LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MESTRADO EM
GESTÃO E ESTRATÉGIA INDUSTRIAL

TRABALHO FINAL DE MESTRADO
DISSERTAÇÃO

ORDER FULFILLMENT AS MEAN OF CUSTOMER LOYALTY FOR PURE PLAYERS

ALEXANDRE MIGUEL FERNANDES SARGENTO DIAS

AGOSTO-2015

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Abstract

Customer e-loyalty has come to gain more and more interest from online retailers as these begin to realize the importance of loyalty as a profitability and competitive standard in the online commerce, also known as ecommerce. For this reason there is a need to study and deeply understand which antecedents/attributes contribute more to the formation of loyalty. Attending to this growing need, this study deeply analyzes the order fulfillment attribute in regards to its impact on customer loyalty towards pure players, or in other words online retailers without any up front store presence. This way we analyze, through a conceptual model, how the dimensions of order fulfillment (timeliness, availability and condition) can vary in its impact towards the dimensions of customer e-loyalty (retention, extension and referrals). To test the conceptual model, 53 responses were used acquired from online respondents, in which they were asked to fill in a survey.

The obtained results show that the order fulfillment dimensions have an exclusive positive relation of one to one in regards to the customer e-loyalty dimensions. This is contrary to what was expected, demystifying a little the controversy results, the literature has seen. This also allowed to give some initial insight to pure players on the best strategies to adopt in order to improve and capitalize the customer e-loyalty dimensions.

Keywords: Customer e-loyalty, order fulfillment, ecommerce, online store loyalty formation, physical distribution.

Resumo

A e-lealdade do cliente tem vindo a ganhar um maior interesse por parte dos retalhistas online, na media em que estes se começam a aperceber da importância da lealdade como um meio de rentabilidade e de competitividade no comércio online. Por esta razão existe a necessidade de estudar e de compreender a fundo os antecedentes/atributos que contribuem mais para a criação de lealdade. Atendendo a esta necessidade emergente, este estudo analisa a fundo o atributo *"order fulfillment"* no que diz respeito ao seu impacto na lealdade do cliente para retalhistas puros, ou seja retalhistas online que não têm loja física. Desta forma nós analisamos, através do modelo conceptual, como é que as dimensões da *"order fulfillment"* (*"timeliness"*, disponibilidade e condição) impactam diferenciadamente as dimensões da e-lealdade do cliente (retenção, extensão e referências). Para testar o modelo conceptual, usou-se 53 respostas adquiridas de respondentes online, aos quais foi pedido que preenchem-se um questionário.

Os resultados obtidos mostram que as dimensões da *"order fulfillment"* têm uma relação positiva exclusiva de um para um no que diz respeito às dimensões da e-lealdade do cliente. Isto vai contra o que se esperava, desmistificando um pouco os resultados controversos, que a literatura tem visto. Isto também permite dar alguma introspeção inicial para os retalhistas puros, naquelas que poderão ser as melhores estratégias a adotar de forma a rentabilizarem e melhorar as dimensões da e-lealdade do cliente.

Palavras-chave: e-lealdade do cliente, order fulfillment, comércio online, criação de lealdade em lojas online, distribuição física.

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1. Introduction

Customer loyalty has been studied for a long time as well as the antecedents that indeed impact it or not. With the entrance and growth of online commerce, customer e-loyalty appeared with its focus being on the two different types of online retailers, pure players and multichannel (Xing and Grant, 2006; Burt and Sparks, 2003). This study focus only on the pure players as these are restricted to selling their physical products online, since they do not have any upfront store presence (Stone, Hobbs and Khaleeli, 2002).

In the early times, when customer e-loyalty appeared it was thought that brand e-loyalty would eventually disappear due to instant information and the capability to compare the diverse offerings available (Kuttner, 1993). Although as Reichheld and Schefter (2000) mention, "*price does not rule the web, trust does"* and the web as proven to be a very sticky place, beyond the fact that customer e-loyalty is a well-known method to profitability. These are just some of the points that customer e-loyalty reaches and, therefore, it is necessary for pure players to understand and efficiently manage their customer`s e-loyalty strategy.

Naturally, customer e-loyalty cannot be measured on its own, as it needs antecedents that will serve as the starting point to understand if these have any impact on customer e-loyalty and if so, what kind. For this study and the pure players the antecedents that impact customer e-loyalty are revealed as store attributes. Many different attributes have been studied regarding their impact on customer e-loyalty, such as:

- 8C`s by Srinivasan, Anderson and Ponnavolu (2002): customization; contact interactivity; cultivation; care; community; choice; convenience and character
- Jin and Kim (2010): communication; website design; merchandize assortment/information; security/privacy; order fulfillment and promotion

Although extensive research has been made with several of these attributes, no study has to this day, to the best of our knowledge, deeply analyzed only one attribute, and that is precisely what this study pretends to do. Several studies (e.g.: Jin and Kim (2010), Srinivasan et al. (2002); Reichheld and Schefter (2000)) were analyzed and from these arose the most used attribute and at the same time the one that was causing some controversy in terms of results within the literature. Therefore the attribute that will be used is order fulfillment. This is due to the fact that an in depth framework by Xing and Grant (2006) has already been developed and because it is one of the most used across the literature.

The definitions of customer e-loyalty and order fulfillment found in the literature vary in consonance to the ambit of the analysis. For this study, we used the definition of customer e-loyalty suggested by Wallenburg (2009) that considers 3 dimensions of loyalty: extension, retention and referrals. Order fulfillment *"denotes an e-tailer´s error-free delivery of the right product within the time frame promised"* (Wolfinbarger and Gilly, 2003).

The present study purposes the following objectives: i) analyze the impact of the 3 order fulfillment dimensions (timeliness, availability and condition) on the 3

dimensions of customer e-loyalty (retention, extension and referrals) in terms of physical products; ii) verify in which measure is it possible to delimitate a concise strategy in terms of order fulfillment for pure players regarding customer e-loyalty, gaining this way competitive advantage and profitability; iii) Attempt to help demystify the controversy in the literature regarding order fulfillment and its true impact on customer e-loyalty.

