



The relative importance of service quality dimensions in E-commerce experiences

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ARTICLE INFO

Keywords:

Online review
Service quality
SERVQUAL
Text mining
Topic model

ABSTRACT

Purpose: The proliferation of socialized data offers an unprecedented opportunity for customer service measurement. This paper addresses the problem of adequately measuring service quality using socialized data.

Design/methodology/approach: The theoretical basis for the study is the widely used SERVQUAL model and we leverage a dataset uniquely suited for the analysis: the full database of online reviews generated on the website of the leading price comparison engine in Italy. Adopting a weakly supervised topic model, we extract the dimensions of service quality from these reviews. We use a linear regression to compare service quality dimensions between positive and negative opinions.

Findings: First, we show that socialized textual data, not just quantitative ratings, provide a wealth of customer service information that can be used to measure service quality. Second, we demonstrate that the distribution of topics in online opinions differs significantly between positive and negative reviews. Specifically, we find that concerns about merchant responsiveness dominate negative reviews.

Practical implications: Our research has important implications for designers of online review systems and marketers seeking novel approaches to the measurement of service quality. Our study shows that evaluation systems designed considering the knowledge extracted directly from customers' review lead to a service quality measurement that not only is theory-based, but also more accurate.

Originality/value: We believe this is the first study to combine the advanced text mining technique of topic modeling and SERVQUAL to extract specific service dimensions from socialized data. Using these advanced techniques, we point to systematic differences between positive and negative customer opinions. We are not aware of any study that has shown these differences with either traditional approaches (i.e., survey data) or modern techniques (e.g. text mining).

1. Introduction

Since its commercialization in 1993, the Internet has dramatically changed people's behavior and decision-making processes. The emergence of the smartphone ecosystem and widespread connectivity has also changed the manner in which we procure goods and services. Individuals' decisions are heavily influenced by other users' personal experiences recorded online in forums and online review websites. At the same time, the variety of products and services available to customers via the online channel continues to increase (Xu, Benbasat, & Cenfetelli, 2013).

Brick and mortar organizations must move online to prevent a loss of market share. However, their lack of technical knowledge and experience with operating online, makes the transition problematic.

Nevertheless, customer service remains a key determinant of e-

commerce success (Delone & Mclean, 2004; Wang, 2008) and drives customer satisfaction in online transactions (Cenfetelli, Benbasat, & Al-Natour, 2008; Xu et al., 2013). Information technology enabled customer services challenges traditional views of customers as simple services' receivers, creating opportunities to push the frontier of customer service (Chesbrough & Spohrer, 2006) and to enhance customer satisfaction and loyalty. Companies by harvesting technological innovations can provide high quality and personalized service at reasonable costs (Rust & Miu, 2006).

Service quality measurement has always been critical for organizations, but it has been historically limited by difficulties in collecting customers' opinions. However, with the rise of user generated content over the last decade, as well as the immediacy with which online customers can socialize their opinions on providers' websites, online review platforms and social media enable new approaches to service

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quality measurement. Socialized data is data that individuals willingly and knowingly share via digital computer networks (Weigend, 2009). Online reviews are a common form of socialized data, representing spontaneously shared opinions by customers on review platforms (Mudambi & Schuff, 2010).

To date, much of the literature on online reviews has focused on how they affect customer decisions. Much less work has examined how reviews can be used as a form of intelligence for gathering information for an organization. This gap is remarkable given the explosion of socialized data. While it has traditionally been difficult to extract useful knowledge from large amounts of information (McAfee, Brynjolfsson, Davenport, Patil, & Barton, 2012) an effective measurement of service quality must be based on customers' experiences (Petter, DeLone, & McLean, 2012).

To contribute to filling this research gap, our work focuses on the textual elements of online reviews as a customer service measurement mechanism and offers two contributions. First, we use topic modeling, an emerging text mining approach, to extract from online reviews latent thematic structures that appropriately measure service quality. Specifically, we demonstrate that we are able to extract the five dimensions of SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988) discussed in online reviews. Second, we show that the different SERVQUAL dimensions have unequal impact on overall service evaluation in online reviews. This finding adds nuance to previous work that focused on aggregate measures of service rather than the contribution of each service quality dimensions (Luo, Ba, & Zhang, 2012).

2. Literature review

2.1. Online transactions uncertainty and new sources of information

Quality service is critical in e-commerce to increase channel usage (Devaraj, Fan, & Kohli, 2002), customer loyalty (Gefen, 2002), and customer satisfaction (Cenfetelli et al., 2008; Tan, Benbasat, & Cenfetelli, 2013). Customer service is particularly critical for small and medium enterprises with low visibility (Luo et al., 2012). Yet despite its importance, we have limited knowledge about the determinants of online customer service quality (Xu et al., 2013; Petter, DeLone, & McLean, 2013).

