Effect of Website Design Characteristics on the Concreteness of Online Reviews: A Construal Level Perspective

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Abstract

Online reviews are a crucial aspect of businesses' success. Thus, businesses encourage reviewers to write reviews offering concrete helpful information but such reviews are scarce. This study attempts to move beyond the traditional approaches to understanding reviewers' behavior and uses a novel lens of 'human construal'. By drawing on Construal Level Theory (CLT) we tend to understand reviewers' and readers' perceptions and utilize that for the maximization of review concreteness. Review concreteness is a semantic characteristic of a review and is considered an important aspect of reviews' perceived quality. We examine if reviewers' and readers' construal can be utilized to manipulate some factors of website design in a way that it drives reviewers to write and readers to perceive more concrete reviews and consequently enhance the overall concreteness of reviews. The study amalgamates literature from psychology, marketing, and information systems and has significant potential to benefit both businesses and consumers.

Keywords: Online Reviews, Review Concreteness, Construal Level Theory, Website Design

Introduction

Online reviews have become a major source of information for consumers to make their purchase decisions. A reputed consumer survey[1] shows, 98% of respondents read online reviews for local businesses and 89% of them agree that these reviews impact their purchase decisions. Further, 92% of customers show more confidence in online review information than in the information they find from a sales clerk or other sources (Brandes and Nolte 2011). Therefore, it is becoming increasingly important for e-commerce and review aggregator platforms to nudge their users to contribute better and more 'concrete' information about products and services that can be useful to others. In fact, review 'concreteness' is considered an important aspect of reviews' perceived quality (Shin et al 2019; Fang et al 2016), and is positively associated with the perceived helpfulness -another prominent proxy of review quality- of reviews (Huang et al 2018; Zhang et al 2021, Fresneda and Gefen 2019; Ghose and Ipeirotis 2010; Mudambi and Schuff 2010; Salehan and Kim 2016). Businesses incentivize reviewers to write high-quality helpful reviews (Berridge 2000), however, the scarcity of such reviews that offer concrete helpful information to genuinely guide the consumers still ubiquitously persists.

Motivated by this problem, we decided to examine the online review domain to explore if research has identified ways to enhance the review concreteness either by influencing reviewers to contribute more concrete information in their reviews (i.e. actual concreteness) or by enhancing the perception of reviews' concreteness for the review readers (i.e. perceived concreteness). We found numerous studies in the domain primarily focusing on understanding the reviewers' behavior and motivations to write reviews, readers' evaluation of the reviews, strategies to encourage reviewers to write effective reviews, the effect of various

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[1] https://www.brightlocal.com/research/local-consumer-review-survey/

incentive mechanisms on reviews quantity and quality, drivers of review quality and its helpfulness, etc., (Wu 2019; Zhang et al 2020; Burtch et al 2018; Otterbacher 2009; Khern-am-nuai et al 2018). However, we did not find significant studies relating to the concreteness of information in online reviews. Given this gap in the academic literature despite the practical importance, we decided to address it partially in this study by identifying some factors that online platforms can practically apply to modify their website designs to improve the 'review concreteness'.

Review concreteness refers to the semantic characteristic of review that focuses on specifics in content involving exact facts and objective information (Shin et al 2019), and is closely related to the concept of human construal. The application of human construal facilitates an understanding of 'how the context shapes mental representations and subsequent outcomes' (Wiesenfeld et al 2017). Nevertheless, studies focusing on the substantial role of human construal in writing and perceiving concrete online reviews are scarce. Additionally, existing literature primarily revolves around common review characteristics e.g., number, length, and depth of reviews, language proficiency, star ratings, valence, etc., whereas it overlooks important features like website design characteristics. Researchers argue that some web design elements like differences in the order of instructions and design characteristics of review platforms matter to reviewers in writing more (or less) concrete reviews (Aerts et al 2017). Additionally, the direction of a reader's head and eye movement as well as the positioning of objects on a webpage makes readers perceive a review's concreteness differently (Kerckhove et al 2015; Peng et al 2013). Hence, we use the theoretical lens of Construal Level Theory (CLT; Trope and Liberman 2003, 2010) to illustrate that the concept of human construal and psychological distance can be effectively utilized to design review websites that facilitate writing and perceiving more concrete reviews by consumers. CLT offers a robust understanding of cognitions and behaviors e.g., prediction, evaluation, and decision-making by explaining how various mental representations are shaped (Wiesenfeld et al 2017) hence, it is most suitable for this study. The specific theory-inspired research question we attempt to examine is: *Can we recommend changes in website design based on the construal levels of review writers and readers to enhance the concreteness of online reviews contributed on the platforms?*