The present study contributes to the literature of customer e-loyalty in the sense that allows to deeply understand how can the three dimensions of order fulfillment (timeliness, availability and condition) contribute to the three dimensions of customer e-loyalty (retention, extension and referrals) in regards to physical products.

This study is divided into 5 chapters. On the first chapter a brief introduction is made regarding this study, where it is explained the ambit of the investigation as well as the importance and its objectives. The second chapter is destined to the literature review where it is persecuted the theoretical background for the present study. It is also presented the investigation hypotheses as well as the conceptual model proposed, and its theoretic grounding. The methodology is pursued on the third chapter and it emphasizes: the development of the survey, sample selection, data collection method gathering and the definition of the variables included in the conceptual model. On the fourth chapter the discussion of results is described and analyzed. The characterization of the respondents is performed, followed by the results regarding the measurement and structural model. The last chapter presents the conclusions, limitations and the suggestions for future research.

To conclude, it is pretended just like Jin and Kim (2010) mentioned: *"... we hope this study will stimulate future research in identifying important antecedents in more depth".* This is the foundation of this study, to deepen knowledge on this so important antecedent/attribute such as order fulfillment and its impact on customer loyalty on pure players. This will hopefully allow in the future, for them to better prepare themselves and focus their strategies on what it is more important for their loyalty strategies.

2. Literature revision

2.1 Customer e-loyalty

Customer loyalty has been discussed much throughout the last decade. Early views such as of Brown (1952) focused on loyalty as a repeat purchase behavior where the customers purchase patterns was the most important. Later on, some researchers (e.g. Jacoby & Chestnut, 1978) proposed that a behavioral definition was not enough to distinguish between true loyalty and spurious loyalty, which could origin from the lack of alternatives to the purchase for the customer. In response, many researchers started adopting, beyond the behavioral dimension, an attitudinal spectrum in their researches. Other variations of loyalty were proposed throughout the years, some only expressing the behavioral dimension like Srinivansan et al. (2002) who define online loyalty as a result in repeat purchase behavior, and others like Wallenburg (2009) in which he divides the 3 dimensions of loyalty (extension, retention and referrals) into behavioral and attitudinal dimensions. The behavioral dimension contemplates both the retention, which translates into repurchases, and extension that represents additional purchases of different products/services. On the other hand, the attitudinal dimension is represented

by the referrals which is defined as: "the level of commitment of the average consumer toward the brand" (Chaudhuri & Holbrook, 2001; Morgan, 2000). Cross and Smith, (1995) also addresses referrals as the aspect of whether a customer is willing to become an advocate for a service provider by promoting the provider to others.

Customer e-loyalty refers to customer loyalty although it is expressed in a different sphere, the Web. Customer loyalty is also a complex construct has explained above, and it may not be the first thing that pops into our head, when we think of electronic commerce. After all as Reichheld and Schefter (2000) state: "*what relevance could such a quaint, old-fashioned notion hold for a world in which customers defect at the click of a mouse and impersonal shopping bots scour databases for ever better deals?*". On the contrary, for pure players, retaining costumers as well as being able to benefit from their promotion capabilities, through referrals are key features for a company´s online success (Reichheld and Schefter 2000). Not only is that, but acquiring customers on the internet is very expensive, around 20% to 40% more than on traditional retail, and unless customers stick around for those repeated purchases, profits will barely exist if not at all (Reichheld and Schefter, 2000). Early views predicted brand loyalty would eventually disappear due to instant information and the capability to compare the diverse offerings available (Kuttner, 1993). However the Web where, the electronic commerce takes place, has proven to be a very sticky space especially in the business-to-consumer in opposition to the idea that customers are fickle and will naturally flock to the next idea (Reichheld and Schefter, 2000). As Reichheld and Schefter (2000) mention: "*price does not rule the web; trust does*". Not only is that but e-loyalty is a known measure to profitability (Srinivasan et al., 2002; Reichheld, 1993), as it is less expensive to retain than to attract new customers and repeat customers tend

to be less price sensitive (Kalwani and Narayandas, 1995). Further repeat customers will likely purchase additional/greater quantities in the future (Daugherty et al., 1998). In fact it is impossible to generate long term profits unless you achieve superior customer loyalty (Reichheld and Schefter, 2000). Although it might be concerning the fact that the web seems such an anonymous space, really it is not (Reichheld and Schefter, 2000). It is fairly easy to track customers, their purchases history and preferences online, than on the opposite segment of the traditional business (Reichheld and Schefter, 2000). So, with the job of retaining customers fairly diminished and given the fact that increasing customer retention rates by 5% increases profits by 25% to 95% it seems pretty established that pure players should use loyalty as one of the key drivers of their business (Reichheld and Schefter, 2000). Referred customers, for example, start to generate profit earlier in his life cycle as their cost is very small to obtain (Reichheld and Schefter, 2000). And also the fact that the internet amplifies the effect of referrals better than the traditional commerce as "word of mouse" spreads much faster than word of mouth (Reicdhheld and Schefter, 2000).

