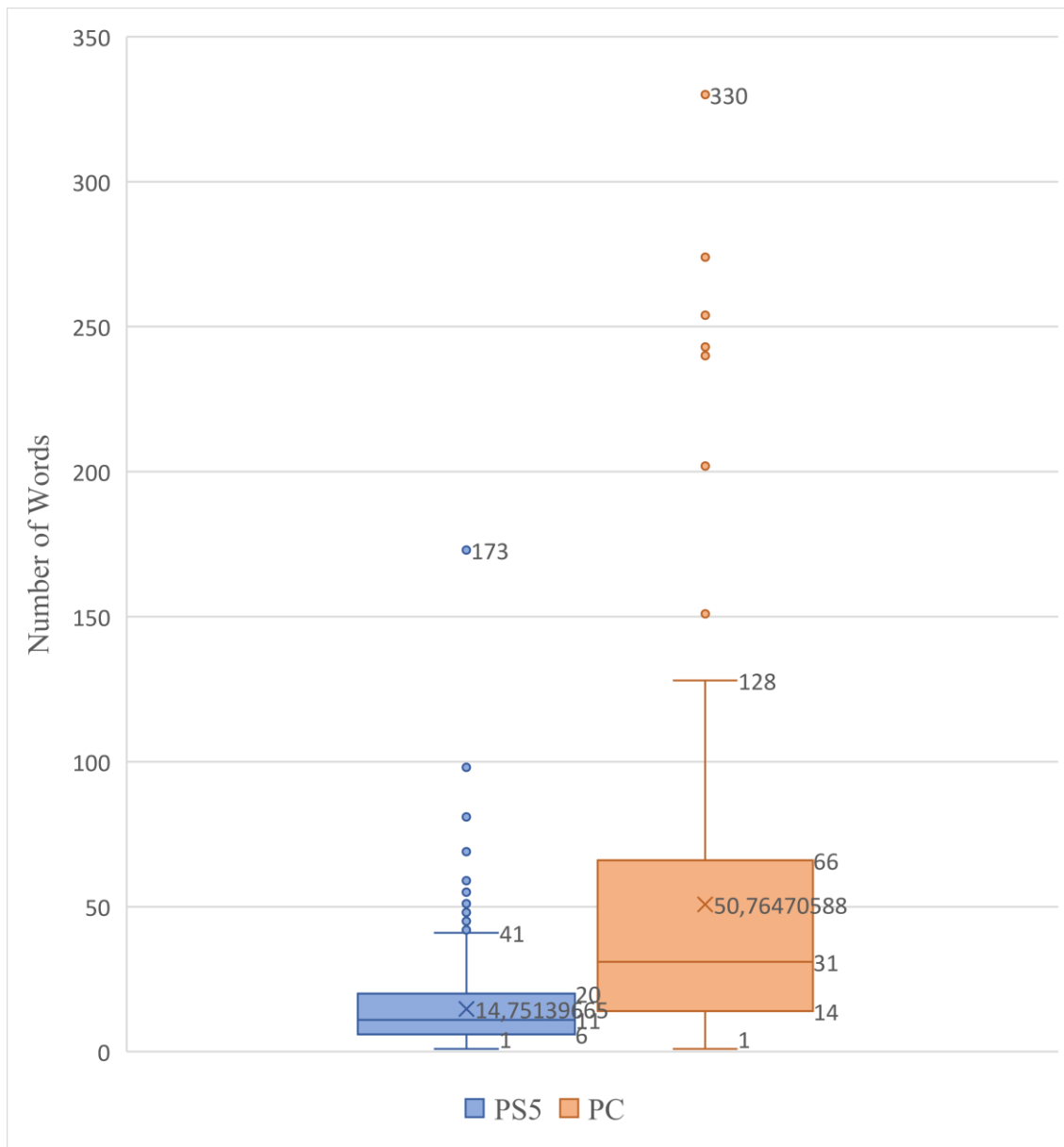
Firstly, looking at the number of comments made on each platform, it is possible to reflect on the first differences between the two distinct scenarios. Data collected in the case of “The shortage of PS5 stock” gathered a total of 4816 comments scattered along 28 posts/pages. This means that each publication had an average of **171,89 comments per post**. If Instagram is removed from this equation due to its low number of comments related to the PS5, the precious number will increase to 205,21 comments per post. On the other hand, “The Lack of PCs for students at home”, 16 different news/posts gathered a total of 226 comments, contributing towards an average of **14,13 comments per post**. In terms of sheer interest in the two different subjects, “The shortage of PS5 stock” got **12,16 to 14,52 times more comments** when in comparison to the second topic at hand.