The structure of the paper is: First, we set the theoretical background by discussing CLT and presenting a brief literature review on the application of CLT in the domain of online reviews. Second, we develop hypotheses using CLT along with supporting arguments from relevant studies. Next, we illustrate the prospective experimental design to execute this work-in-progress. Lastly, we discuss the prospective implications and conclude the paper.

Theoretical Framework

Theoretical Lens: CLT

CLT presented by Trope and Liberman (2003, 2010) is a psychological theory that explains the relationship between the distance of events from people's immediate reality (psychological distance) and the way they are represented in people's minds (Sungur et al 2016). It explains people's capability of thinking about the past and future, remote places, other's perspectives, and counterfactual alternatives; in sum, everything one thinks and perceives beyond the present moment. Further, it also facilitates the understanding of why people construe the same activity or event differently.

As per CLT, people construe an event or activity abstractly (or concretely) based on their egocentric psychological distance. Psychological distance is a subjective experience that contains various interrelated dimensions e.g., temporal, spatial, social, and hypothetical. The egocentricity of psychological distance means, its reference point is self in the here and now. Thus the underlying mechanism of CLT is explained as, "*Transcending the self in the here and now entails mental construal, and the farther removed an object is from direct experience, the higher (more abstract) the level of construal of that object*" (Trope and Liberman 2010). In simple words, when the psychological distance is high (low), people construe an object or event more abstractly (concretely) as compared to when it is low (high). For example, if one aims to communicate with another person in the future, the required medium is abstractly represented as 'a communication device' and the finer details such as type of device (i.e. phone or computer) and mode of communication (i.e. audio/video call, e-mail, instant messaging) will not matter, however, if one plans to communicate immediately with a close friend the above mentioned additional details will be crucial.

Perception of online reviews is a subjective process. Studies state that the same reviews are perceived differently by different consumers (Shin et al 2019). CLT helps us understand and explain why and how this happens, including the influence of design elements (Aerts et al 2017). This study takes the context of website design for online reviews and CLT offers a lens to understand how changes in certain website design characteristics prime readers and writes to a different construal level and consequently affects their perception of reviews (for readers) or product/service experience (for reviewers) by manipulating their psychological distances.

Various studies have applied CLT in the context of online reviews to answer questions such as why distinct review readers find the same review more or less helpful, how reviewing at different points of time affects the helpfulness, valence, and concreteness of reviews, how various dimensions of psychological distances interact, how congruency and incongruency among various psychological dimensions affect the predictability of its behavior, which factors affect the readers or reviewers' construal level, what kind of features play role in individual's decision making under high or low construal level, etc. (Zhao and Xie 2011; Brandes and Nolte 2011; Sungur et al 2016; Huang et al 2011; Ding and Keh 2017; Zhang et al 2021). The next section discusses these studies in detail.

Literature Review

Researchers demonstrate people give less weightage to the reviews provided by socially distant others i.e., reviews from couples increase more demand for couples than that for families or singles; further, singles find reviews from couples more relevant than the reviews from families and vice versa; furthermore, the substantially high social distance between the reviewer and consumer group can even lead to ignoring the reviews from another group (Brandes and Nolte 2011).

Next, some studies demonstrate a distance-boosting effect, i.e., the effect of one distance increases the effect of another distance, e.g., temporal and spatial distances enhance the effect of each other, therefore, when the event is temporally and spatially distant, review writers focus on the overall positive experience and avoid minute negative experiences i.e., positivity bias. Another example shows the negative direct effect of social distance on valence turns into a positive effect once it interacts with temporal and spatial distances (Stamolampros and Korfiatis 2018; Huang et al 2016). Researchers say others' recommendations are more persuasive when the social and temporal distances are congruent. Further, these recommendations are more influential for distant future decisions rather than near-future decisions (Zhao and Xie 2011). Kim et al (2008) ascertain the interaction of multiple dimensions of psychological distances is 'subadditive' not linearly additive.

