

# Engaging Online Review Writing Experience: Effect of Motivational Affordance on Review Quality

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**Abstract.** Online review has become an important repository for consumers to make online buying decisions. However, writing online reviews is a voluntary behavior lacking guidelines and it is hard to guarantee the review quality generated. How to improve online review quality has become a challenge to online retailers and review aggregators. In this study, we explore the design of review writing interface in order to provide engaging writing experience for online reviewers. Using the motivational affordance theory as the theory basis, we define the motivational factors and corresponding design elements, which support reviewers to fulfill their motivation to write their online reviews. We explore how the engaging experience supported by cognitive and social affordances will affect reviewers' writing performance.

**Keywords:** Motivational affordance theory · Online review quality · Engagement · Social presence · Review writing · Interface design

## 1 Introduction

Online review is an important information source for consumers to reduce product uncertainty in making buying decisions. But with the increasing volume of online reviews, consumers are struggling with large volume of information in pre-purchase decision phases, and simplicity and good quality information has become more important to consumer stickiness, leading to higher recommendation to friends and repurchase intention.

In order to relief consumer from online review overload, researchers, online retailers and review aggregators attempt to develop personalization techniques and online review filtering strategy to selectively display online review [1, 2]. [Yelp.com](https://www.yelp.com) rejects more than one quarter of online reviews because they are fake or of poor quality [3]. Such techniques may fail when faced the issues such as cold startup and product review spam, and can be effective only if there are reviews of high quality.

Writing online review is a voluntary post-consumption behavior of consumers motivated by extreme experiences, and the desire to share such experiences. Previous literature on online product communication has found different drivers of online review writing behavior, and researchers have proposed suggestions on how to improve online

review performance by leveraging their findings [4]. Besides, studies on online review helpfulness also suggested guidelines for writing helpful online reviews, which imply the need and the potential of guiding online reviewers to improve their review writing [5, 6]. In this study, we study online review writing as a computer mediated communication behavior, in which online review writing interface serves as a supportive technology to engage online reviewers to achieve their goal. Taken a motivational affordance perspective, this study proposes motivational supportive design of online review writing improves online review quality by providing reviewers engaging experience.

This paper is organized as follows. First, we discuss the extant findings of online review motivation and online review quality. Second, we introduce motivational affordance theory, and propose the research model of this study. Based on this theory, two key motivational affordances are proposed and analyzed: cognitive motivational affordance and social motivational affordance. These two types of affordances generate positive experiences, measured by engagement and perceived social presence, which then encourage online reviewers to write online reviews of better quality. Experiment in movie review setting is designed to test the effectiveness of such design. Finally, potential contributions of this research are discussed.

## 2 Literature Review

### 2.1 Online Review Motivation

After consuming a product or a service, consumers may be motivated by various reasons to share their experiences or feelings via different channels. Online review writing is a social voluntary behavior motivated by the need for reputation, reciprocity and sense of belongingness to the online community [7].

Writing online is motivated by the affiliation to existing online product or review community. The need to belongingness is one of the fundamental drive of human being, and such need motivate people to interact and maintain social bond in order to be satisfied [8]. Online review writing is an act of joining the existing online product communication and fulfilling the sense of belongingness [7]. Social benefit is the most influential determinant motive to online review platform visit frequency and comment writing behavior [9]. According to [4], consumers tend to write reviews on a popular product which has a lot of reviews because the number of previous reviews indicate the popularity of the topics and the presence of potential audience. Such information will attract reviewers to join the conversation as part of the community. When people perceive themselves as the community member, they are intrinsically to share and act for the benefit of other group members [10]. The affiliation to virtual community is one distinct characteristic of online review compared with traditional word of mouth. Reputation is another important motives of online information sharing behavior [11]. Online reviewers perceive the online review platform as the opportunity to establish their reputation by writing online reviews [7]. People are writing reviews to share their experience or opinion to influence or persuade potential audience. The audience of the online review includes the product retailers, the existing product communication community and potential consumers who are interested in the focal product.

To further the present work on online review motivation, our study explores how such motivation can be further exploited to the design of online review writing interface. When reviewers are expressing their opinion, their audiences are invisible. Online review editing interface has different social design elements that serve to visualize certain social presence to reviewers.

## 2.2 Online Review Quality

Although online review provides additional information for consumers to make the purchase decision, it may cause information overload among consumers [12, 13]. The quality, rather than the volume of online review becomes the focus of research in order to improve online buying experience. Previous studies have identified the characteristics, antecedents and consequences of online review quality or helpfulness [5, 13, 14]. However, how to improve online review quality remains a question.