Moreover, when deviating our focus towards the number of comments analyzed (being 716 from the PS5 case and 120 from the PCs case) the results remain similar. Considering the criteria selected during the Methodology phase, only comments that would refer/respond to the actual post in any kind of way would be considered. Results point, regarding relevancy, towards an average of 25,57 to 30,87 comments/post (if removing the social media platform Instagram) and 7,62 comments/post, respectively.

It is important to notice that in the case of the PS5, the relevancy average could increase even more if Facebook’s comment sort key engine functioned in a different way. Nonetheless, these results paint significant differences in the interest shown by followers of both issues, with the product designed exclusively for leisure gathering more attention than the product that affects educational problems at a national level.

The size of each comment also plays a big part in the attention given to the topic (Figure 14). Although less commented than the PS5, users who shared their views on posts related to the lack of PCs in schools left, on average, inputs ranging from double to more than triple the size, **averaging 51 words per comment**. Due to some comments being utterly sized, the mode is set to 31 words/comment. On the other hand, PS5 comments share an average of **15 words per comment**, with a mode of 11 words per comment. This presents a reality known to many, where topics that imply leisure objects are criticized either as good or bad but not taking into account the user’s experience. While other topics, of public interest, share a more detailed comment, often sharing the users’ point of view.

FIGURE 14. RANGE OF COMMENTS SIZE



In terms of the Wordcloud, the two topics compose of words connected to their realm, such as “PS5” and “STOCK” or “COMPUTER” and “SCHOOLS”. Nonetheless, both also share the **use of words such as “NO”, “NOTHING” and “NOT EVEN”**, known to indicate certain negativity (not excluding a double negation / not bad hypothesis). Moreover, the presence of pronouns and conjunctions on the **PC related issue** supports even more the previous statement of **more explanatory comments**, sharing a point of view.

The topic extraction between both topics differs in the width of the problem explored by both parties. On the one hand, PS5 users tended to complain about the issues faced in the moment with the situation at hand, as explained by the “REFRESH” or “PRE-RESERVATION”. On the

other hand, commentators on the PC issue tend to complain in a broader sense, not just complain about the real shortage of computers at school. In reality, these complaints would transgress towards what were “MY NEEDS” or “LIFE IN PORTUGAL” as the root of the problem was coming from somewhere else, such as the government. The dendrograms collected from both topics support this idea, with the PS5 having none of the word’s aggregation being focused on outside issues. On the contrary, PC related dendrogram decomposed into two groups being focused on broader themes. By taking a look at both link analysis, this deviation is easily identifiable when concentrating our focus to the main cluster not including the words «COMPUTER» nor «CHILDREN».

Deviating our attention towards the sentiments analysis, it was of utmost interest to present both topics side by side (Table 13).

TABLE 13. SENTIMENT COMPARISON OF THE TWO TOPICS IN STUDY

THE SHORTAGE OF PS5 STOCK	TOTAL COMMENTS	716	120	TOTAL COMMENTS	THE LACK OF PCs FOR STUDENTS AT HOME
	POSITIVE				
	FREQUENCY	377	179	FREQUENCY	
	% TOTAL OF WORDS	3,42	2,83	% TOTAL OF WORDS	
	% CASES	32,4	56,2	% CASES	
	NEGATIVE				
	FREQUENCY	517	330	FREQUENCY	
	% TOTAL OF WORDS	4,69	5,22	% TOTAL OF WORDS	
	% CASES	41,48	73,55	% CASES	

At first sight, both subjects tended to share similar results, translated into a tendency towards a NEGATIVE connotation, with a presence of 41,48% (PS5) and 73,55% (PC) of all cases. In the case of the PS5, numbers point to feelings being more evenly distributed, with the gap difference being around 9% of presence. On the other hand, the shortage of PCs displays a bigger discrepancy of over 17%, almost doubling the previous result. Considering that WORDSTAT does not detect irony or sarcasm implicit in some comments and, therefore, indicates as a positive comment, this discrepancy could become even larger.