Congruency between the individuals' construal level and psychological distance cues in online messages manipulates users' perceptions. Sungur et al (2016) demonstrate that participants with a high-level construal (abstract) mindset perceive an online message as more believable when the message involves high psychological distances. This happens because the congruency between the individuals' construal level and psychological distance facilitates processing fluency which enhances the perception of truth (believability) and enables positive feelings such as liking, confidence, and higher truth judgment. Using the concept of temporal distance, Shin et al (2015) demonstrate readers construe experiential and factual reviews differently. Additionally, readers' construal levels influence their expectations from the reviews which consequently impacts their perceived usefulness of the reviews. Readers with a high construal level report more perceived concreteness and therefore more perceived usefulness as compared to the readers who have low construal levels. Further, this effect is moderated by the reviews' valence and specificity (Zhang et al 2021). Highlighting the importance of contextual cues in product review evaluation Huang et al (2018) demonstrate that social and temporal contextual cues facilitate variation in helpfulness judgment of review content. Precisely, while temporal cues impact consumers' evaluation of both concrete and abstract reviews, social cues play a role in influencing consumers' evaluation of abstract reviews only. Further, it is claimed that reviews are perceived more helpful when social and temporal distances are jointly near (concrete) vs. distant (abstract) but significant only when they are jointly disparate. Furthermore, the social distance does not directly influence consumers' evaluation of concrete reviews but plays a complementary role to the temporal distance that jointly affects the consumers' evaluations.

To better understand the concreteness of reviewers' language used in describing the products/services on review platforms, researchers explored the relationship between these platform design characteristics such as reviewer identification, reviewer status, length instructions, order of instructions, and reviewers'

language abstraction that is considered as an outcome of reviewer's construal level (Aerts et al 2017). It is found that these design characteristics reduced the language abstraction which further mediated the relationship between the design characteristics and review valence. Peng et al (2019) propose that when users look at an object that is displayed on the top of a webpage, they process it in a relatively abstract way because upward eye movements facilitate distant stimuli. Moreover, the congruency between the advertisement content (concrete vs. abstract) and its position on the website (bottom vs. up) facilitates more persuasive responses from the users.

Examining the effects of fluency and perspective-taking on the perceived helpfulness of online product reviews Chen and Sakamoto (2016) argue, a review when presented in the form of fluent information is perceived as more helpful as compared to one presented in terms of disfluent information when individuals consider a product for themselves (social distance is low), but not when they imagine others purchasing the same product. Luo and Cai (2016) investigate how the variation in webpage color (warm vs. cool colors) affects lenders' preference between benefit and risk when they make a bid. They claim cool (short wavelength) colors such as blue lead people to perceive things farther away, whereas warm (long wavelength) colors such as red make people perceive things nearer.

To summarize, most of the studies are based on review readers' perceptions, whereas reviewer-based studies are scarce. Next, in the case of both review readers and writers, there is a prominent focus on the interaction of various dimensions of psychological distances and the effect of this interaction on their behavior. Though these studies are not contextually very different, they establish important concepts such as the order of instructions, priming, congruency, positioning, etc. By drawing on these studies, our work takes a novel approach of merging and applying these concepts into a new context of website design to understand how changes in website design characteristics can make readers perceive and reviewers write more concrete reviews.

Hypotheses Development

Reviewer-Oriented Hypotheses

Various review platforms and e-commerce websites facilitating online reviews differ in their design characteristics and order of instructions, i.e., providing details such as product photo, star rating, review headline, and review content may (or not) be mandatory. But the order of instructions may matter for review writers. Researchers claim providing a star rating before writing the detailed review primes the reviewer to high-level construal because a star rating represents the abstract evaluation of the products or services (Aerts et al 2017). Similarly, we posit providing a review headline before writing the main review content should prime reviewers to the high-level construal, leading them to write relatively abstract (less concrete) reviews.