One of the common practice is to use consumers or participants to evaluate the online review quality (or helpfulness), especially using the number of the helpfulness votes. It refers to the helpful votes cast from the consumers who have read the review [15]. In experiment setting, the helpfulness of online review can be measured with the subjective scores given by trained coders [16]. Helpfulness votes of online review is a design feature provided in many e-commerce websites, such as [Amazon.com](https://www.amazon.com). Consumers can vote for the piece of review they found helpful by clicking the helpfulness button. Besides subjective votes of online review, the linguistic characteristics of online review such as readability [15], online review depth [14], as well as source features such as the status of online reviewers are powerful predictors of online review quality [14, 17, 18].

With the predictors of online review helpfulness, designers can develop personalization strategy in displaying the sequence of online review [19]. However, such attempts cannot solve the low-quality review problem. Although studies [6, 21] have suggested guidelines to help online reviewers, there lacks empirical research on the implementation of such findings to influence online review behavior, which is susceptible to the manipulation of writing context [20].

## 2.3 Motivational Affordance

Motivation can affect human behavior in two aspects: the direction and the strength of the behavior. Motivational affordance in information technology design is proposed [22] following the recent work in positive psychology. Affordance is a concept from eco-psychology, referring to the properties of an object or environment and how such properties control or affect human behavior [23]. In interaction design, affordance refers to design features and what such design features offer to the product users, i.e. how things can be designed in a way that the user can easily infer what they afford [24]. Motivational affordance includes two components: the interaction or interface design elements and the process of how such design elements support users to fulfill their motivational need [22].

According to motivational affordance theory, information system or application should be designed to support the major motivational needs of users, which vary according to the contexts and task types [25]. Therefore, designers should first understand what motivates users to adopt and use certain type of information technology. There are three major types of motivational needs: emotional, cognitive and social needs [22]. For example, in the context of group idea generation, people are motivated to achieve self-efficacy and demotivated by social evaluation apprehension [26]. Therefore, goal-setting and timely feedback are identified to provide cognitive support to gain sense of achievement and finally towards better performance [27]. Empirical studies on gamification have examined the design of motivational affordance and its positive effects on psychological and behavior outcomes [28]. Enhancing the motivational affordance design in information system can lead to positive user experience such as engagement and enjoyment, and such positive user experience is associated with the desired behavioral outcomes according to the contexts.

### 3 Hypothesis Development

In this study, we aims to design online review writing interface to enhance individual performance of online review writing. We propose that online review writing needs two types of motivational support: one is social motivation affordance, and the other is cognitive motivational affordance. In the following part, we will provide the rationale of our hypothesis of design guidelines for the effect of engaging online review experience (Fig. 1).

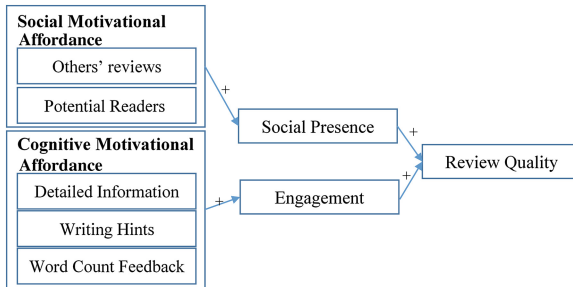


Fig. 1. Research model

#### 3.1 Social Motivational Affordance

Two design features are proposed here to improve the social presence of online product community and the potential audience of online review. Others' reviews of a product refer to the individual comments written by the previous reviewers. Potential readers refer to the consumers, who are interested in the product, i.e. online consumers who have marked down the products for future buying.

Different types of communication cues can change perceived social presence in computer mediated communication context, and such changes in social presence level will influence group communication behavior [26, 29]. Low social presence level leads to lower commitment behavior to social group, such as greater group polarization [26]. The media of high social richness could evoke the quality of social interaction during a mediated social interaction [30]. In online review writing, presenting previous online reviews and the potential readers of the online product review can be visualized as the communication cues to demonstrate the presence of community to belong and audience to reach. Supported by such communication clues, online reviewers can enhance the perceived social presence level of online community and audience. Social presence of the website in turn, enable the sense of connection between the website and its visitors [31]. More specifically, empirical evidence has shown that the provision of online reviews increased the level of social presence, which strengthened the social bonds between the readers and the website [32].