It is also important to desiccate the NEGATIVE concentration and understand the level of the same. To that, Table 14 ranks the three main categories used to identify NEGATIVE connotation.

TABLE 14. COMPARISON OF NEGATIVE CONNOTATIONS OF THE TWO TOPICS IN THE STUDY

THE SHORTAGE OF PS5 STOCK		THE LACK OF PCs FOR STUDENTS AT HOME					
MOST USED NEGATIVE CONNOTATIONS							
CATEGORY		FREQUENCY PER 1 000 COMMENTS	% CASES	% CASES	FREQUENCY PER 1 000 COMMENTS	CATEGORY	
1st	REAL BAD	243,02	30,59%	65,29%	1975,41	REAL BAD	1st
2nd	GENERALLY NEGATIVE	455,31	18,02%	35,54%	557,38	GENERALLY NEGATIVE	2nd
3rd	NOT GOOD	23,74	2,23%	14,05%	172,13	NOT GOOD	3rd

Both topics ranked their categories the same. When users expressed their negative thoughts through a comment, most cases would utilize REAL BAD words to do it, with PS5 having 30,59% of their cases having at least one “real bad” connotation while in PC appeared in 65,29%.

In order to more easily compare the degree of negativity that separates both topics, frequencies displayed above were rounded to rate of one thousand comments. In this stance, comments about PC shortage surpasses by a clear margin, with numbers increasing. As a matter of fact, the utilization of connotation REAL BAD was used at a rate more than eight times higher (8,19). In addition, by adding each of the percentage cases above to its respective topic, the PC topic reveals a possible bigger utilization of diverse NEGATIVE connotation categories, adding up to a total of 114,88% to 50,84% from the PS5.

CHAPTER VII - CONCLUSION

Digital Marketing opened doors to a new way to share products and reach the minds of consumers either through a catchy song, empathy, or a promise of happiness. Nowadays, most individuals who “surf” through social media feel the need to feel included. Online communities fulfill this need by gathering different people from all over the world towards one (or more) topic(s) in common. This topic can take shape into various forms such as noble causes, new products or even feelings (negative or positive). As so, the complaining behaviors can spread through communities just as fast as a new advertisement published online, as this study demonstrates.

Overall, the vast disparity of comments between both subjects reveals a social discrepancy in terms of the priorities of the sample. The fact that the PS5-related issues had more users commentating on points to a more leisure-oriented sample. A key factor that cannot be ignored is age. It is important to consider that Millennials were one of the first generations to be born already with full access to the Internet, as well as the most considerable testimonies of the advancement of consoles and PCs alike. Moreover, they became the reason why social media gathered so much attention. With that in mind, the sheer number of comments that the PS5 shortage gathered becomes understandable.

Another factor that is needed to be considered is the interest in politics. The problem surrounding “The Lack of PCs for Students at Home”, although it started as a shortage of PC in retailers caused by consumers’ rush, quickly became a matter of governmental proportions. A study conducted in 2019 in Japan by the Statista Research Department, found that the younger the group age, the lesser the interest in politics the group would typically have. The overall share of respondents interested reached 59,8%, with the younger age group (18-29) only having 38%. This could be the answer as to why the comments analyzed from the journals were significantly more sizeable, averaging 51 words per comment.

In conclusion, the population tended to support more mass selfish matters, focusing, in this case in leisure-related products. Nonetheless, the fact that comments related to national issues such as education were significantly more developed brings a need to understand the route that society is taking. The present work sheds light on the possible analysis of diffusion of national matter issues, hoping to find better ways to communicate and engage with more recent generations that are deeply connected to today's social media.