The truth is that nowadays the internet provides a lot of rich data which prompts companies with unprecedented opportunities to get to know their customers in depth and to really boost themselves (Reichheld and Schefter, 2000). The internet also provides a space where customers can interact and spread their interests as well as recommend and even, the loyal customers, provide some functions that in the traditional commerce are provided by the retailer, such as the support and questions asked about products (e.g. Amazon) (Reichheld and Schefter, 2000). As Reichheld and Schefter (2000) mentioned: *"In the end, loyalty is not won with technology. It is won through the delivery of consistently superior customer experience.*"

2.2 Online store loyalty formation attributes

There are only two types of online store´s/e-tailers that share the online shopping market which are the pure players and the ones that supplement with conventional stores - multi-channel retailers (Burt and Sparks, 2003; Xing and Grant, 2006). Pure players are defined as a company that only sells products via de the internet, without any upfront store presence and that, therefore, delivers their customer's orders mostly, if not all, onto their doors (Stone et al., 2002). As Paulins and Geistfeld (2003) state, online stores attributes normally tend to affect customer's loyalty towards it. Therefore there are several authors that have investigated this subject and proposed a set number of attributes, up to 26 attributes proposed by Lindquist (1975), which provide a basis of research from which they can further and empirically access the degree of impact of each and every one of them on loyalty. Reichheld and Schefter (2000) in an empirical study identified three key attributes of e-loyalty: order fulfillment, product performance and post-sale service and support. Abbott et al. (2000) established 10 attributes affecting e-loyalty: accessibility, atmospherics, service/experimental convenience, speed of acquisition, price across brands, assortment, information availability, customization/personalization and physical presence. Arising from in-depth interviews Srinivasan, et al (2002) determined the 8 C´s impacting e-loyalty: customization; contact interactivity; cultivation; care; community; choice; convenience and character. Recent studies like Jin and Kim (2010) identified 6 major attributes: communication; website design; merchandize assortment/information; security/privacy; order fulfillment and promotion. These are some examples which show the importance of order fulfillment as an attribute that is considered and utilized in many studies, even beyond the ones introduced above, and that appears in those studies as itself and as other similar

concepts such as: speed of acquisition/delivery fulfillment/care and so on. Wolfinbarger and Gilly (2003) described order fulfillment as: *"denotes an e-tailer´s error-free delivery of the right product within the time frame promised"*. Janda et al. (2002) also defined delivery fulfillment as: *"measures a firm´s accuracy in product delivery and its willingness to correct mistakes occurring during the transaction"*. Finally Abbot et al. (2000) defined speed of acquisition as: *"the consumer´s perception of time lag between purchase and receipt of merchandize"*.

Verified the existence in literature of this attribute it is also crucial to show its importance and impact on (e)-loyalty or this study could suffer the risk of its in-depth research of the attribute being partially in vain. Fortunately the literature has shown good results, as in most cases the perceived effect of order fulfillment/speed of acquisition/delivery fulfillment/care is high on loyalty, as you can observe by the red ellipse (Table 1 – Effects of Perceived On-Line Store attributes on Latent Satisfaction, Manifest Satisfaction and Loyalty (Abbot et al., 2000)). Table one shows the result of an empirical test executed by Abbot et al. (2000) where they measured the impact that the store attribute – speed of acquisition – would have on loyalty, which is what is relevant to this study, and it shows that it has indeed a high effect on loyalty. There are also other authors such as Jin and Kim (2010) that support that order fulfillment does not significantly boost e-loyalty for pure players or multichannel retailers, which has been causing some controversy among the literature.

Table I - Effects of Perceived On-Line Store attributes on Latent Satisfaction, Manifest Satisfaction and Loyalty

Store Attributes	Latent Satisfaction	Manifest Satisfaction	Loyalty
Accessibility	High	Medium	Low
Atmospherics	High	Low	Medium
Service/Experiential Convenience	High	High	High
Speed of Acquisition	Low	High	High
Price across Brands	High	Medium	Low
Assortment	High	High	High
Security	High	Medium	Medium
Information Availability	High	High	Medium
Customization/ Personalization	Low	Medium	High
Physical Presence	High	Medium	Low

Source: Adapted from Abbot et al. (2000)

2.3 Order fulfillment, conceptual model and hypotheses

As mentioned previously, order fulfillment is defined as: *"denotes an e-tailer´s error-free delivery of the right product within the time frame promised"* (Wolfinbarger and Gilly, 2003).The main focus of pure players is mostly B2C e-commerce also known as e-retailing (Burt and Sparks, 2003) and according to Reynolds (2000) it concerns companies and customers in their buying and selling relationships over the electronic market. Xing and Grant (2006) identify the ability to accurately and timely deliver, as crucial for a pure player as it indicates how it differentiates from the competition in this highly aggressive market. This in conjunction with the fact that pure players should assure secure and hassle free transactions across the globe with special discounts (Jin and Kim, 2010). Those abilities rely mostly, if not all on the physical distribution

service as this can provide a competitive advantage differentiating the companies with greater level of service (Mentzer et al., 2001). As Mentzer et al. (2001) said: *"the ability to deliver the right amount of the right product…with the right information is crucial in providing satisfactory customer service"*. Therefore it is reasonable to understand that the e-tailers who call to offer a good and clear delivery service and various delivery options tend to be the ones that are patronized by customers (Xing and Grant, 2006). The disintermediation, *"removal of intermediaries"* in online shopping also provides for to be more accurate when it reaches the customer and also allows for a more direct this flow of product and information marketing towards it (Chadwick et al., 2002). This means that the customer places the order and it is automatically dispatched to his home from the e-tailer via a logistic partner. And this home delivery is the last and probably the only opportunity the pure player has to connect to the customer and it is where one of the final and most important judgments is done (Rabinovich and Bailey, 2004). The framework developed by Xing and Grant (2006) is the only one, to the best of our knowledge, adapted for a business to consumer segment regarding order fulfillment as the studied attribute and that identified three major dimensions for order fulfillment, being: Timeliness, Availability and Condition.

The existence and importance in the literature of order fulfillment, along with its dimensions, as a major attribute that impacts positively customer e-loyalty dimensions, has been verified above. From Reichheld and Schefter (2000) who found that order fulfillment was one of the three key drivers of e-loyalty to Abbot et al., (2000) showing that this attribute has a "High" effect on loyalty to a few others.

This way we anticipate that "Timeliness" has a positive effect on customer e-loyalty. Timeliness measures *"the time elapsed between placing and receiving an*

order" (Mentzer et al. 1989). It is all about the multiplicity of options of delivery the customer has, and how quickly they receive the order, and if the time of arrival stands as promised by the e-tailer. As Klaus et al. (2001) emphasize: *"Reliable, on time and quick delivery is of central significance to the consumer".* Customers may feel more inclined to return products that arrive late, and this does affect repeat purchase behavior and other dimensions of customer e-loyalty, as well as the profit the business generates (Xing and Grant 2006). Thus we propose the following three hypotheses: **H1(a)**, **H1(b)** and **H1(c)**.