*Hypothesis 1. Social motivational affordance (others' reviews, potential readers) is positively associated with perceived social presence.*

People are motivated to write online as a way to establish social connection with online product community. Enhancing the social motivational affordance in online review writing contexts can improve the quality of online review performance for several reasons. First, visual cues of previous reviews makes the presence of online product community or online word of mouth community more salience. Second, salient online product community motivates reviewers to feel stronger social presence of other reviewers and exemplify the need to communicate and establish social bond. Third, to some extends, writing online review serves as a way for online reviewers to share their personal feelings on the same item with community members. Therefore, with the presence of visual cues of online product community, online reviewers will be more motivated to write online reviews. People tend to share their personal feeling and experience with the audience of closer social distance. Emotion information also influences how consumer perceives the helpfulness of online review [21].

*Hypothesis 2. Perceived social presence is positively associated with online review quality.*

### **3.2 Cognitive Motivational Affordance**

Competence is a psychological need that everyone strives to fulfill. Competence as psychological need provides a source of motivation for exerting efforts necessary to overcome optimal challenges [33]. Optimal challenge is represented a level of difficulty and complexity that fit the focal individual's current knowledge and skill. With the provision of cognitive support in the writing interface, online reviewers form an engaging writing experience because the level of task difficulty is lessen with the design of cognitive affordance. Three cognitive motivational affordances are proposed in the context of online review writing: detailed product information, writing hints and word count feedback.

Detailed product information can assist reviewers in recalling product related information. According to cue-summation theory, the number of available cues or

stimuli increases effectiveness of learning [34]. Rich product presentation enhances consumers product knowledge, which leads to higher perceived usefulness of the website [35]. Supported with more information cues in the writing phase, online reviewers can relate their consumption experience with the information and write more informative reviews. The presence of an external memory can serve to reduce the burden on the consumer's internal memory. That is, both internal memory and external memory can be viewed functionally as sources of information [36]. Besides, people are more cognitively absorbed in the task when perceiving task-related cues [37]. Therefore, we propose that providing product-related information can increase user engagement in writing online reviews. Writing hint module is often adopted in blog writing assistant system, and study has shown that such function can improve users' writing performance with higher system satisfaction [38].

Timely feedback combined with optimal challenge supports people to evaluate their performance. Word count feedback refers to the number of words that user has written. Length of online review is an important indicator of online review depth [14]. Online reviewers can use review length as a timely feedback to evaluate their contribution compared with their past performance or norms of online review community. With such meaningful evaluation supported by the feedback, reviewers are more engaged in the writing task itself.

*Hypothesis 3. Cognitive motivational affordance (detailed product information, writing hints and word count feedback) is positively associated with online review engagement.*

User engagement is associated with positive outcome of online system across different contexts. For example, higher user engagement leads to better user performance in online product understanding, and higher intention to the website [35]. Cognitive absorption is positively related with task participation and learning satisfaction in virtual world context [37]. Besides, recent study on online review has found that online reviewer engagement characteristic improve the prediction of online review helpfulness [1]. Therefore, when online reviewers are more engaged in online review writing task, they are more likely to write online review of higher quality.

*Hypothesis 4. Online review writing engagement is positively associated with online review writing quality.*

## 4 Method

We design lab experiments to test the hypothesis. In the experiment, we will explore whether the design of motivational affordances can offer social presence and engage users. Four designs will be implemented: social affordance group, cognitive affordance group, social-cognitive affordance group and control group.

### 4.1 Procedures

First, participants are invited to read and signed the informed consent and notified the basic steps of the experiments. Second, participants need to finish a questionnaire about

their online review experience. Third, participants are led to a web page to watch a short film and write an online review on it after watching it. There are four manipulated online review writing interfaces: social affordance interface, cognitive affordance interface, interface including both social and cognitive affordance, and the control interface. Forth, after submitting the online reviews, they will fill in a questionnaire about their experience on the online review-writing page. Perceived social presence and engagement adapted from [30, 39] will be measured. Manipulation check will be provided to see if the participants have noticed such design elements.

## 4.2 Dependent Variables

The dependent variables are the online review quality. According to previous research, we will consider the review quality from the review depth, review helpfulness and other dimensions. We will use Amazon mechanic Turk to credit the quality index the online reviews. In our study, we will exam the online review writing performance from two important factors of online review adoption: online review quality and online review helpfulness. Online review quality is framed as argument quality “the strength or plausibility of persuasive argumentation” [40, 41], and can be evaluated in terms of the information content, accuracy, format, and timeliness [42]. In terms of helpfulness, we will adopt the measurement of online review helpfulness in [21, 43].

