Reviewing the Vendor or the Product – Analyzing Vendor versus Product Representation in B2B Review Systems

Emergent Research Forum (ERF)

Martin Poniatowski
Paderborn University
martin.poniatowski@wiwi.upb.de

Jürgen Neumann
Paderborn University
juergen.neumann@wiwi.upb.de

Dennis Kundisch
Paderborn University
dennis.kundisch@wiwi.upb.de

Abstract

Online reviews exert considerable influence over customer decision making. The crucial role played by particular design features of review systems on customer choice is reflected in the steady growth of research on review system design. However, little is known on review system design in a B2B environment. A key design decision for B2B online reviews is the representation of a vendor and their products. More specifically, whether customers review only the vendor in a single listing or each product separately in a dedicated listing could result in differences in reviewing behavior. Based on a unique data set from two different B2B review platforms, we study the impact of these different representations on online ratings. We hypothesize that listings that represent vendors receive higher ratings since reviewers are more aware of relational benefits when reviewing. We find support for our hypothesis, providing first guidelines for review system design for B2B environments.

Keywords


Introduction

Online reviews have become an indispensable asset for consumers’ purchase decisions for goods and services (Wu et al. 2015). Platforms like Amazon or Yelp constantly strive to improve the design of their review systems to ensure that a high number of reviews is published and that these reviews are effective in helping consumers find the products or services they seek or that might better meet their preferences. For instance, it has been found that the introduction of a multidimensional rating system on TripAdvisor has made it easier for consumers to find restaurants that match their taste (Chen et al. 2017). Beyond the B2C environment, review systems have also gained importance in a B2B environment where they serve as an important determinant of purchasing decisions (Pavlou 2002). Consequently, B2B review platforms like Capterra, SoftwareAdvice, g2Crowd, or TrustRadius also face the challenge of designing effective review systems.

While a substantial amount of research has been undertaken on the design of B2C reviews, very little work exists on review systems in a B2B environment (Gutt et al. 2019). One design feature that is particularly relevant to the B2B context is the representation of a vendor, in particular for those offering multiple products. As an example, the software vendor Healthstream offers the two products Healthstream Recruiting Center and Healthstream Learning Center. Platforms like Capterra need to decide how to collect and display reviews for these different software products. The platform can either host a single listing for

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the software vendor, which then aggregates reviews by both users of HealthStream Recruiting Center and users of HealthStream Learning Center (i.e., vendor representation), or it could host a separate listing for each product (i.e., product representation). Figure 1 shows a conceptual visualization of how a vendor and their products could be represented across two different platforms. Different representations are not only a form of aggregation but might also change reviewing behavior. If reviewers are aware that they are reviewing the vendor, they are more likely to consider vendor-related aspects instead of focusing solely on product attributes. While such a design feature has been analyzed in a B2C environment (Samak 2013), it is still unknown how it changes reviewing behavior in a B2B environment, with B2B decision making being inherently different in terms of decision complexity (Oliveira and Roth 2012) and development of trust (McKnight et al. 2017), for example. Similarly to the B2C case, using a vendor representation could, on the one hand, bias average ratings and impede customer decision making (Samak 2013). On the other, it could be beneficial to readers if reviewers comment on their relationship and experiences of the vendor. Thus, deciding between these two representations is an important design choice. The goal of this work is to scrutinize how these different representations affect the average online rating of a listing. Thus, we aim to answer the following research question: In a B2B reviewing environment, how does the vendor representation of a listing affect online ratings compared to the product representation? To answer our research question, we combine two unique datasets from B2B review platforms for software containing a total of 500,926 reviews. Based on vendor names, we identify listings on these two platforms belonging to the same vendor but which differ in their representation between one and the other platform. Following the notion of relationship marketing, we hypothesize that ratings are more positive for listings that represent a vendor. We find support for our hypothesis using an ordinary least squares regression with vendor-level fixed effects. Our results indicate that if a listing represents a vendor it is associated with monthly average ratings that are 0.4 points larger on a 1-to-10 rating scale compared to the product representation. Our results also suggest that vendor representation is associated with a lower standard deviation/variance which contradicts findings from the B2C environment (Samak 2013).

To the best of our knowledge, this is the first study to investigate different levels of representation for online review listings in a B2B context. Our preliminary results yield valuable implications for designers of online review systems. If they want reviewers to be more critical, they should implement a product representation. If, however, their goal is to help businesses with building a positive reputation, a vendor representation could be a better choice.