H1: Timeliness as a dimension of the attribute order fulfillment on pure players, has a positive effect on (a) customer retention, (b) customer extension and (c) customer referrals.

The empirical evidence from the literature refers that customers are very eager to know about and sometimes even control their orders. In this sense "Availability" specifies the inventory capability, in other words having inventory ready to be dispatched and fulfill customer orders (Mentzer et al., 1989; Maltz and Maltz, 1998). The fact of not having stock to fulfill their orders may leave customers very nervous as to when they might get their product and they may turn away if products they want are in-stock in other websites, which are just a click away (Xing and Grant, 2006). "Availability" also considers the ability to track and trace an order, as this is important to customers, as having perceived lack of control by not being able to track and trace their packages, may cause some disruption on customer loyalty towards the e-tailer/pure player as they become eager for the arrival of their orders (Xing and Grant 2006). Therefore the following hypotheses are proposed: **H2(a)**, **H2(b)** and **H2(c)**.

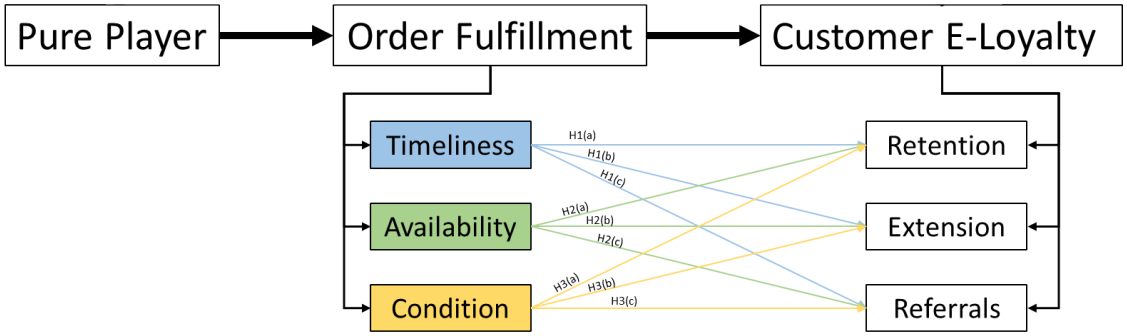
H2: Availability as a dimension of the attribute order fulfillment on pure players, has a positive effect on (a) customer retention, (b) customer extension and (c) customer referrals.

Finally, condition is the *"form and composition of the delivered order"* (Bienstock et al., 1997) which is shown to be a very determinant dimension of order fulfillment in the literature as Xing and Grant (2006) mention that: *"Nobody likes damaged or faulty products which result in return or even cancellation of orders".* This notion also contemplates two very important variables which refer to accuracy and quality of the order, which is put into question when the customer receives the wrong/incomplete orders and/or the customer´s perception of the condition of the products is below the expected, which also influents its e-loyalty and the quality of the service delivery (Xing and Grant 2006). This leads to the following hypotheses being proposed: **H3(a)**, **H3(b)** and **H3(c)**.

H3: Condition as a dimension of the attribute order fulfillment on pure players, has a positive effect on (a) customer retention, (b) customer extension and (c) customer referrals.

Figure I presents the conceptual model. This model is adapted from Hartmann and Grahl (2011) as well as from Xing and Grant (2006) and represents the basis guidance of this study and relations that encopresis order fulfillment and customer loyalty on the pure players.

Figure 1 – Conceptual Model



Source: Adapted from Hartmann and Grahl (2011) and Xing and Grant (2006)

It pretends to not only access the impact of each dimension of order fulfillment on the overall e-loyalty, as a whole, but go even further and understand how the dimensions of the attribute impact differently each of the dimensions of customer loyalty towards the pure player. This will, therefore, allow pure players and any interested in this matter to understand what dimensions of order fulfillment impact the most of customer loyalty dimensions as a whole. For example, the dimension condition may have a stronger impact on the referrals than extension and perhaps even weaker on retention. On the other hand availability may have a stronger impact on retention and a weaker effect on referrals.

3. Methodology

This chapter presents all the procedures and decisions taken throughout the elaboration of this study: data collection, survey development and variables conceptualization.

3.1 Data collection

The data used to test the hypotheses proposed came from an online survey. The software used to perform the survey was *Qualtrics* (www.qualtrics.com). All the measures used in this study were sourced from the literature. The survey was pretested by several academics in order to access face validity. This stage was particularly helpful in order to evaluate individual items. For example, one of the academics mentioned, the inclusion of a question related to the customer profile which would help later on the analysis of the responses.

Initially an agreement with the major pure players (Amazon, Ebay and Alibaba) was attempted so that they could use the survey as a pop-up with a message for the customers visiting and purchasing on their websites just like some studies in this area utilized (e.g. Jin and Kim (2010). This did not happen due to some hesitation and apprehension from the pure player's side. Instead and as Abbot et al. (2000), suggested as an alternative, a decision was made to use the forums of the websites of the major pure players to disseminate the survey, with their proper consent.

This choice allowed the gathering of information through posting the survey on the forums, and also something very important, which was the possibility to respond to any doubts or questions people might have had directly on the forums.

3.2 Survey

The data used to empirically test our conceptual model come from an online survey.

The development of the survey was based on a process of different stages. First based on a literature review, we selected items to measure each one of the variables in the model. The second stage involved the pre-test of the survey with several academics.

The final survey is composed by 6 sections:

- Section 1: Introduction
- Section 2: Filter questions – Question number 1 and 2
- Section 3: Online Customer Behavior – Question number 3 to 9
- Section 4: E-loyalty – Questions 10 to 12
- Section 5: Order Fulfillment – Questions 13 to 15
- Section 6: Inquired Profile – Questions 16 to 19

Questions from section 4, 5 and one question from section 3 used a seven-point Likert scale (1=strongly disagree, 7=strongly agree) (Likert, 1932). They were measured, just like Jin and Kim (2010) used on their research, which is also one of the main foundations research for this study.