H1 (a): Reviewers write more concrete reviews when they provide a review's headline after writing the main review content.

Next, researchers positively associate product photos with reviews' credibility, enjoyment, and usefulness (Shukla and Mishra 2021; Li et al 2022). Moreover, the combination of review text and the user-provided photos demonstrates the best effects on reviews' helpfulness (Ma et al 2018). From the CLT perspective, pictures as compared to text are considered the concrete representation of an object. The text provides only an essence of the object while pictures offer its physical resemblance (Trope and Liberman 2010). Studies show visualization decreases the perceived psychological distance (Li et al 2022), for example, adding a reviewer's photo to his profile reduces the psychological distance between the reviewer and consumer (Hernández-Ortega 2018). Further, visual processing facilitates concrete representations (Yan et al 2016). On similar lines, product photos may reduce the psychological distance between the reviewer and the product. When psychological distance is low, reviewers construe a product at a finer level (Trope and Liberman 2003). Therefore, we reason providing pictures before writing the detailed review will prime reviewers to low-level construal and subsequently enhance the concreteness of the reviews they write. Thus, we hypothesize:

H1 (b): Reviewers write more concrete reviews when they provide the product photo before writing the main review content.

Researchers associate cool colors with higher construal and warm colors with lower construal levels (Luo and Cai 2016). The variations in color wavelength excite (or relax) end-users differently thus their experience of the passage of time differs (Gorn et al 2004; Gorn et al 1997). Warm colors excite individuals, and the perceived time passes slowly so individuals are prone to focus on finer details. Therefore, we argue that when review pages are designed using warm colors, reviewers incorporate finer details in the reviews which subsequently increases the review concreteness. Therefore, we hypothesize:

H2: The reviewers write more concrete (abstract) reviews when review pages are designed with warm (cool) colors.
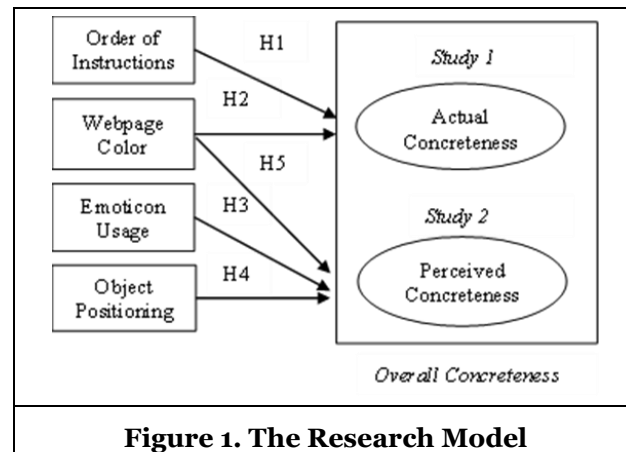

Figure 1. The Research Model

Reader-Oriented Hypotheses

Pictures represent an object/event/activity more concretely than texts do (Trope and Liberman 2010). Further, the identification and classification of objects and processing of information become faster and more efficient when it is presented in pictorial form. Furthermore, the efficiency of the processing increases with the congruency between the psychological distance and presentation medium. A study explaining the psychological mechanism of emoticon usage argues that higher perceived synchronicity of emoticons decreases the psychological distance (Tseng and Hsieh 2019). Therefore, we logically argue that when reviewers support the review texts with pictorial emoticons, it helps readers to better identify, process, and retain this information as compared to when there is only text. Hence, we hypothesize:

H3: Readers construe the reviews supported with related emoticons comparatively more concrete than the reviews which do not include emoticons.

Kerckhove et al (2015) claim, "People are accustomed to looking down to process nearby stimuli and to looking up to process distant stimuli". They demonstrate downward (upward) head and eye movements evoke more concrete (abstract) processing because these movements serve as a proximity (distance) cue. Another group of researchers claims users process top (bottom) positioning objects in a relatively abstract (concrete) way. It happens because variation in positioning creates cognitive differences among customers that consequently persuade them differently (Peng et al 2019). Next, people respond faster when pictures represent psychologically proximal objects and words represent psychologically distal objects (Trope and Liberman 2010). Since pictures are associated with a lower level of construal and users process bottom positioning objects in a relatively concrete way, we logically hypothesize that positioning photos of products and services at the bottom of the review page should increase the congruency between psychological distance and the object, which consequently increases the perceived concreteness of reviews by consumers. Thus, we propose the following hypothesis:

H4: Readers perceive a review more concretely when product photos are positioned at the bottom of a review page as compared to when these photos are positioned at the top of a review page.

