

# An Examination of the Data Quality of Online Reviews: Who Do Consumers Trust?

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## ABSTRACT

This research synthesizes the information systems and marketing research by considering the usefulness of online product reviews in the context of Wang and Strong's Data Quality Framework. It examines the extent to which a review's intrinsic (review anonymity and use of personal pronouns), contextual (review length, verified purchase, rating, and rating extremity), and representational quality (spelling errors, grammar errors, readability) impact the perceived usefulness of a product review. The examination of Amazon reviews for an inexpensive experience product revealed number of words, verified purchase, and grammar errors have a significant positive impact on review usefulness. Rating and number of spelling errors have a negative effect, suggesting consumers use some discernment in assessing the believability of a review. Surprisingly, the opposite effect was found for grammar errors, with more grammar errors being associated with a more useful review.

## KEYWORDS

Data Quality, Online Customer Reviews, Review Helpfulness, Text Analytics, Text Mining, Trust

## INTRODUCTION

E-commerce and Web 2.0 had a radical impact on the way consumers interact with retailers. Through review mechanisms, consumers are now able to tell retailers – and everyone else – exactly what they think about an offered product or service. Online product reviews provide a new level of insight and have been used in new product development (Lee & Yang, 2015) and marketing initiatives (Lee & Bradlow, 2011). They also play a key role in the purchase decision of other consumers. Researchers have reported that more than 90% of online shoppers read reviews before making a purchase and 83% report that their purchase decision is based on reviews (Zhang, Cheung & Lee, 2014). Reviews have been found to influence purchase decision (Lee & Ma, 2012) and have a positive impact on sales (Floyd, Freling, Alhoqail, Cho & Freling, 2014; Hu, Liu & Zhang, 2008; Yao, Fang, Dineen & Yao, 2009). The assumption is that the reviews are written by other consumers and are unbiased, which leads individuals to trust the comments (Cheung, Sia & Kuan, 2012; Huang, Tan, Ke & Wei, 2018; Robinson, Goh & Zhang, 2012). In fact, the opinions of peers are deemed to be more trustworthy than company sponsored advertising (Dellarocas, 2003; Sher & Lee, 2009). Trust in online transactions

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and data quality measures have been studied extensively in the information systems literature. This research synthesizes these streams of research to better understand how online reviews are perceived as useful to the consumer.

Given the breadth and depth of this new consumer communication channel, it is not surprising that online reviews have generated a substantial amount of marketing research. Whether examined as Electronic Word of Mouth (eWOM), online product reviews (OPR) or voice of the customer (VOC), researchers have sought to understand what makes a review useful to another consumer. Recent meta-analytic studies have found there is general agreement that review helpfulness is impacted positively by review length, age, reviewer information disclosure and indicators of reviewer expertise (Hong, Xu, Wang & Fan, 2017; Wang, Wang & Yao, 2018). The research is mixed on the impact of rating (linear and quadratic) and readability on the usefulness of reviews. Moderators, such as product type (Mudambi & Schuff, 2010) and review length (Chua & Banerjee, 2015b) have been found to impact review usefulness. Wang et al. (2018) call for a more theoretically grounded explanation of what constitutes a helpful review. The information systems research, in the areas of trust in online transactions and data quality is a potential source of theoretical underpinning. This research considers the usefulness of online product reviews in the context of Wang & Strong's (1996) Data Quality Framework. Incorporating both heuristic and systematic elements, the proposed model seeks to understand how consumers judge the usefulness of an online review.

## **LITERATURE REVIEW**

A variety of marketing research has examined individual factors that contribute to review usefulness, but there is not a coherent theoretical framework (Wang, et al., 2018). IS research may be able to provide a unifying structure. Information quality is one of the most important characteristics that determines information usage (O'Reilly, 1982). Fitness for use is the general definition of data quality as it identifies the extent to which data successfully serves the needs of the user (Tayi & Ballou, 1998; Capiello, Francalanci & Pernici, 2003). Wang & Strong (1996) identified and ranked the attributes of data quality and ultimately proposed four dimensions. Intrinsic quality reflects the objectivity, reputation, credibility and accuracy of data. This dimension will include trust indicators, discussed in the next section. Conceptual quality refers to the usefulness of the data for the task at hand and addresses the timeliness, quantity, completeness and relevancy of data. Representational quality relates to the presentation of the data and includes interpretability, ease of understanding, consistency and conciseness. Accessibility is the fourth and final dimension of data quality and refers to the ability to obtain the data. This framework has guided data quality research in a variety of applications including ERP systems (Glowalla and Sunyaev, 2014), supply chains (Fuchs, Beck, Lienland and Kellner, 2018) and e-health (Allam, Sak, Diviani and Schulz, 2017). Research on consumer review usefulness has never been framed in this context. Data quality research provides a theoretical framework for identifying characteristics of online reviews that contribute to the usefulness to the consumers.

### **Trust in Online Transactions**

In seeking to understand how consumers determine whether an online review is useful, it is necessary to consider the concept of online trust. Trust in online transactions has been an area of inquiry in the information systems discipline. Researchers have explored the role of trust in the adoption of electronic commerce (Gefen, 2000; Tan & Sutherland, 2004; McCloskey, 2006) and specific applications such as ERP (Gefen, 2004) and health information systems (Schlichter & Rose, 2013). Many of the examined variables relate to trust of the privacy and protection of personal and financial information (Hoffman, Novak & Peralta, 1999; Liu, Marchewka, Lu & Yu, 2005; Tan & Sutherland, 2004) and are therefore not relevant to establishing trust in a product review. There are, however, dimensions that do translate. Structural assurances (McKnight, Cummings & Chervany, 1998; Patton & Josang, 2004), indicators of guarantees or recourse, and situational normality (Gefen, 2000), whether an interaction

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