These findings enhanced the knowledge regarding social media and online communities, unveiling that the product specificities do indeed affect the discourse dimensions in terms of comments and polarity. Following the findings Viglia, Pera, & Bigné, 2018, this study shows that posts made, especially in the case of Worten, did not translate into empathy from the community towards the problem at hand. Moreover, this study reinforces the notion that in technological products, there are many different user profiles and, consequently, different buying and complaining behaviors.

Brand and social media management can improve their decision process by acknowledging the existence of differences in users' behavior depending on the nature of the product. Entertaining-driven products have a bigger complaining mass, yet their capability of developing their issue tends to fall short. Additional Digital Marketing progression felt necessary towards educational-based products, looking towards avoiding the problems caused and criticized by society. These products tend to target different segments of consumers that, at the point of this study, were not willing to wait as much for their products.

LIMITATIONS OF THE STUDY

Despite the contributions above, this study suffered from some limitations. The data gathered did not come from the same platforms. Consumers' age throughout comments might affect overall results. Interpretation of comments may have been compromised due to translation methods.

Social media platforms may fit one's habits perfectly and, on the other hand, not connect at all with others. Community trends vary from group to group and from platform to platform. By comparing comments from the same platform, we could more easily identify the word count per comment, ignoring comment restrictions such as Twitter's. That possibility would also open doors to a new understanding of negativity within social media platforms. Age, especially when we talk about technologies or politics nowadays, plays a part in the results. Everywhere from parents buying a PlayStation to their children to teenagers making an "irrational" comment about a certain political party. Further studies should consider this major factor, dividing data into age groups for a better understanding of negativity within certain ages. Computer-based analysis tends to fail to comprehend emotion through the use irony/sarcasm. Also, the usage of sayings only understood in a specific language, such as José Mourinho's famous quote, "The dogs bark and the caravan goes by", can cause data to be misunderstood. It is essential when dealing with emotions rooted to either positivity or negativity that the core message is known.

Therefore, the results shown above could vary by applying topics more open to discussion and a more diverse pool of opinions. Considering factors such as age and social media platform utilized will create the ideology of which communities stay positive over others and distinguish group differences within said platforms.

REFERENCES

- Appel, G., Grewal, L., Hadi, R., & Stephen, A. (2020). The future of social media in marketing. *Journal of the Academy of Marketing Science*, 48(1), 79-95.
doi:<https://doi.org/10.1007/s11747-019-00695-1>
- Arora, T., Agarwal, B., & Kumar, A. (2018). A study of millennials's preferences for social media advertising in Delhi NCR. *Indian Journal of Marketing*, 48(10), 34-51.
doi:<https://doi.org/10.17010/ijom/2018/v48/i10/132334>
- Augusto, M., & Torres, P. (2018). Effects of brand attitude and eWOM on consumers' willingness to pay in the banking industry: Mediating role of consumer-brand identification and brand equity. *Journal of Retailing Consumer Services*, 42, 1-10.
doi:<https://doi.org/10.1016/j.jretconser.2018.01.005>
- Aulia, S. A., Sukati, I., & Sulaiman, Z. (2016). A review: Customer perceived value and its Dimension. *Asian Journal of Social Sciences Management Studies*, 3(2), 150-162.
doi:<https://doi.org/10.20448/journal.500/2016.3.2/500.2.150.162>
- Babić Rosario, A., de Valck, K., & Sotgiu, F. (2020). Conceptualizing the electronic word-of-mouth process: What we know and need to know about eWOM creation, exposure, and evaluation. *Journal of the Academy of Marketing Science*, 48(3), 422-448.
doi:<https://doi.org/10.1007/s11747-019-00706-1>
- Bala, M., & Verma, D. (2018). A critical review of digital marketing. *International Journal of Management, IT Engineering*, 8(10), 321-339. doi:<https://ssrn.com/abstract=3545505>
- Bec, A., Moyle, B., Timms, K., Schaffer, V., Skavronskaya, L., & Little, C. (2019). Management of immersive heritage tourism experiences: A conceptual model. *Tourism Management*, 72, 117-120. doi:<https://doi.org/10.1016/j.tourman.2018.10.033>
- Bhattacharya, S., Gaurav, K., & Ghosh, S. (2019). Viral marketing on social networks: An epidemiological perspective. *Physica A: Statistical Mechanics its Applications*, 525, 478-490.
doi:<https://doi.org/10.1016/j.physa.2019.03.008>
- Bhayani, S., & Vachhani, N. V. (2014). Internet marketing vs traditional marketing: a comparative analysis. *FIIB Business Review*, 3(3), 53-63. doi:<https://doi.org/10.1177/2455265820140309>
- Campbell, C., & Farrell, J. R. (2020). More than meets the eye: The functional components underlying influencer marketing. *Business horizons*, 63(4), 469-479.
doi:<https://doi.org/10.1016/j.bushor.2020.03.003>
- Campbell, C., & Grimm, P. E. (2019). The challenges native advertising poses: Exploring potential Federal Trade Commission responses and identifying research needs. *Journal of Public Policy Marketing*, 38(1), 110-123. doi:<https://doi.org/10.1177/0743915618818576>
- Cawsey, T., & Rowley, J. (2016). Social media brand building strategies in B2B companies. *Marketing Intelligence Planning*, 34(6), 754-776. doi:<https://doi.org/10.1108/mip-04-2015-0079>

- Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital Marketing: Strategy, Implementation & Practice*: Pearson UK.
- Chaffey, D., Ellis-Chadwick, F., Mayer, R., & Johnston, K. (2009). *Internet Marketing: Strategy, Implementation and Practice*: Pearson Education.
- Cunha, T., Jurgens, D., Tan, C., & Romero, D. (2019). Are all successful communities alike? Characterizing and predicting the success of online communities. Paper presented at the The World Wide Web Conference.
- De Veirman, M., Hudders, L., & Nelson, M. R. (2019). What is influencer marketing and how does it target children? A review and direction for future research. *Frontiers in psychology*, 10, 2685. doi:<https://doi.org/10.3389/fpsyg.2019.02685>
- Fauziah, V., & Nugraha, S. (2020). Comparison of Digital and Conventional Marketing Performance on Natural Viera Sutra Products. *Management Entrepreneurship Research Review*, 1(2), 47-56. doi:<https://doi.org/10.35899/merr.v1i2.110>
- Ferguson, J. L., & Mohan, M. (2020). Use of celebrity and non-celebrity persons in B2B advertisements: Effects on attention, recall, and hedonic and utilitarian attitudes. *Industrial Marketing Management*, 89, 594-604. doi:<https://doi.org/10.1016/j.indmarman.2019.02.003>
- Fernandes, T., & Moreira, M. (2019). Consumer brand engagement, satisfaction and brand loyalty: a comparative study between functional and emotional brand relationships. *Journal of Product Brand Management*. doi:<https://doi.org/10.1108/jpbm-08-2017-1545>
- Filieri, R., Raguseo, E., & Vitari, C. (2018). When are extreme ratings more helpful? Empirical evidence on the moderating effects of review characteristics and product type. *Computers in Human Behavior*, 88, 134-142. doi:<https://doi.org/10.1016/j.chb.2018.05.042>
- Harris, L., & Rae, A. (2009). Social networks: the future of marketing for small business. *Journal of business strategy*. doi:<https://doi.org/10.1108/02756660910987581>
- Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet? *Journal of Interactive Marketing*, 18(1), 38-52. doi:<https://doi.org/10.1002/dir.10073>
- Herhausen, D., Miočević, D., Morgan, R. E., & Kleijnen, M. H. (2020). The digital marketing capabilities gap. *Industrial Marketing Management*, 90, 276-290. doi:<https://doi.org/10.1016/j.indmarman.2020.07.022>
- Hollebeek, L. D., & Macky, K. (2019). Digital content marketing's role in fostering consumer engagement, trust, and value: Framework, fundamental propositions, and implications. *Journal of Interactive Marketing*, 45, 27-41. doi:<https://doi.org/10.1016/j.intmar.2018.07.003>
- Ismagilova, E., Slade, E. L., Rana, N. P., & Dwivedi, Y. K. (2019). The effect of electronic word of mouth communications on intention to buy: A meta-analysis. *Information Systems Frontiers*, 1-24. doi:<https://doi.org/10.1007/s10796-019-09924-y>
- Jin, S. V., Muqaddam, A., & Ryu, E. (2019). Instafamous and social media influencer marketing. *Marketing Intelligence Planning*. doi:<https://doi.org/10.1108/mip-09-2018-0375>

