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Evaluating content quality and helpfulness of online product reviews: The interplay of review helpfulness vs. review content ☆

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ABSTRACT

Online reviews have received much attention recently in the literature, as their visibility has been proven to play an important role during the purchase process. Furthermore, recent theoretical insight argue that the votes casted on how helpful an online review is (review helpfulness) are of particular importance, since they constitute a focal point for examining consumer decision making during the purchase process. In this paper, we explore the interplay between online review helpfulness, rating score and the qualitative characteristics of the review text as measured by readability tests. We construct a theoretical model based on three elements: conformity, understandability and expressiveness and we investigate the directional relationship between the qualitative characteristics of the review text, review helpfulness and the impact of review helpfulness on the review score. Furthermore, we examine whether this relation holds for extreme and moderate review scores. To validate this model we applied four basic readability measures to a dataset containing 37,221 reviews collected from Amazon UK, in order to determine the relationship between the percentage of helpful votes awarded to a review and the review text's stylistic elements. We also investigated the interrelationships between extremely helpful and unhelpful reviews, as well as absolutely positive and negative reviews using intergroup comparisons. We found that review readability had a greater effect on the helpfulness ratio of a review than its length; in addition, extremely helpful reviews received a higher score than those considered less helpful. The present study contributes to the ever growing literature on on-line reviews by showing that readability tests demonstrate a directional relationship with average length reviews and their helpfulness and that this relationship holds both for moderate and extreme review scores.

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1. Introduction

Use of the Web as a source of information has undisputedly affected several areas of human activity as regards how market transactions take place, being no exception (Li and Bernoff 2008). The move towards a read-write Web and the ability to provide more relevant information to consumers on online marketplaces has been also demonstrated to influence the product choice process in electronic markets (Dellarocas 2003, Godes et al. 2005). In particular, the most profound contribution in this respect has been the ability to present and promote customers' opinions of the products that they have purchased (Clemons et al. 2007, Clemons et al. 2006). As a result, a vast quantity of online reviews are available to consumers, which they can use to become better informed about the product or service that they are considering purchasing. Furthermore, it is argued in the literature that these reviews are sometimes more trustworthy than traditional sources in the printed press (Jiang and Benbasat 2004, 2007; Senecal and Nantel 2004). This has led to attempts to extract useful information automatically from the review text (Ye et al. 2009).

Online reviews in general constitute third-party evaluations by consumers of the product or services advertised on a website, and are displayed next to the product description in order to enhance customer perception and improve the perceived communication characteristics of the medium (Kumar and Benbasat 2001). Their availability has been proven to have a positive effect on the volume of online sales (Archak et al. 2011, Chen et al. 2008, Chevalier and

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Mayzlin 2006). Websites that present an increasingly large number of user-supplied reviews tend to experience an increased volume of sales, especially in the case of products that are not of a tangible nature, as happens with more traditional bricks-and-mortar sales channels (Wolfinbarger and Gilly 2001). On-line reviews exert even more influence in the case of products whose utility can only be evaluated upon consumption (for example, books). Intuitively, it is clear that this is the case for experience goods.

Nelson (1970) defined the concept of an experience good as a product or a service where the quality and utility for a consumer can only be determined upon consumption. This implies that in order for consumers to decide to consume or purchase this product or service, they must rely on previous experiences which provide an indicator of whether this product or service is worthy of purchase or not. One example of an experience good is a book: the utility to the consumer of reading a particular book can only be judged after reading that book. Therefore, with experience goods such as books, the producers (e.g. the publishers) often use reviews written by authoritative sources, such as literature experts, to provide an opinion and endorse the book, so that those consumers who trust these sources will purchase this product.