Cool (warm) colors make users perceive things farther (closer) hence cool colors are associated with higher (lower) construal (Luo and Cai 2016). Gorn et al (2004) show that the feeling of relaxation (excitement) aroused by the color of the download screen affects the perception of time for users. When people are calm, their perception of time is short i.e., time passes quickly so they focus on abstract details. Based on these

premises we argue, when the review webpage is designed with warm colors, review readers are less relaxed and their perception of time is longer, consequently, they focus on finer details. Therefore, the readers construe the reviews more concretely as compared to when the review page is designed with cool colors. Hence, we hypothesize:

H5: Readers construe a review more concretely (abstractly) when the review page is designed with warm (cool) colors.

Methodology

The literature on online review operationalizes the review concreteness in different ways. Some studies self-categorize the reviews based on the definition of concreteness (Huang et al 2018) while others ask readers to self-report the review concreteness on a 5- or 7-point Likert scale based on questions such as 'Do you find the review concrete?' or does the review you read describes the details of the products? (Shin et al 2019; Shao et al 2021). Additionally, a few studies use language-based approaches such as linguistic categorization models to measure the concreteness (or abstractness) of reviews (Huang et al 2016; Schellekens et al 2010). This study will be conducted in two parts. Study 1 focuses on how review websites can be designed by leveraging reviewers' construals to make them write more concrete reviews, i.e., to enhance the actual concreteness of the reviews. Study 2 deals with considering review readers' construal to design review websites in a way that review readers perceive these reviews more concretely, i.e., to enhance the perceived concreteness of these reviews. In Study 1, the actual concreteness will be operationalized using the linguistic categorization model (Semin and Fiedler 1988) whereas in Study 2 the participants will self-report their perceived concreteness.

Both studies will be conducted in a controlled lab environment using self-developed experiments. The experimental methods offer higher control on the external environment and facilitate the direct manipulation of independent variables of interest. They provide high internal validity and are quite close to offering causal effects. This study attempts to understand the effects of specific changes made to website design characteristics on the review concreteness hence we understand the lab experiments are most suitable for executing this work. The 'between-subjects' design will be used as it facilitates the rapid completion of experiments and restricts the participants' knowledge spillover. To address the minor variations due to participants' specific parameters, e.g., their mood that morning, all the participants will be given a short writing task such as writing about their experience of coming to the test center that morning. Further, they will participate in a 10-minute unrelated fun activity for priming purposes before they start the experiment. All the participants will be randomly assigned to computer systems in the lab and provided with an online account to access the experiment system. Once the participants log in with their designated credentials to the system, they read a brief introduction to the experiment and provide their consent for participation. In each study, they will be performing certain tasks required for testing different hypotheses, per given instructions. The time spent on given tasks will be recorded to ascertain the sincerity of the participant. An incentive mechanism such as gift coupons will be provided to participants post the successful completion of the experiments from their end. This is the common setup for studies 1 and 2 and it is aligned with existing literature (Huang et al 2018; Li et al 2013).

Study 1: Effect of Reviewers' Construal

To test how the understanding of reviewers' construal can be utilized to design review websites in a way that makes reviewers write more concrete reviews, the participants will be made the product reviewers. The participants will be given an audio task where they listen to a short (~ 10 mins) audio clip using a headset. They will be asked to assume that the headset belongs to them. On the next page, the details of the headset except for the brand name, as literature shows that brand name can affect consumers' judgment (Huang et al 2018), will be provided. By clicking the next button, they will see a webpage that similar to many commercial review websites, is designed to write product reviews for the headset participants used during the task. The design of this review page will be manipulated to test different hypotheses. The concreteness of participants' reviews will be measured using the linguistic categorization model for which the review content will be coded (Semin and Fiedler 1988; Trope and Liberman 2010; Huang et al 2016). "The Linguistic Categorization Model (LCM) is a five-level classification scheme that distinguishes between linguistic terms to measure the abstractness of content" (Huang et al 2016). For content coding, linguistic terms are extracted and categorized in each of the five categories and each category is assigned a certain weight depending on its level of concreteness. The most concrete category will have the highest weight.