As suggested by Churchill (1979), we used multiple items scales to measure all variables in order to increase reliability and reduce the error of measure.

The items scale used to measure each of the variables can be seen in appendix C.

The process used to ensure that only once could a person fill out the survey was through IP (Internet Protocol), where one IP could only finish one survey. They could

start the survey and finish it later at the same stage they were on, because the IP also recorded where they left it at, but eventually once they would come to finish the survey there was no way to do it again, through the same IP.

3.2.1 Posting and follow up the survey

The dissemination of the survey as mentioned early was made through the forums of pure players after prior agreement. On both of the forums page, a post was made explaining the purpose of this study; an explanation of topics that might have concerned people, such as: anonymity; the link to the survey and some other related content. The full post can be found in the appendix A.

Different stages were established regarding the post and follow-up, which can be resumed as it follows;

- 1st Stage: Began, on the 2nd of June 2015, the posting of the message and the link to the survey, described above on the forums of both Amazon and Alibaba. The initial response rate and reaction to the study were great, but it eventually lost some steam within a few days, which dictated the need to follow up on the forums.

  Total responses on this stage: 35 (28 completed, 7 incomplete).

- 2nd Stage: The first follow-up was therefore sent on the 9th of June with a message slightly different from the initial one, emphasizing the low response rate, thus asking for the collaboration of the individuals (See appendix B)

  Total responses on this stage 50 (39 completed, 11 incomplete).

- 3rd Stage: The second follow-up was done a week after the second one, on the 16th of June, containing a very similar message to the previous follow-up. The follow up did generate some responses but unfortunately less than the previous one.

  Total responses on this stage 60 (46 completed, 14 incomplete).

- 4th Stage: Due to the short amount of time to collect responses and the low amount gathered so far, it was established that the follow ups would be posted on both forums with an interval of 4 days. Similar to the first and second follow up the responses were lower every time the next follow-up was posted, and after 1 month and a half of doing the above mentioned, it was decided to halt the gathering of responses. This happened because the response rate was getting very low and continuing on would provide almost none or a very insignificantly number of them and would perhaps put into question the delivery of this study within its deadline. Therefore the last follow up was on the 31st of August, containing the same message of stage 3.

  Total responses on this last stage 119 (81 complete, 38 incomplete).

Following the referred above 116 total responses were collected, being 81 completed and 38 incomplete. Although it is worth to mention that only 53 of the responses were considered in the analysis, due to the fact that 28 responses did not pass the two filter questions (26 – 1st filter question; 2 – 2nd filter question). It is worth to mention that the incomplete responses are considered as such by not responding to the questions that are relevant for the measure of the variables included in the conceptual model. To clarify, if an inquired does not pass a filter question, this one does not count

as incomplete since when the inquired does fail to pass these questions the survey is automatically ended and skips the entire array of question which are meant to be statically handled and measured.

As a final note there is something very significant that must be present in this study, for all interested parties, which is the fact that the method used to gather responses is of non-probabilistic purposing sampling and more specifically self-selection (Saunders et al., 2009). As Saunders et al. (2009) state *"self-selection occurs when you allow each case, usually individuals, to identify their desire to take part in the research"*. This means that we need to publicize our need for responses by advertising through the respective media or by asking them to take part, and then collect the data from those who have responded (Saunders et al., 2009). This is what occurred and it is one of the most inexpensive and probably the quickest sampling methods, thus justifying its use for this particular case.

3.3 Definition and operationalization of the model.

As mentioned earlier, the variables present on the conceptual model were measured using multi-item scales. All variables were measured by asking the respondents to rate the extent of their agreement with a specific statement on a 7 point Liker Scale (1=strongly disagree, 7=strongly agree). The scales used and their sources are shown in detail in the appendix C.

Referrals

The referrals dimension was measured through 4 items adapted from Srinivasan et al, (2002). This one represents a very important role in obtaining new possible customers through their own customers. Referrals can be defined as *"the aspect of whether a customer is willing to become an advocate for a service provider by promoting the provider to others. "*(Cross and Smith, 1995)

Extension

Extension dimension, was measured using 3 adapted from Hartmann and Grahl (2011). This dimension refers to the additional purchases of different products and/or services (Wallenburg 2009).

Retention

Retention plays a vital role within a pure player and it defines itself as the repurchases and retaining customers, which generates profit for a pure player Wallenburg (2009). This dimension was measured using 3 items from Hartmann and Grahl (2011).

Timeliness

Timeliness is about *"the time elapsed between placing and receiving an order"* (Mentzer, et al., 1989). Also known as "ship-to-deliver time" it measures order cycle performance (Xing and Grant 2006). The choices customer have regarding deliver date and time window; the time it takes for the customer to receive their order and how this one fare with the actual retailer performance when the order is confirmed (Xing and Grant 2006). As Klaus, Plfaum et al, (2001) reiterate: *"Reliable, on time and quick delivery is of central significance to the consumer"*. Customers may feel more inclined

to return products that arrive late, and this does affect customer e-loyalty dimensions and the profit the business generates (Xing and Grant 2006).This dimension was measured by using 3 items adapted from Xing and Grant (2006).

Availability

Availability specifies the inventory capability, in other words having inventory ready to be dispatched and fulfill customer orders (Mentzer et al., 1989; Maltz and Maltz, 1998). It is all about the product in-stock at the time of placing an order, and if not when it will be available or what kind of substitution may be arranged (Xing and Grant, 2006). Availability also considers the ability to track and trace an order, as this is important to customers (Xing and Grant 2006). This dimension was measured by 4 items and these we adapted from Xing and Grant (2006).