- Juntunen, M., Ismagilova, E., & Oikarinen, E.-L. (2020). B2B brands on Twitter: engaging users with a varying combination of social media content objectives, strategies, and tactics. *Industrial Marketing Management*, 89, 630-641. doi:<https://doi.org/10.1016/j.indmarman.2019.03.001>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons*, 53(1), 59-68. doi:<https://doi.org/10.1016/j.bushor.2009.09.003>
- Karjaluoto, H., Ulkuniemi, P., & Mustonen, N. (2015). The role of digital channels in industrial marketing communications. *Journal of Business Industrial Marketing*. doi:<https://doi.org/10.1108/jbim-04-2013-0092>
- Kartajaya, H., Kotler, P., & Hooi, D. H. (2019). Marketing 4.0: moving from traditional to digital. *World Scientific Book Chapters*, 99-123. doi:https://doi.org/10.1142/9789813275478_0004
- Kaur, G. (2017). The importance of digital marketing in the tourism industry. *International Journal of Research-Granthaalayah*, 5(6), 72-77. doi:<https://doi.org/10.29121/granthaalayah.v5.i6.2017.1998>
- Keskin, H., Akgun, A. E., Ayar, H., & Etlioglu, T. (2017). Persuasive messages and emotional responses in social media marketing. *Journal of Management Marketing Logistics*, 4(3), 202-208. doi:<https://doi.org/10.17261/pressacademia.2017.481>
- Kingsnorth, S. (2019). *Digital marketing strategy: an integrated approach to online marketing*: Kogan Page Publishers.
- Knowles, J., Ettenson, R., Lynch, P., & Dollens, J. (2020). Growth opportunities for brands during the COVID-19 crisis. *MIT Sloan Management Review*, 61(4), 2-6.
- Leeflang, P. S., Verhoef, P. C., Dahlström, P., & Freundt, T. (2014). Challenges and solutions for marketing in a digital era. *European management journal*, 32(1), 1-12. doi:<https://doi.org/10.1016/j.emj.2013.12.001>
- Li, F., Larimo, J., & Leonidou, L. C. (2021). Social media marketing strategy: definition, conceptualization, taxonomy, validation, and future agenda. *Journal of the Academy of Marketing Science*, 49(1), 51-70. doi:<https://doi.org/10.1007/s11747-020-00733-3>
- Liaw, S.-Y., & Le, T. M. (2017). Comparing mediation effect of functional and emotional value in the relationship between pros of applying big data analytics and consumers' responses. *International Journal of Marketing Studies*, 9(4), 66-75. doi:<https://doi.org/10.5539/ijms.v9n4p66>
- Lou, C., & Xie, Q. (2021). Something social, something entertaining? How digital content marketing augments consumer experience and brand loyalty. *International journal of advertising*, 40(3), 376-402. doi:<https://doi.org/10.1080/02650487.2020.1788311>
- Lovett, M. J., & Staelin, R. (2016). The role of paid, earned, and owned media in building entertainment brands: Reminding, informing, and enhancing enjoyment. *Marketing Science*, 35(1), 142-157. doi:<https://doi.org/10.1287/mksc.2015.0961>