(Huang et al 2016). To test hypothesis 1(a), the review page for the treatment group will be designed in a way that participants first write review content in the review section and then provide the title (the sections will appear in the same order on the webpage). However, the control group will be asked to write the review title first and then review the content (the sections will appear in a different order than the treatment group). For testing H1 (b), participants will be asked to take and upload pictures of the headset while writing reviews. Like H1 (a), in the case of H1(b) the treatment group will be asked to write review content only after they have uploaded the product pictures whereas the control group will write the review content first and then upload the photos. Lastly, to test H2, treatment, and control groups will be provided identical review pages except that the color of the review page for the treatment group will be red whereas the same for the control group will be blue.

Study 2: Effect of Readers' Construal

To test the effect of readers' construal on their *perceived concreteness* of the online reviews, the subjects will be asked to hypothetically shop for a smartphone. An e-commerce mock-up shopping website will be created which like most e-commerce websites will list the product -a smartphone- attributes such as technical configuration, price, size, color, and online reviews for the product. The product reviews will be extracted from commercial e-commerce websites and manipulated per the task requirement. Since the review concreteness depends on readers' *perception*, they will be asked to self-report the concreteness. After finishing the shopping task, on the next page, subjects will be asked to answer the following questions: 1) Have the product reviews shaped your purchase decision? (Yes/No), 2) Considering, a concrete review includes product attributes whereas abstract reviews convey reviewers' personal experiences with and feelings about the product without discussing product attributes, on average do you find the product reviews concrete? (Yes/No), 3) please rate the extent to which the reviews' concreteness, you believe, affected your purchase decision on the Likert scale of 1-7, where 1 represents 'no effect' whereas 7 shows a 'very high effect' (Das et al 2019). To test the H3, product reviews shown to the treatment group will include emoticons aligned with the review valence whereas the participants belonging to the control group will see the same review content without emoticons. Based on participants' answers to the previously mentioned questions, it is anticipated if users believe that reviews shape their purchase decision (either positively or negatively), they will perceive the reviews as concrete, and the effect of the reviews will be more for the treatment group as compared to the control group. For hypothesis 4, the mock website will show the reviews containing both text and photos. For the treatment group, the review content will be followed by the product photos in a way that photos are presented at the bottom of the webpage, whereas for the control group product photos will be shown first at the top of the page followed by the review content. The reviews can be opened in a new window by clicking on them. To test hypothesis 5, the treatment and control groups will be shown the same product information and reviews, however, the webpage color for the mockup shopping website will be red for the treatment group and blue for the control group. Based on participants' answers, it is expected that the average rating for question 3 will be comparatively higher for the treatment group, which depicts, as a response to the manipulations, the treatment group perceives the product reviews more concretely.

Implications and Conclusion

The common strategies to materialize reviews may vary in their effects based on the reviewers' nature and preferences. Therefore, understanding individuals' construal and how it is associated with website design characteristics is important. Further, the knowledge of how this association impacts the review concreteness will help website designers to design better review websites that encourage users to write more concrete reviews and facilitate readers to perceive the existing reviews more concretely by merely tweaking the webpage color or object positioning.

CLT application in the domain of online reviews is dominated by studies focusing on readers' and not reviewers' construal. Undoubtedly, readers' perception is important, but it is equally crucial that the reviewers write concrete reviews in the first place. This study attempts to focus on both reviewers and readers, which is important to increase the overall concreteness of online reviews and hence can contribute significantly to the research in this domain. Further, this work amalgamates literature from psychology, marketing, and information systems, and has implications for all these streams. In terms of practical contributions, if our recommended website design changes increase the number of reviews with more concrete information, it will surely benefit both businesses and consumers. We hope to complete this research-in-progress, and make a novel contribution to both theory and practice in the near future.

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