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# Whose online reviews to trust? Understanding reviewer trustworthiness and its impact on business



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#### ABSTRACT

Why do top movie reviewers receive invitations to exclusive screenings? Even popular technology bloggers get free new gadgets for reviewing. How much do these reviewers really matter for businesses? While the impact of online reviews on sales of products and services has been well established, not much literature is available on impact of reviewers for businesses. Source credibility theory expounds how a communication's persuasiveness is affected by the perceived credibility of its source. So, perceived trustworthiness of reviewers should influence acceptance of reviews, and consequently should have an indirect impact on sales. Using local business review data from Yelp.com, this paper successfully tests the premise that reviewer trustworthiness positively moderates the impact of review-based online reputation on business patronages. Given the importance of reviewer trustworthiness, the next logical question is – how to estimate and predict it, if no direct proxy is available? We propose a theoretical model with several reviewer characteristics (positivity, involvement, experience, reputation, competence, sociability) affecting reviewer trustworthiness, and find all factors to be significant using the robust regression method. Further, using these factors, a predictive classification of reviewers into high and low level of potential trustworthiness is done using logistic regression with nearly 83% accuracy. Our findings have several implications - firstly, businesses should focus on building a good review-based online reputation; secondly, they should encourage top trustworthy reviewers to review their products and services; and thirdly, trustworthy reviewers could be identified and ranked using reviewer characteristics.

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#### 1. Introduction

The Internet has transformed the way consumers can decide to purchase a product or avail services of a business. Before the advent of the Internet, consumers either trusted word-of-mouth from acquaintances. or just used information provided by the seller to make a buy/no-buy decision. However, a third option has been created with the proliferation of online review sites which offer easy access to electronic wordof-mouth (eWOM) from peer consumers. eWOM can be defined as "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet" [1]. A plethora of websites like Amazon, Yelp, Glassdoor, IMDB, etc. allow peer-evaluated reviews for products, local businesses, employers, movies, etc., respectively. Internet users routinely access online reviews to obtain product information before purchasing [2], and a significant portion of these consumers report that they are influenced by online reviews in their decision-making [3]. According to BrightLocal Local Consumer Review Survey 2016 [4], 91% of US-based respondents have read online reviews to determine the quality of a local business. Thus, it can be expected that online reviews will have a significant impact on sales of products and services. This has been conclusively established multiple times in extant research on eWOM [5–7]. In the context of local businesses, the online reviewer communities have been found to add significantly to their revenues; for example, the average annual revenue from Yelp.com as reported by paid business accounts in a 2012 survey was US\$ 23,000 [8]. In certain categories like Home, the revenue was reported to be much higher at US\$ 54,000. Even opening a free business account on Yelp without any spending on advertising added an average annual revenue of US\$ 8000 to the local businesses. Other studies have directly linked Yelp ratings with revenue, such as a one-star increase in Yelp ratings was found to trigger 5–9% increase in revenue at restaurants [9]. So overall, it can be concluded that online reviewers do play an important role in influencing new customers in making purchase-related decisions.

While there is no doubt regarding the overall importance of online reviews and reviewer communities at large, at a micro level not all individual reviews can have equal impact on consumers for making purchase-related decisions. Using feedback mechanisms on reviews like helpfulness votes, it has been observed that some reviews are more

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accepted and appreciated by readers than others. Reviews which are considered more helpful have been found to have a greater influence on customers' purchase decisions in comparison to other reviews [10]. Research on eWOM has discovered several factors which have been found to significantly affect helpfulness or usefulness of a review. These include review length/depth (word count) and extremity (star rating) [11]; content and style [12]; readability [13]; reader's objectives [14]; subjectivity, informativeness, and linguistic correctness [15]; etc. However, one factor which gets comparatively lesser mention is the trustworthiness of a reviewer producing a review. In our daily lives, we value opinions of people we trust, much more than those of people we do not. Source credibility theory expounds how a communication's persuasiveness is affected by the perceived credibility of the source of communication. So, applying this theory in the context of eWOM, we can expect that acceptance of a review by a prospective customer should, to some extent, get affected by the perceived trust on the reviewer. Earlier studies have conceptualized product review helpfulness as a second-order formative construct manifested through perceived source credibility, and other content-related factors [16]. For instance, reviews that are written by self-described experts have been found to be more helpful than others [17]. Even just simple disclosure of identity information by reviewers in product reviews has been found to be positively associated with acceptance of reviews, subsequently followed by better sales [7]. Thus, there seems to be ample evidence pointing to the inherent need of eWOM readers to be able to know and trust the reviewers in order to accept their reviews. Since acceptance of a review can affect the decision of a customer either in favor of or against visiting a local business, overall patronages of the business should be indirectly affected by average trustworthiness of all reviewers reviewing it. While logically the argument holds well, we are not aware of any previous research till date which has validated the proposition for local businesses. Earlier attempts to test direct impact of top reviewers on product sales did not generate support for the proposed hypothesis owing to certain limitations of data [10]. Hence, for this paper we propose to take up this research question:

RQ1: Does overall trustworthiness of reviewers have any impact on the number of customers visiting the business being reviewed?

