

# Online Reviewer Engagement: A Typology Based on Reviewer Motivations

Charla Mathwick<sup>1</sup> and Jill Mosteller<sup>2</sup>

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## Abstract

Consumers who generate online reviews provide a vital information service for the buying public, influencing nearly half of all purchase decisions. This study focuses on factors that motivate online reviewer engagement (ORE). ORE is a contextually dependent psychological state characterized by varying degrees of altruistic and egoistic market-helping motives coupled with an individual's intrinsic motivation to review when the needs for autonomy, competence, and social relatedness are fulfilled. Amazon.com's top reviewer community, which uses a public ranking system to motivate, recognize, and influence reviewer behavior, provides the study's context. Three reviewer types—*indifferent independents* (IIs), *challenge seekers* (CSs), and *community collaborators* (CCs)—all report altruistic motives; however, egoistic motives associated with rank and psychological need fulfillment vary. IIs fulfill autonomy needs by using the platform for self-expression, with rank exerting little influence. CSs view rank as a game to master. CCs, who have fully integrated the ranking system, perceive reviewing as an enjoyable, socially embedded experience that merits advocacy. This study extends engagement theory by linking market-helping motives and psychological need fulfillment with high levels of behavioral engagement. Thus, findings may help managers tailor reviewing environments to attract and retain a diverse and highly engaged reviewing community.

## Keywords

engagement, altruism, egoism, intrinsic motivation, self-determination theory

Studies estimate that product and service reviews are the primary factor behind 20–50% of all purchase decisions and that 30% of U.S. consumers report turning specifically to Amazon.com reviews when beginning their purchase research (Bughin, Doogan, and Vetvik 2010; Simonson and Rosen 2014). Reviewers have joined the growing ranks of empowered consumers (Labrecque et al. 2013) engaging in an altruistic form of market helping that benefits the buying public while also satisfying egoistic motives of many of those involved (Bendapudi, Singh, and Bendapudi 1996; Hennig-Thurau et al. 2004). Firm-controlled reviewing platforms provide the enabling infrastructure to support reviewer activities. These customer-centric, information-intensive service systems (Huang and Rust 2013), equip reviewers to serve in the role of information service provider for the buying public, “shaping how customers serve themselves before, during, and after purchase” experiences (Ostrom et al. 2015, p. 127). This suggests that the act of reviewing is one of the most influential expressions of customer engagement.

Despite the benefits of online reviews, the buying public has become skeptical toward review content (Drolet 2013), questioning information trustworthiness and credibility when ulterior motives are suspected (Reichelt, Sievert, and Jacob 2014; Verlegh et al. 2004). In response, Amazon has taken legal action against those attempting to influence or “buy” bogus reviews on its site (Anderson 2015). A central challenge for

firms sponsoring a reviewing platform is the need to preserve reviewer independence while also attempting to align these “value-creating engagement practices” with their strategic goals (Schau, Muñiz, and Arnould 2009, p. 42). Amazon has attempted to meet this challenge by introducing a public ranking system to recognize legitimate reviewer contributions and reward sustained review quality, by coupling the social influence of public feedback with interactive, communication infrastructure. On the Amazon site alone, 10,000 reviewers are publicly ranked with some having sustained their reviewing activities for more than a decade. It is not uncommon for top reviewers to generate hundreds of product and book reviews over the course of a year. Our goal in this study is to understand what motivates reviewers and how public ranking systems embedded in a reviewing platform affect the “propensity to engage, and the types of engagement behaviors” displayed (Van Doorn et al. 2010, p. 263).

<sup>1</sup> School of Business, Portland State University, Portland, OR, USA

<sup>2</sup> Sykes College of Business, The University of Tampa, Tampa, FL, USA

## Corresponding Author:

Charla Mathwick, School of Business, Portland State University, P.O. Box 751, Portland, OR 97207, USA.

Email: mathwickc@pdx.edu

Although professional critics generate review content in exchange for compensation, the vast majority of product and service reviews posted online are voluntarily generated, with content being largely determined, freely offered, and controlled by the reviewers. In this study, we focus on volunteer reviewers and the motivators of their engagement. Self-determination theory (SDT; Deci and Ryan 2002) provides a framework for examining the effect of externally controlled “feedback or rewards” on the intrinsic motivation to voluntarily act. SDT and its associated subtheories draw specific attention to the perceived fulfillment of three contextually sensitive psychological needs that underlie intrinsically motivated behavior—autonomy, competence, and social relatedness (Koestner and Losier 2002).

The purpose of this study is to develop a typology of online reviewer engagement (ORE), a form of consumer engagement (Brodie et al. 2011) that occurs when volunteers generate reviews within the context of a firm-controlled reviewing platform. Although our focus is on the reviewer’s experience, this type of information service system benefits both the reviewer and the buying public. Integrating insights from the engagement, market helping, and motivation literature, we define ORE as a contextually dependent psychological state characterized by varying degrees of altruistic and egoistic market-helping motives, coupled with the intrinsic motivation to act when psychological needs for autonomy, competence, and social relatedness are fulfilled.