## 5 Contribution

This study contributes to the literature of online review and motivational affordance theory. First, this study designs experiment to investigate the mechanism of motivation to online review writing while previous studies on online review motivation use survey method to explore the general determinants of online review generation [9]. How the social motivation and cognitive needs can be satisfied during review writing process can be examined through the experiment design. Second, compared with online review consumption activities, review writing behavior has been received less attention from IS literature. This study offers insights on the locus of review writing behavior, and enriches the repertoire of behaviors studied by IS community. Thirdly, this study is an application of motivation affordance theory in information system artifact design. More empirical evidence of motivational affordance theory is needed towards a stronger design theory [27]. Future study may look at how to generalize the design process of motivational affordance design, and such attempts may offer practical significance to guide the industry.

## References

1. Ngo-Ye, T.L., Sinha, A.P.: The influence of reviewer engagement characteristics on online review helpfulness: a text regression model. *Decis. Support Syst.* **61**, 47–58 (2014)

2. Yu, J., Zha, Z., Wang, M., Chua, T.: Aspect ranking: identifying important product aspects from online consumer reviews. In: *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies*, vol. 1, pp. 1496–1505 (2011)
3. Luca, M., Zervas, G.: Fake it till you make it: reputation, competition, and yelp review fraud. Harvard Business School NOM Unit working paper, No. 14–006 (2013)
4. Dellarocas, C., Gao, G., Narayan, R.: Are consumers more likely to contribute online reviews for hit or niche products? *J. Manag. Inf. Syst.* **27**(2), 127–157 (2010)
5. Huang, A.H., Yen, D.C.: Predicting the helpfulness of online reviews a replication. *Int. J. Hum. Comput. Interact.* **29**(2), 129–138 (2013)
6. Mudambi, S.M., Schuff, D.: What makes a helpful online review? A study of customer reviews on amazon.com. *Manag. Organ. Rev.* **34**(1), 185–200 (2010)
7. Cheung, C.M.K., Lee, M.K.O.: What drives consumers to spread electronic word of mouth in online consumer-opinion platforms. *Decis. Support Syst.* **53**(1), 218–225 (2012)
8. Baumeister, R.F., Leary, M.R.: The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychol. Bull.* **117**(3), 497–529 (1995)
9. Hennig-Thurau, T., Gwinner, K.P., Walsh, G., Gremler, D.D.: Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet? *J. Interact. Mark.* **18**(1), 38–52 (2004)
10. Hars, A., Ou, S.: Working for free? Motivations for participating in open-source projects. *Int. J. Electron. Commer.* **6**(3), 25–39 (2002)
11. Constant, D., Kiesler, S., Sproull, L.: What's mine is ours, or is it? A study of attitudes about information sharing. *Inf. Syst. Res.* **5**(4), 400–421 (1994)
12. Park, D.-H., Lee, J.: eWOM overload and its effect on consumer behavioral intention depending on consumer involvement. *Electron. Commer. Res. Appl.* **7**(4), 386–398 (2008)
13. Baek, H., Ahn, J., Choi, Y.: Helpfulness of online consumer reviews: readers' objectives and review cues. *Int. J. Electron. Commer.* **17**, 99–126 (2012)
14. Mudambi, S.M., Schuff, D.: What makes a helpful online review? A study of customer reviews on amazon.com. *Manag. Inf. Syst. Q.* **34**(1), 185–200 (2010)
15. Korfiatis, N., García-Bariocanal, E., Sánchez-Alonso, S.: Evaluating content quality and helpfulness of online product reviews: the interplay of review helpfulness vs. review content. *Electron. Commer. Res. Appl.* **11**(3), 205–217 (2012)
16. Tsur, O., Rappoport, A.: RevRank: a fully unsupervised algorithm for selecting the most helpful book reviews. In: *International Conference on Weblogs and Social Media* (2009)
17. Li, M.X., Huang, L.Q., Tan, C.H., Wei, K.K.: Helpfulness of online product reviews as seen by consumers: source and content features. *Int. J. Electron. Commer.* **17**(4), 101–136 (2013)
18. Lee, E.-J., Shin, S.Y.: When do consumers buy online product reviews? Effects of review quality, product type, and reviewer's photo. *Comput. Human Behav.* **31**, 356–366 (2014)
19. Krestel, R., Dokoochaki, N.: Diversifying product review rankings: getting the full picture. In: *2011 IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology*, pp. 138–145 (2011)
20. Michael, L., Otterbacher, J.: Write like i write: herding in the language of online reviews. In: *Proceeding of 8th International AAAI Conference on Weblogs and Social Media*, pp. 356–365 (2014)
21. Yin, D., Bond, S.D., Zhang, H.: Anxious or angry? Effects of discrete emotions on the perceived helpfulness of online reviews. *Manag. Inf. Syst. Q.* **38**(2), 539–560 (2014)
22. Zhang, P.: Toward a positive design theory: principles for designing motivating information and communication technology. In: Avital, M., Boland, R.J., Cooperrider, D.L. (eds.) *Designing Information and Organizations with a Positive Lens*, pp. 45–74. Elsevier, Amsterdam (2008)