Condition

Condition can be defined as the *"form and composition of the delivered order"* (Bienstock, Mentzer and Bird, 1997) which is shown to be a very determinant dimension of order fulfillment. Accuracy and quality of the order are of the essence as Xing and Grant (2006) mention that: *"Nobody likes damaged or faulty products which result in return or even cancellation of orders".* The products condition, as they arrive, affect the customer's perception of the quality of the service delivery (Xing and Grant, 2006). The 3 items, adapted from Xing and Grant (2006), were utilized to analyze the condition dimension.

4 Analysis and discussion of results

This chapter presents the results obtained. After a descriptive analysis of the variables, made through SPSS (Statistical Package for the Social Services), the

measurement model and the structural model are presented. These models were estimated using partial least squares (PLS) with the software Smart PLS 2.0 (Ringle et al, 2005).

4.1 Characterization of the respondents

The final sample yielded 53 responses. In regards to the more demographic characteristics comes that, 31 of these are male and 22 are female, being 43,4% between 20 and 29 years old and with 49,1% earning above 2500 dollars and 32,1% above 4000 dollars. The vast majority (69,8%) has, at least, a Bachelor/Undergraduate Degree. In terms of the more online behavioral characteristics of the inquired we can see that 60,4%, of all 53 final responses, only spend more than up to 29 hours on the internet per week, which in conjunction with the fact that 66% of the sample works more than 30 hours per week and that 83% of the sample agree or strongly agree with the phrase: "*I use the internet for searching product information*", exemplifies the starvation of time referred by Bellman et al. (1999) in which people don't have a lot of "free" time and they tend to buy products online because it is faster. Almost all of the sample (90,6%) have been using the Internet for over 4 years or more and 62,3% of the sample connect most frequently to the internet from home.

4.2 Estimation of the model

Our models were estimated using smart PLS 2.0 (Ringle et al., 2005). PLS was chosen instead of a covariance-based technique, as it does not require multivariate normal data, places minimum requirements on measurement level, and is more suitable for small samples (Chin 1998).

The final sample obtained (n=53) is adequate for PLS analysis, since the heuristic regarding that the sample size should be at least ten times the largest number of structural paths directed at any one construct, is satisfied (Hair et al., 2012; Chin 1998)

As suggested by Hulland (1999), the model was analyzed and interpreted in two stages: first, we evaluate the measurement model, second we estimated the structural model.

4.2.1 Measurement model

The measurement model was analyzed in terms of individual indicator reliability, construct reliability, convergent validity and discriminant validity (Hair et al., 2012). Assessing individual item reliability is done by examining the standardized indicator loadings of the measures with their respective construct. Usually, indicators with loadings greater than or equal to 0,7 are accepted (Hulland, 1999). In appendix C, it can be found all of the final indicators used to measure each dimension included in the proposed model as well as the loadings and T values. As can be seen in appendix C all the loadings are above 0,7, which indicate indicator reliability. The indicators with the highest loadings are RET2, corresponding to the dimension "Retention", and TIM3 regarding the dimension "Timeliness", with the values of 0,943 and 0,940, respectively (see appendix C).

In the cases that multiple measures are utilized for an individual construct which happens to be the case for all our dimensions, there should also be concern regarding the extent to which the measures demonstrate convergent validity (Hulland,1999). To assess convergent validity we measured the average variance extracted (AVE) for all

constructs (Fornell and Lacker, 1981). AVE measures the percentage of variance of the indicators that is explained by the construct. It is recommended that the AVE should be greater than 0.5, meaning that 50% or more variance of the indicators should be accounted for the construct. All AVE values are greater than 0,5 (see appendix C), with a minimum value equal to 0,613 for the dimension "Condition" and maximum value equal to 0,852 for the dimension "Retention. Therefore we can confirm that there is convergent validity.

As once proposed by Fornell and Lacker (1981), the construct reliability was analyzed through composite reliability (CR). All CR value for all the dimensions can be observed in the appendix C. Nunnally (1978) suggests that these values must be greater than the acceptable minimum of 0,7. Indeed the minimum acceptable value for CR was met for all constructs which indicate that all of them are reliable. The minimum value observed was of 0,826 for the dimension "Condition" and 0,945 as the maximum for the dimension "Retention".

To access discriminant validity, we compared the shared variance among the latent variables (i.e., the square root of the AVE should be greater than the correlation between a construct and any other construct) (Chin, 1998). Table II reveals that this condition is satisfied for all constructs in the model. The numbers on the main diagonal, which represent the square roots of AVE for each construct and are denoted in bold, are greater than the off-diagonal elements in the corresponding rows and columns (the correlations between constructs). In table II it is also presented the descriptive statistics (mean and standard deviation) for each construct.

Table II - Descriptive statistics and correlation between the dimensions

	Mean	Standard Deviation	1	2	3	4	5	6
(**1**) Availability	5,508	1,173	**0,827**					
(**2**) Condition	5,625	1,066	0,461	**0,783**				
(**3**) Extension	4,697	1,421	0,605	0,427	**0,882**			
(**4**) Referalls	5,511	1,481	0,637	0,579	0,684	**0,888**		
(**5**) Timeliness	5,421	1,436	0,689	0,398	0,534	0,558	**0,863**	
(**6**) Retention	5,640	1,342	0,680	0,504	0,750	0,850	0,738	**0,923**

Source: Own elaboration

4.2.2 Structural model

Since confidence has been established in the measurement model, a structural PLS model was run in order to test the hypotheses proposed. PLS emphasizes maximizing the variance explained in the dependent variables. Consequently, PLS models are evaluated based on prediction-oriented measures such as R^2 (Chin 1998; Hair et al. 2012). According to Falk and Miller (1992), the explained variance (R^2) for each endogenous variable must be equal or greater than 10%. Figure 2 shows the variance explained (R^2) in the three endogenous constructs. As can be seen all values clearly surpass the criteria previously established with the highest value of (R^2) equal to 63% for the "Retention" dimension and as lowest value equal to 41,4% for the "Extension" dimension.