- Munsch, A. (2021). Millennial and generation Z digital marketing communication and advertising effectiveness: A qualitative exploration. *Journal of Global Scholars of Marketing Science*, 31(1), 10-29. doi:<https://doi.org/10.1080/21639159.2020.1808812>
- Naidoo, V., & Hollebeek, L. D. (2016). Higher education brand alliances: Investigating consumers' dual-degree purchase intentions. *Journal of Business Research*, 69(8), 3113-3121. doi:<https://doi.org/10.1016/j.jbusres.2016.01.027>
- Nguyen, D., & Rose, C. (2011). Language use as a reflection of socialization in online communities. Paper presented at the Proceedings of the Workshop on Language in Social Media (LSM 2011).
- Olanrewaju, A.-S. T., Hossain, M. A., Whiteside, N., & Mercieca, P. (2020). Social media and entrepreneurship research: A literature review. *International Journal of Information Management*, 50, 90-110. doi:<https://doi.org/10.1016/j.ijinfomgt.2019.05.011>
- Pandey, N., Nayal, P., & Rathore, A. S. (2020). Digital marketing for B2B organizations: structured literature review and future research directions. *Journal of Business Industrial Marketing*. doi:<https://doi.org/10.1108/jbim-06-2019-0283>
- Pawle, J., & Cooper, P. (2006). Measuring emotion—Lovemarks, the future beyond brands. *Journal of advertising research*, 46(1), 38-48. doi:<https://doi.org/10.2501/s0021849906060053>
- Picon, A. (2010). *Digital culture in architecture*: Birkhäuser.
- Piñeiro-Otero, T., & Martínez-Rolán, X. (2016). Understanding digital marketing—basics and actions. In *MBA* (pp. 37-74): Springer.
- Rėklaitis, K., & Pilelienė, L. (2019). Principle differences between B2B and B2C marketing communication processes. *Management of Organizations: Systematic Research*, 81(1), 73-86. doi:<https://doi.org/10.1515/mosr-2019-0005>
- Ritz, W., Wolf, M., & McQuitty, S. (2019). Digital marketing adoption and success for small businesses. *Journal of Research in Interactive Marketing*, 13(2), 179-203. doi:<https://doi.org/10.1108/jrim-04-2018-0062>
- Roy, G., Datta, B., & Mukherjee, S. (2019). Role of electronic word-of-mouth content and valence in influencing online purchase behavior. *Journal of Marketing Communications*, 25(6), 661-684. doi:<https://doi.org/10.1080/13527266.2018.1497681>
- Schouten, A. P., Janssen, L., & Verspaget, M. (2020). Celebrity vs. Influencer endorsements in advertising: the role of identification, credibility, and Product-Endorser fit. *International journal of advertising*, 39(2), 258-281. doi:<https://doi.org/10.1080/02650487.2019.1634898>
- Sedej, T. (2019). The role of video marketing in the modern business environment: A view of top management of SMEs. *Journal for International Business Entrepreneurship Development*, 12(1), 37-48. doi:<https://doi.org/10.1504/jibed.2019.10024902>
- Smith, K. T. (2011). Digital marketing strategies that Millennials find appealing, motivating, or just annoying. *Journal of Strategic marketing*, 19(6), 489-499. doi:<https://doi.org/10.2139/ssrn.1692443>

- Tiago, M. T. P. M. B., & Veríssimo, J. M. C. (2014). Digital marketing and social media: Why bother? *Business horizons*, 57(6), 703-708. doi:<https://doi.org/10.1016/j.bushor.2014.07.002>
- Todor, R. D. (2016). Blending traditional and digital marketing. *Bulletin of the Transilvania University of Brasov. Economic Sciences. Series V*, 9(1), 51.
- Veleva, S., & Tsvetanova, A. (2020). Characteristics of the digital marketing advantages and disadvantages. Paper presented at the IOP Conference Series: Materials Science and Engineering.
- Viglia, G., Pera, R., & Bigné, E. (2018). The determinants of stakeholder engagement in digital platforms. *Journal of Business Research*, 89, 404-410. doi:<https://doi.org/10.1016/j.jbusres.2017.12.029>
- Yasmin, A., Tasneem, S., & Fatema, K. (2015). Effectiveness of digital marketing in the challenging age: An empirical study. *International Journal of Management Science Business Administration*, 1(5), 69-80. doi:<https://doi.org/10.18775/ijmsba.1849-5664-5419.2014.15.1006>

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