![Figure 1: Conceptual visualization of vendor and product representations](image)

**Related Literature**

The economic significance of online reviews has been shown across a wide range of product and service categories, predominantly for the B2C context (e.g., Babić Rosario et al. 2016). Analyzing a B2B environment, Pavlou (2002) finds that online reviews influence purchase decisions in this context as well. As the design of review systems can influence review behavior, this in turn affects the relationship between reviews and economic outcomes (e.g., Li and Hitt 2010). Thus, our study is related to research focusing on...
how the design of online review systems relates to the valence (i.e., the rating) of online reviews. For instance, it has been found that ratings with multiple dimensions are more beneficial to consumers than single dimensional ratings, since they help consumers find products that better match their needs (Chen et al. 2017). Thus, the consumer realizes a higher taste match, which results in higher ratings (Sun 2012). However, only one study, by Samak (2013), has so far analyzed different listing representations as a design feature. It studies a B2C scenario where sellers offer multiple goods of heterogeneous quality. In this case, their average ratings comprise ratings for multiple products of different quality level (which is essentially a vendor representation). Therefore, average ratings are biased and it becomes more difficult for consumers to make a purchase decision (Samak 2013). Samak (2013) suggests and implements a product representation in their study. As a result, customers exposed to the product representation are more likely to buy high value goods from top rated vendors. While there are numerous studies on the design of review systems and their relationship to the valence (Gutt et al. 2019), no study has for far, and to the best of our knowledge, examined different types of listing representations in a B2B reviewing environment.

Theoretical Background and Hypotheses

To derive an empirically testable hypothesis, we draw on insights from relationship marketing. The Relational Mediator Meta-Analytic Framework by Palmatier et al. (2006) describes, amongst others, how relationship aspects influence customer-focused outcomes. These outcomes also include the propensity to provide positive word of mouth, in the form of online reviews, for instance.

Consumer word-of-mouth is influenced by relationship benefits (Hennig-Thurau et al. 2002; Reynolds and Beatty 1999). These comprise functional benefits and relational benefits (Hennig-Thurau et al. 2002). The former capture all the core benefits consumers derive from the product while the latter can be further split into confidence and social benefits. Confidence benefits result from the consumer knowing what to expect from a service. Social benefits pertain to the emotional part of the relationship. If consumers experience positive social encounters with employees, for instance during a service/help request, this can positively influence their word-of-mouth. For example, consumers who perceive the personal relationship with a sales associate as valuable are more likely to recommend this sales associate to others (Hennig-Thurau et al. 2002).

We argue that consumers who are aware that they are reviewing a vendor instead of a product will also consider relational benefits in their online review. While the vendor representation of a listing does not alter the relationship benefits that consumers have experienced prior to reviewing, it should still make consumers aware of the relationship they (or their company) have with the vendor. Since employees are more aware that their review is tied to their employer’s relationship with a particular vendor, they are more likely to consider past relational benefits but also potential benefits in the future and adjust the rating to retain and/or build a good relationship with other companies. Thus, the vendor representation should foster the generation of positive reviews. In contrast, the product representation should lead consumers towards a more functional (i.e., product-oriented) perspective which is less likely to be driven by the urge establish or maintain a business relationship. We formulate our hypothesis accordingly: *Online ratings for a listing that represents the vendor are more positive than online ratings for a listing that represents the vendor’s product.*

Empirical Analysis

Data

Our dataset consists of reviews from two large B2B online review platforms. Both platforms provide the opportunity to publish experiences with software applications (e.g. Skype for Business, Shopify) by assessing ratings and writing reviews. While both platforms feature listings that represent products, we identified cases where one platform hosts a vendor representation while the other hosts a product representation. In sum, we analyzed 509,926 reviews from both platforms. Based on vendor names, we matched listings that share different representations for the same vendor as visualized in Figure 1. We identified 1,166 reviews belonging to 38 software vendors on the first platform and 6,167 reviews of software products associated with the same vendors on the second platform. Users can rate a listing on a scale from 1 to 10, where 1 is the lowest and 10 is the highest valuation.
To test our hypothesis, we first aggregate the dataset on a listing level per month as presented in Table 1. AVG_RATING is the mean of all ratings for a listing published in a given month. RATING_SD contains the standard deviation of ratings for each listing in a given month. Note that the number of observations for RATING_SD is smaller because, for the calculation of the standard deviation, we exclude all listings which received only one review. VENDOR_REP is a binary variable, which is 1 if the listings represent the vendor and zero if it represents the product. RATING_COUNT is an integer variable and describes the number of ratings for a listing in the current month.