To assess the statistical significance of the structural coefficients and loadings, a non-parametric bootstrapping method was used (Chin, 1998). This way, and as suggested by Hair et al. (2012), 5000 sub samples were used to "run" the bootstrapping. The values obtained for all coefficients and the T values are presented in figure 2 and table III.

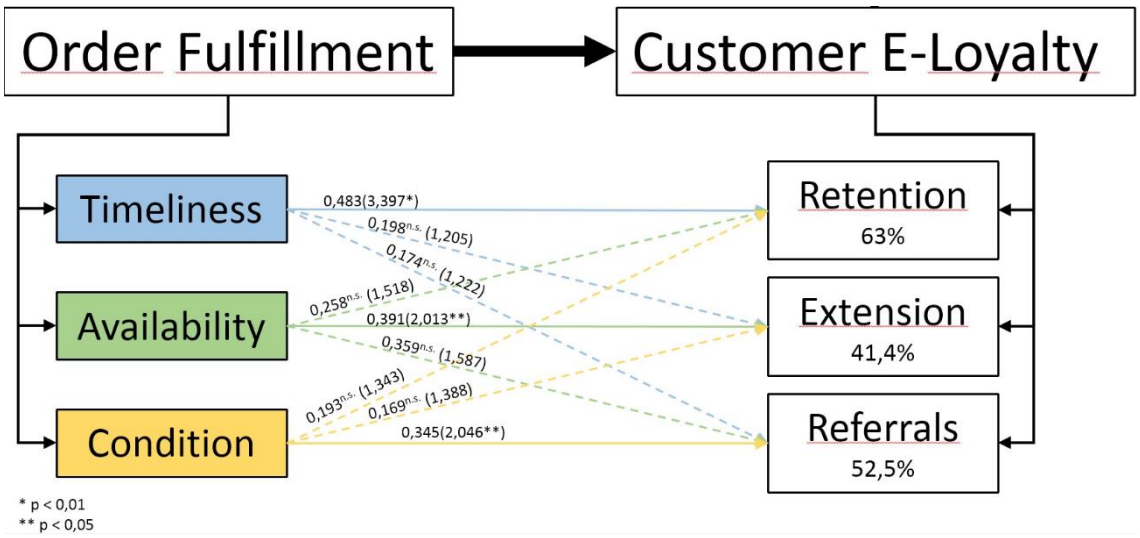
We found empirical support for three of the nine proposed hypotheses. Specifically, H1a, which predicted that "Timeliness" would positively influence

"Retention" was fully supported (β=0,483; p < 0,001). Also, H2b which predicted that "Availability" would positively influence "Extension" was supported (β=0,391; p < 0,05). Finally, H3c which postulated that "Condition" would positively influence "Referrals" was also supported (β=0,345; p < 0,05)

Contrary to what was initially postulated, the hypotheses H1b (β=0,198; n.s.), H1c (β=0,174; n.s.), H2a (β=0,258; n.s.), H2c (β=0,359; n.s.), H3a (β=0,193; n.s.), H3b (β=0,169; n.s.) were not supported for a significance level of 5%.

There is no way to compare the results obtained, because thus far, to the best of our knowledge, no empirical test had been made with this depth to. This way it would not be sensible to compare in-depth results of an attribute with different dimensions to a study that regards general ideas of the attribute here studied. Although, in general the data gathered and the results are indeed very interesting and prove that the depth of investigation on the order fulfillment attribute was very beneficial in explaining the contradiction of results, different authors were having like Jim and Kim (2010) where they actually concluded order fulfillment had no impact on e-loyalty or Abbot et al. (2000) who actually found that it had a high impact on e-loyalty. Also some very interesting conclusions can be taken out of the data gathered and these will be presented in the following chapter.

Figure 2 – Empirical Model



Source: Own Elaboration

Table 3 presents the values for β and T values for the tested hypotheses, as well as indicating if these were supporter or no. We examined the collinearity between timeliness, availability and condition constructs, as these serve as prediction constructs of retention, extension and referrals. Variance Inflation Factors (VIF) values obtained range from 1,441 to 2,300, which is below the indicative critical value of 5 (Hair et al., 2012). Therefore we perceive that does not exist severe collinearity problems in our model.

Table III – Empiric Model Hypotheses

Hypotheses	β	T value	Supported Hyphoteshes
H1a: Timeliness -> retention	0,483	3,397	Yes
H1b: Timeliness -> Extension	0,198	1,205$^{n.s.}$	No
H1c: Timeliness -> Referalls	0,174	1,222$^{n.s.}$	No
H2a: Availability -> retention	0,258	1,518$^{n.s.}$	No
H2b: Availability -> Extension	0,391	2,013	Yes
H2c: Availability -> Referalls	0,359	1,587$^{n.s.}$	No
H3a: Condition -> retention	0,193	1,343$^{n.s.}$	No
H3b: Condition -> Extension	0,169	1,388$^{n.s.}$	No
H3c: Condition -> Referalls	0,345	2,046	Yes

Source: Own elaboration

5 Conclusions

This study purposed objectives were to understand the impact of the 3 order fulfillment dimensions (timeliness, availability and condition) on the 3 e-loyalty ones (retention, extension and referrals) in terms of physical products, attempt to demystify the controversy in the literature and delimitate possible strategies for the pure players.

Results from this study found a positive relationship between order fulfillment and customer e-loyalty, but only for some specific dimensions. More specifically each dimension of order fulfillment impacts only and exclusively one of the customer e-loyalty dimensions, thus being: Timeliness has an exclusive positive significant impact on retention; Availability has an exclusive positive significant impact on extension and condition has an exclusive positive significant impact on referrals.

These results help and attempt to clarify the controversy among authors such as Jim and Kim (2010) and Abbot et al. (2000) where they have contradictory opinions regarding the order fulfillment attribute and its impact on customer e-loyalty. Although the final sample does not have the size that would be necessary to clarify this controversy it seems that in fact both are not wrong. This depth of analysis allowed for some enlightenment of the situation by showing that order fulfillment is very segmented as shown above and that is why the depth of study for this and any attribute is very important, so we can fully understand and comprehend all of the nuances and complexity that involves it.