E-commerce transactions are computer mediated and the absence of physical interaction results in high uncertainty for customers. Conversely, offline physical transactions are personal and contact based, thus providing a multitude of information cues to customers (Xu et al., 2013). Many of these cues are lacking in online transactions, historically leading to customer insecurity that discourages e-commerce (Ba, Whinston, & Zhang, 2003) and limits the development of trust online (Gefen, Benbasat, & Pavlou, 2008).

Historically, organizations seek to counterbalanced the limitations of the e-commerce environment through website design (Jiang & Srinivasan, 2012), while customers increasingly turn to socialized data to reduce their uncertainty (Piccoli, 2016). First, the rise of Web 2.0, and later, the shift to the mobile platform, supported the emergence of online product review platforms (e.g. TripAdvisor, Yelp.com, Amazon etc.). These platforms offer consumers the opportunity to post product reviews with content in the form of numerical star ratings and open-ended, customer-authored comments (Mudambi & Schuff, 2010).

The computer-mediation of customer service automatically generates data in a digital form (Piccoli & Watson, 2008).

This data can potentially impact not only individual users' decision-making processes but also guide organizations' managers in making strategic decisions (Piccoli & Pigni, 2013).

While much of the academic research has focused on consumer use of online reviews and the impact they have on their decisions, online reviews are an important source of unfiltered customer intelligence. Until the emergence of socialized data, the only available option to measure service quality was the use of time consuming customer

surveys. However, customers are increasingly overwhelmed by company communications (e.g., email, phone calls, robo-calls) soliciting their opinion. Even when incentives are offered or remuneration is provided to respondents, customer service surveys are plagued by limitations such as low response rates, small samples, and high expense (Wright, 2005).

Conversely, customers spontaneously broadcast their opinions about products, services and organizations using opinion platforms and social media. These socialized data offer a wealth of insight to both the firms that are the target of the review as well as other entities, such as competitors, other customers and suppliers.

2.2. Online reviews

Previous research in the business context focused on the effect of online opinions on sales (Chatterjee, 2001; Chen et al. 2004; Chevalier & Mayzlin, 2006; Ghose & Ipeirotis, 2006; Hu, Liu, & Zhang, 2008; Zhu and Zhang, 2010), on trust (Ba & Pavlou, 2002; Pavlou & Gefen, 2004; Pavlou & Dimoka, 2006) and on their helpfulness (Ghose & Ipeirotis, 2011; Mudambi & Schuff, 2010). The literature also focuses on the peer influence of online reviews (Kumar & Benbasat, 2006; Senecal & Nantel, 2004). We are more interested in the impact that they have on purchase decisions and the role that user generated content plays in improving customer service measurement. Kumar and Benbasat (2006) proved that the presence of customer reviews on a website improves customer perception of the usefulness and social presence of the website. Other studies demonstrated their impact on the number of customer visits, their ability to create a community of online shoppers and facilitating consumer decision processes (Dabholkar, 2006; Jiang & Benbasat, 2004; Kohli, Devaraj, & Mahmood, 2004).

It is important to note that the IT-mediation of these contributions makes them different from traditional word of mouth. In fact, while traditional word of mouth occurs through deep information exchanges between a small number of individuals, online reviews engender difficulties in navigating among thousands of these contributions. Users therefore employ simplifying heuristics, such as examining aggregate quantitative evaluations (i.e., average rating of a product) and the close examination of only a few commentaries (Ghose & Ipeirotis, 2006), when using reviews. Moreover, the distribution of online reviews ratings is bimodal, so the average ratings cannot be considered an accurate measure (Hu, Pavlou, & Zhang, 2006) and an overall neutral rating is not always representative of a neutral opinion (Jabr & Zheng, 2013).

While online opinions have received considerable research attention, there is lack of studies that focused on the role that they play within organizations as part of a customer service measurement system.

The above problems conspire, for both organizations and individual users, to paint an incomplete or misleading picture of customer opinions and experiences. While this is a problem for customers seeking decision-making support in socialized data, it is even more problematic for organizations attempting to measure customers' perception of the service quality using online reviews. We posit that the solution is to leverage the rich text available in socialized data – more specifically by extracting and summarizing the service-specific thematic structure hidden in online reviews. In a previous study, researchers used sentiment analysis to mine the content of online reviews to understand the drivers of users' overall evaluation and content generation (Duan, Cao, Yu, & Levy, 2013). Our work extends this previous attempt, by using the text of online reviews to measure the dimensions of perceived service quality and investigate their effect on customer satisfaction.

3. Theoretical framework

3.1. Service quality

Quality assessment is an important cross-disciplinary area of research in information systems, marketing and operations management.

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