The issue of trust becomes more apparent in online review literature when it is related to the effect of the review source (Pavlou and Dimoka 2006). For example, in the case of books, publishers often choose to include a short review by leading reviewers (e.g. the NY Times bestsellers column) on the back cover, in order to attribute the review to a trusted source. However, it can be argued that this ploy is affected by reporting bias, since publishers are unlikely to include "unexciting" reviews on the back-cover (Zhang et al. 2010). Similarly, reporting bias can also occur on online reviews. Hu et al. (2006) have shown that online reviews related to books or CDs present a U-shaped distribution, with the extremes anchored to either "very good"(five stars) or "very bad" (one star) ratings. This creates the need to apply some kind of filter to those reviews that are justified by the textual description provided by the consumer. This is mainly displayed as "review helpfulness" on online marketplaces. For example, online retailers such as Amazon frame review helpfulness as a bimodal choice, asking the users: "*Was this review helpful for you?*"

From a cognitive perspective, review helpfulness can be used as a conformity filter. For example, reviews closer to consensus may be considered more helpful by potential consumers than those exhibiting extremes of opinion (Jiang et al. 2010). Another effect to consider is that reviews by individual consumers often express a personal view of their experience with the product, and this may differ from the expectations of the interested buyer. For example, whereas one person may have expected the book to contain more action elements, another might not be interested in that specific characteristic. In this case, the textual characteristics of the review act as a filter between the expectations of one consumer and the actual review posted by another. This raises several questions concerning the quality of the reviews themselves, namely, the relationship between review helpfulness and product utility for the reviewer who posted the review on the online marketplace. For example, do issues of conformity arise when someone reports extreme opinions ("very good" or "very bad") but provides a clear justification for their opinion? These issues indicate the need for further analysis of the review text and how it relates to the usefulness expressed by users.

Consequently, in this study we explored the qualitative or textual characteristics of online consumer reviews. A preliminary assumption was that submitted reviews reflected consumers' experience of product use. Therefore, the underlying assumption was that the individual submitting the review had consumed the product and was in a position to report his or her own personal experience and/or judgment of the product, since he/she had prior experience of the product (negative or positive, depending on the value of the review rating). Secondly, we considered the review to act as a "justification" for the rating, enabling the potential buyer to evaluate whether the review was fair or not. This was reflected in the text submitted together with the rating provided. In addition, online marketplaces provide the possibility of review meta-rating, enabling interested buyers to evaluate how helpful a particular review was during the product selection process. Once again, in this case the review text acts as the main source for other consumers when evaluating the helpfulness of aspecific review.

In this study, we focused our attention not on the numerical rating of the review, but rather on the review text itself. In particular, we sought to evaluate how the style and comprehensibility of a review, as appraised by computerized assessment, might affect the helpfulness of a review – in other words, the number of people who found it helpful out of the total number of people who had read and evaluated the view. In order to investigate this issue, we employed readability metrics applied to a dataset of reviews together with their helpfulness evaluations, collected from the bookstore section of Amazon, UK.[1] An earlier study by Korfiatis et al. (2008) discussed the relationship between review readability, or the style used to write the review, and the helpfulness score it received. This earlier study has been taken as the point of departure for developing a more extensive theoretical discussion of the relationship between readability score and review helpfulness.

In order to address this issue, we based our study on some preliminary assumptions. First, we focused on the viewpoint of consumers who were interested in buying a product or service from an online marketplace, and their consideration of whether these codified pieces of information were helpful or not. Secondly, we hypothesized that in addition to considering the review score given by a particular review, consumers would also evaluate the importance of the review according to how similar it was to their own communication codes, denoted by the way in which the review was written. This can be assessed by the qualitative characteristics of the review text as measured by readability tests.

Our findings indicate that review helpfulness is affected by writing style, and in particular, that the stylistic elements employed seem to have a much greater influence than the extensiveness of the text on its resulting helpfulness score. Furthermore, we find that even for extreme helpfulness score values, both the stylistic elements and extent of the review text had a great influence on the helpfulness ratio that the review received. An inter group comparison showed that this also holds for extreme helpfulness ratio values and rating scores.

To this end, this paper is structured as follows: Section 2 provides the theoretical reasoning and motivation behind this study. Section 3 provides a background on readability tests and how they are calculated, together with the meaning of their norms. Section 4 presents the operationalization of the constructs discussed on section 2 and an analysis of the dataset we collected. We discuss the results and their alignment with existing literature in Section 5. Finally, Section 6 summarizes the conclusions of this study and its limitations, and indicates directions for future research.

2. Theoretical model and reasoning

One important feature of the online review is the way in which it is displayed to the consumer. Online marketplaces such as Amazon have invested a considerable amount of resources in designing and improving the store interface, since online store interaction plays a significant role in the selection process (Eroglu et al. 2003, Van der Heijden and Verhagen 2004).

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[1] http://www.amazon.co.uk/.

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