The data and results gathered may have a very important and practical role in a pure player strategy if they so decide to embrace it. These results seem to show an initial guide for acquiring customer e-loyalty in the sense that if for example the pure

players want to increase customer retention (a dimension of e-loyalty) they must put efforts in their timeliness dimension (an order fulfillment dimension) of his strategy by for example improving the delivery time window of the orders. This of course is not as simple as it seems, it must be thought out very carefully as there is a lot of nuances that a bigger sample could help clarify.

All in all the main contributes to retain from this study is the fact that it has found a restricted positive relation between the dimensions of order fulfillment and all the dimensions of customer e-loyalty, helping therefore to clarify the literature that had been done so far. It also helped to provide an initial strategic path for pure players to follow, in order to acquire customer loyalty.

Limitations

As in any study there are always limitations. These are the main ones for this study:

- The difficulty in comparing our results to others due to the lack of studies with this depth of study, to the best of our knowledge
- The reduced sample size, which may have been caused due to the fact that the respondents had to partake of their own free time and will to respond to the survey with no opposing benefit.

Future Research

Some information retrieved during the making of the literature revision and feedback on the forums from people that had responded to the survey, lead to some ideas that could incentivize future research:

- To verify closely with the pure players if the relations established are indeed valid
- Other in depth studies with different attributes/antecedents impacting customer e-loyalty,
- Study with a more meaningful sample through the possible databases of pure players or marketing websites
- Verify if these relations are also valid not only to the pure players but also to the other type of internet retailer which are the multichannel

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Appendix

Appendix A: Body of initial message

Hello,

My name is Alexandre Dias and I am a Master Student from Lisbon School of Economics and Management and I am conducting a survey in regards to my thesis which involves order fulfilment and its impact on customer e-loyalty. I need your help in filling out this survey so I can complete my thesis with relevant and conclusive data.

It only takes 5 minutes, no sensitive data is asked and it is fully anonymous.

Please if you may kindly help me I would really appreciate

Link to Survey – (Survey Url)

Note: It can be filled out on your smartphone but it is advised you fill it out on a computer

If you have any question or doubt, please let me know

Thank you for your time and cooperation

Alexandre Dias

Appendix B: Body for the follow up messages

Hello Again,

My name is Alexandre Dias and I am a Master Student from Lisbon School of Economics and Management and I am conducting a survey in regards to my thesis which involves order fulfilment and its impact on customer e-loyalty. I once again request the help for those who still have not yet had the time to fill in the survey. The current rate of responses is not very high and I need your help in order to get more data for my thesis.

It only takes 5 minutes, no sensitive data is asked and it is fully anonymous.

Please if you may kindly help me I would really appreciate

Link to Survey – (Survey Url)

Note: It can be filled out on your smartphone but it is advised you fill it out on a computer

If you have any question or doubt, please let me know

Thank you for your time and cooperation

Alexandre Dias

Appendix C: Measurement scales

[RET] Retention (AVE=0,852/CR=0,945/α=0,913)

(**Scale:** 1- Strongly Disagree to 7 – Strongly Agree)

		Loadings	T-value	Source
RET1	I will continue using this website in the future	0,930	40,740	Adapted from Hartmann and Grahl (2011)
RET2	If I knew then what I know now I would have still selected this website	0,943	48,699	
RET3	I fully trust this website, regarding my internet purchases	0,896	10,562	

[EXT] Extension (AVE=0,779/CR=0,913/α=0,858)

(**Scale:** 1- Strongly Disagree to 7 – Strongly Agree)

		Loadings	T-value	Source
EXT1	In the future, I expect this website will have a higher share of my internet purchases	0,870	9,271	Adapted from Hartmann and Grahl (2011)
EXT2	In the future, I will use this website more than what I do now	0,914	30,884	
EXT3	In the future, if I need different services and products and this website can provide them, I will consider this website preferentially	0,863	19,655	

[REF] Referrals (AVE=0,788/CR=0,937/α=0,910)

(**Scale:** 1- Strongly Disagree to 7 – Strongly Agree)

		Loadings	T-value	Source
REF1	I say positive things about this website to other people	0,898	21,508	Adapted from Srinivasan et al. (2002)
REF2	I recommend this website to anyone who seeks my advice	0,904	23,696	
REF3	I hesitate to refer my acquaintances to this website	0,819	11,170	
REF4	I do not encourage friends to do business with this website	0,928	30,342	

[TIM] Timeliness (AVE=0,745/CR=0,897/α=0,827)

(**Scale:** 1- Strongly Disagree to 7 – Strongly Agree)

		Loadings	T-value	Source
TIM1	This website provides plenty of delivery options	0,840	17,445	Adapted from Xing and Grant (2006)
TIM2	This website quickly delivers what I ordered	0,804	5,349	
TIM3	This website makes accurate promises about the delivery of products	0,940	20,085	

[AVA] Availability (AVE=0,685/CR=0,896/α=0,847)

(**Scale:** 1- Strongly Disagree to 7 – Strongly Agree)

		Loadings	T-value	Source
AVA1	This website makes items available for delivery within a suitable time frame	0,886	12,177	Adapted from Xing and Grant (2006)
AVA2	This website has in stock the items it claims to have	0,863	10,984	
AVA3	This website provides tracking for my orders	0,839	7,657	
AVA4	This website provides alternative offers for substitution of out of stock products	0,711	6,970	

[CON] Condition (AVE=0,613/CR=0,826/α=0,683)

(**Scale:** 1- Strongly Disagree to 7 – Strongly Agree)

		Loadings	T-value	Source
CON1	This website sends out the items ordered without missing parts	0,735	7,006	Adapted from Xing and Grant (2006)
CON2	The package(s) ordered from the website arrive with minor or unexisting exterior damage to them	0,807	8,465	
CON3	The items inside the package(s) arrive accordingly to the condition promised without any further damage	0,804	10,808	