23. Jones, K.S.: What is an affordance? *J. Ecol. Psychol.* **15**(2), 37–41 (2010)
24. Norman, D.A.: *The Design of Everyday Things*. Basic books, New York (2002)
25. Zhang, P.: Motivational affordances: reasons for ICT design and use. *Commun. ACM* **51**(11), 145–147 (2008)
26. Sia, C.-L., Tan, B.C.Y., Wei, K.-K.: Group polarization and computer-mediated communication: effects of communication cues, social presence, and anonymity. *Inf. Syst. Res.* **13**(1), 70–90 (2002)
27. Jung, J.H., Schneider, C., Valacich, J.: Enhancing the motivational affordance of information systems: the effects of real-time performance feedback and goal setting in group collaboration environments. *Manag. Sci.* **56**(4), 724–742 (2010)
28. Hamari, J., Koivisto, J., Sarsa, H.: Does gamification work?—a literature review of empirical studies on gamification. In: *2014 47th Hawaii International Conference on System Sciences*, pp. 3025–3034 (2014)
29. Williams, E.: Experimental comparisons of face-to-face and mediated communication: a review. *Psychol. Bull.* **84**(5), 963 (1977)
30. Biocca, F., Harms, C., Burgoon, J.K.: Toward a more robust theory and measure of social presence: review and suggested criteria. *Presence* **12**(5), 456–481 (2003)
31. Hassanein, K.S., Head, M.: Building online trust through socially rich web interfaces. In: *Proceedings of the 2nd Annual Conference on Privacy, Security and Trust*, pp. 15–22. Fredericton, New Brunswick, Canada (2004)
32. Kumar, N., Benbasat, I.: Research note: the influence of recommendations and consumer reviews on evaluations of websites. *Inf. Syst. Res.* **17**(4), 425–439 (2006)
33. Deci, E.L., Ryan, R.M.: *Intrinsic Motivation and Self-determination in Human Behavior*. Springer, New York (1985)
34. Severin, W.: Another look at cue summation. *Av Commun. Rev.* **15**(3), 233–245 (1967)
35. Jiang, Z., Benbasat, I.: The effects of presentation formats and task complexity on online consumers product understanding. *MIS Q.* **31**(3), 475–500 (2007)
36. Bettman, J.R.: Memory factors in consumer choice: a review. *J. Mark.* **43**(2), 37–53 (1979)
37. Goel, L., Johnson, N.A., Junglas, I., Ives, B.: How cues of what can be done in a virtual world influence learning: an affordance perspective. *Inf. Manag.* **50**(5), 197–206 (2013)
38. Liu, C.-L., Lee, C.-H., Ding, B.-Y.: Intelligent computer assisted blog writing system. *Expert Syst. Appl.* **39**(4), 4496–4504 (2012)
39. O'Brien, H.L., Toms, E.G.: Examining the generalizability of the user engagement scale (UES) in exploratory search. *Inf. Process. Manag.* **49**(5), 1092–1107 (2013)
40. Cheung, C.M.K., Thadani, D.R.: The impact of electronic word-of-mouth communication: a literature analysis and integrative model. *Decis. Support Syst.* **54**(1), 461–470 (2012)
41. Eagly, A.H., Chaiken, S.: *The Psychology of Attitudes*. Harcourt Brace Jovanovich College Publishers, San Diego (1993)
42. McKinney, V., Yoon, K., Zahedi, F.M.: The measurement of web-customer satisfaction: an expectation and disconfirmation approach. *Inf. Syst. Res.* **13**(3), 296–315 (2002)
43. Sen, S., Lerman, D.: Why are you telling me this? An examination into negative consumer reviews on the web. *J. Interact. Mark.* **21**(4), 76–94 (2007)

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