<table>
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<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
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<th>Max</th>
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<td>7.6005</td>
<td>31.6489</td>
<td>1</td>
<td>866</td>
</tr>
</tbody>
</table>

Table 1: Descriptive statistics

**Empirical Model and Preliminary Results**

To provide first support that consumers are aware that they are reviewing the vendor, we conducted a text-based analysis. We flagged each review with respect to whether it contained the word “vendor”. Reassuringly, conducting a t-test, we find that reviews for a listing in vendor representation are significantly more likely to use this word ($p<0.001$). Based on the aggregated data, we estimate the following empirical model:

$$Y_{ijt} = \beta_0 + \beta_1 VENDOR\_REP_{ijt} + \beta_2 RATING\_COUNT_{ijt} + \gamma_j + \mu_t + \epsilon_{ijt}$$

The variable $Y_{ijt}$ is the dependent variable for a listing $i$ from vendor $j$ at time $t$. Depending on the model specification, $Y_{ijt}$ is either the mean or the standard deviation of all ratings at time $t$. Next to our variable of interest $VENDOR\_REP$, we control for the number of ratings a listing has received at time $t$ ($RATING\_COUNT$). $\gamma_j$ is a vector of dummy variables to allocate listings to vendors (i.e., vendor fixed effects). Thus, if certain vendors constantly produce higher quality software, incorporating vendor fixed effects account for this aspect. $\mu_t$ is a vector representing fixed effects for each time step (i.e., combination of month and year) to control for time-specific reviewing behavior on both platforms. For instance, the platform could become more popular over time increasing the range of consumers who write reviews. Any time trends that are comparable for both platforms are captured by these time fixed effects. $\epsilon_{ijt}$ describes the random unobserved error term. The estimated coefficient of $VENDOR\_REP$ indicates that the vendor representation of a listing is associated with a statistically significant increase of 0.36 points (p-value: 0.0904; N: 1,346) on the rating scale in case the vendor has been rated, instead of a specific product. The statistically significant negative coefficient of -0.38 for $RATING\_SD$ (p-value: 0.0985; N: 766) indicates a smaller dispersion of ratings for listings representing vendors, compared to listings representing products.

**Robustness Checks**

First, to ensure that our results are not driven by our chosen level of aggregation, we estimate our model on an individual review level. We use the absolute difference from the overall average rating as a proxy for the standard deviation (i.e., rating extremity). Using this proxy and the individual rating as dependent variables, we find qualitatively unchanged results. Second, we aggregate our data on a year level, again with qualitatively unchanged results. Third, listings might receive significantly more reviews on one platform compared to the other. Similarly, a listing could be newer containing its first reviews, which are usually more positive than later ones (Li and Hitt 2008). We control for this by calculating the overall number of reviews a listing has received up to the current month. Including this new variable yields similar results.

**Conclusion and Further Steps**

Online reviews are an essential component for reducing information asymmetry in digital B2C and B2B environments (Wu et al. 2015). Thus, designing online review systems is an important strategic instrument.
B2B review platforms need to make the design decision whether to present its users with a single listing for the vendor (i.e., vendor representation) or multiple listings, one for each of the vendor’s products (i.e., product representation). While the body of literature on review system design is constantly growing, little is known on designing review systems in a B2B context. This study contributes to the literature on online reviews by studying (1) review systems in a B2B environment and (2) different representations of review listings as a design feature. In line with relationship marketing, we hypothesize that reviewers are more aware of relational benefits if the listing represents a vendor and therefore give higher ratings. Conducting an empirical analysis on a comprehensive dataset from two B2B reviewing platforms, we find support for our hypothesis. Our preliminary results provide practical implications. Designers of B2B review systems need to consider our findings when deciding how to represent a business on their system.

We plan to extend this work in three major ways. First, our current model is correlational and does not account for confounding factors such as general differences between the platforms. We plan to identify matching listings that share the same representation on both platforms and include them as a control group in our analysis enabling a differences-in-differences research design. Second, to validate whether consumers give higher ratings for listings in vendor representation because they are more aware of relational benefits, we plan to conduct a word count search for functional and relational term as well as a semantic analysis on the review text by using the Linguistic Inquiry and Word Count (LIWC) tool (Pennebaker et al. 2015) which reveals emotions and social perspectives in texts. Third, executing a survey study amongst reviewers in a B2B context could shed further light on the underlying theoretical mechanism.

References