The managerial implication of investigating this question is that it may benefit businesses by helping them focus on identifying and targeting the most trustworthy reviewers, and encouraging them to review their products and services. This idea is very similar to the popular practice of top movie critics getting exclusive invitations to premier screenings for writing reviews, or technology companies sending new gadgets to technology bloggers for their expert public reviews. But what we are suggesting is to make the practice more widespread if the impact of reviewer trustworthiness on business patronages is found to be significant.

Assuming that reviewer trustworthiness is found to have an impact on business patronages, the next logical step will be to find a way to identify the trustworthy reviewers. Some online review sites like Yelp allows one to follow reviewers one perceives to be trustworthy, therefore the number of followers of a reviewer can be a good measure of reviewer trustworthiness. However, most websites do not offer such possibilities. In such cases, the only way will be to look into some of the available reviewer profile characteristics, and try to predict the level of trustworthiness. Xu [18] has found that these profile characteristics act as cues of source trustworthiness and play an important role in consumer decision making. An extension of source credibility theory by McCroskey and Jenson [19] identify five source characteristics which can affect credibility – competence, character, sociability, composure, and extroversion. However, this has never been applied in the context of online reviews till date. So we do not know if these dimensions hold true for faceless online reviewers about whom very little personal information is shared on review sites. With the objective of trying to develop a predictive model for reviewer trustworthiness using reviewer characteristics, the following research question is also proposed:

RQ2: Which reviewer characteristics determine the trustworthiness of a reviewer?

To find answers to the two research questions, a dataset from Yelp. com is used, which contains reviews by consumers for over 77K local businesses across multiple cities in four countries. The data includes attributes on reviewers, businesses, reviews, and check-ins (customer visiting a business), and hence is ideal for conducting this research. The number of check-ins is used as a proxy for business patronages, and average star ratings multiplied by review count is used as a proxy for online reputation of a business. We find that reviewer trustworthiness measured in terms of number of followers of reviewers, has a positive moderating effect on the relationship between online reputation and patronages of a business. This means that while better online reputation is associated with better patronages, the relationship can be further boosted if the reviewers are more trustworthy, as compared to if they are less so. Furthermore, we take help from McCroskey's research and published literature on eWOM to identify six reviewer attributes (competence, experience, sociability, reputation, involvement, and positivity) which could be hypothesized to influence trustworthiness in the context of a reviewer community. The proxy measures of these attributes are used as independent variables, and with trustworthiness as a dependent variable, a robust regression analysis is done to identify the significant factors. Finally, a logistic regression model is built to classify reviewers into 'high' or 'low' level of trustworthiness. Our results show a classification accuracy of nearly 83% implying that the model is a pretty good predictor of reviewer trustworthiness.

Overall, this paper makes relevant contributions to literature, being the first paper (to the best of our knowledge, till date) to establish a link between trustworthiness of reviewers and business patronages. It is also one of the few works to identify and empirically validate several reviewer characteristics which can influence trustworthiness. Furthermore, the predictive model developed in this paper can be customized and used by businesses to identify trustworthy reviewers when direct information about reviewers is unavailable. Even online review sites can use it to recommend most trustworthy reviewers and their reviews to the users. Apart from practical utility, the findings from this paper have significant managerial implications for businesses as well. Firstly, businesses can focus on building a good review-based online reputation; secondly, they can encourage top trustworthy reviewers to review their products and services; and thirdly, trustworthy reviewers can be identified and ranked using reviewer-related characteristics.

#### 2. Literature review

Most of the eWOM literature has focused either on finding factors associated with helpfulness of reviews [15,16,20–24], or on discovering the impact of reviews on sales [7,15,25–28]. There are several studies which give importance to reviewers mostly in the context of influencing the helpfulness of reviews [15,17,18,28–32]. For the propositions related to how reviewers influence sales, mixed results have been found. One study [9] has shown a significant positive impact of reviewers certified as 'Elite' in Yelp on business sales whereas another study [10] has not found any significant impact of rankings of reviewers on the sales related ranks of products at Amazon.

However, there are only few studies specific to reviewer trustworthiness. A study by Xu [18] adopts a 2 (number of trusted members: small, large)  $\times$  2 (profile picture: without, with)  $\times$  2 (review valence: negative, positive) between-participants experiment to explore how two personal profile characteristics, reputation cue and profile picture, influence cognitive trust and affective trust towards the reviewer and perceived review credibility respectively and in a combinatorial manner. The findings of the study have shown that reputation cue and profile picture cue contributes differently to users' affective trust and cognitive trust towards the reviewer. Reputation cue that is generated by the system, is found to influence both affective and cognitive dimensions of trust, whereas the self-generated cue of profile picture only

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