We empirically identify three reviewer types, each exhibiting significant differences in perceived experience, associated engagement intentions, and behaviors. We draw from SDT and its subtheories to provide a theoretical basis for interpreting individual differences in the ORE experience and to validate the proposed typology by examining segment-specific differences. We find that while one reviewer type may disregard the public ranking system and is engaged mainly because the platform provides a means of self-expression, the other two reviewer types remain fully engaged but for different reasons. One type approaches reviewing as a game to be mastered, an enjoyable, albeit relatively solitary, hobby. The other fully integrates the public ranking system into the motivation to review, expressing a willingness to advocate on behalf of the system and the reviewing community that surrounds it.

In the following sections, we describe ORE in relation to other forms of engagement and engagement typologies. Drawing from the motivational literature, we discuss the contextual dependencies influencing ORE and highlight the theoretical and substantive outcomes of firm-controlled feedback on ORE experience and behavior. We employ multivariate techniques to empirically investigate the proposed ORE typology. Theoretical and managerial implications, study limitations, and future research directions follow.

## Theoretical Background

### *Customer Engagement Typologies*

In the marketing literature, the study of engagement and identification of engagement types is typically set in consumption

communities held together by a shared enthusiasm for specific brands (Algesheimer, Dholakia, and Herrmann 2005; Muñiz and O’Guinn 2001; Schau, Muñiz, and Arnould 2009) or by the need for technical support associated with product usage (Mathwick, Wiertz, and de Ruyter 2008). Research has differentiated engagement types in these communities depending on participant competence (e.g., expert vs. novice; Algesheimer, Dholakia, and Herrmann 2005), longevity of contribution (e.g., wiki vs. newbie; Mathwick, Wiertz, and de Ruyter 2008), and social relatedness (i.e., tourists, minglers, devotees, and insiders; Kozinets 1999). Consumer segments operating independently to maintain blogs or engage via social media outlets have been differentiated based on underlying motives. These include altruistic concern about others, egoistic motives (e.g., economic rewards, reputational enhancements), and intrinsic motives linked to the desire for interaction and identification benefits (Hennig-Thurau et al. 2004).

### *The Reviewing Environment*

Reviewing platforms equipped with public ranking systems have been widely implemented, even though “theory-driven research to shed light on [participant] behavior vis-à-vis such mechanisms” has yet to emerge (Dellarocas 2003, p. 1422). The reviewing environment examined in this study aims to foster communication and trust and to facilitate collaborative experiences. In addition to public rankings, community forums, frequently asked questions boards, contributor profiles, and published contact information are all examples of interactive features designed to create “multiple feedback loops” that simulate real-time communication (Brodie et al. 2013). Engagement is an interactive experience that involves two-way exchange (Brodie et al. 2011; Hollebeek, Glynn, and Brodie 2014). However, rather than focus solely on the exchange that takes place between the reviewer and the buying public, we extend our focus to include the triadic exchange among the reviewer, the buying public, and the firm managing the reviewing platform. Automated ranking systems serve as the interactive mechanism that allows the buying public to signal review helpfulness and the firm to incent alignment with organizational objectives (Schau, Muñiz, and Arnould 2009).

Although reviewers are free to write what they like, system designers use feedback and ranking mechanisms to “specify who can participate, what type of information is solicited from participants, and how it is aggregated” (Dellarocas 2003, p. 1410). For example, ranking systems employ proprietary algorithms to provide buyer feedback (e.g., Amazon’s buyer helpfulness ratings), signal market influence (e.g., YouTube’s number of views or “likes”), and display reviewer expertise (e.g., Travelocity’s restaurant and lodging badges). By publicizing this information, firms can highlight differences in contributor quality, longevity, focus, and social standing (Wiertz, Mathwick, and de Ruyter 2009). The reviewing communities that form around these systems operate as a type of service environment, in which value is cocreated through an exchange process that involves a configuration of people, technology,

and information that is shared (Edvardsson, Tronvoll, and Gruber 2011; Jaakkola and Alexander 2014).

### *The Contextually Dependent Nature of the ORE Experience: Domain and Situational Motives*

We delineate the contextual dependencies that influence the ORE experience using a framework provided by Vallerand (2000), who describes three levels of “motivational generality” relevant to self-determined behaviors: global, domain, and situationally specific. At the global level, individual differences in causality orientation (Deci and Ryan 1985b) reflect a predisposition in the perceived locus of causality associated with reviewer engagement. Causality orientation theory, a subset of SDT, holds that individuals differ in their tendency to perceive themselves in control of versus under the control of contextual influences (Oleson et al. 2010).

The domain level of motivational influence refers to the focal sphere of an activity (Vallerand and Ratelle 2002). Reviewing activities occur within the domain of market-helping behavior (Bendapudi, Singh, and Bendapudi 1996), in which altruistic and egoistic motives operate. Altruistic-helping motives are reflected in the selfless act of enhancing another’s welfare through the investment of personal resources (e.g., time, effort, money) in the absence of tangible returns (Simon 1993). In this study, we define altruistic-helping motives as the desire to help consumers make informed buying decisions. This contrasts with egoistic-helping motives, which reflect a desire for reputational enhancement, identification benefits, self-gratification, and associated hedonistic or economic rewards (Cheung and Lee 2012; Cialdini et al. 1997; Cialdini, Darby, and Vincent 1973; Hennig-Thurau et al. 2004; Wasko and Faraj 2005). Given our focus on public rankings, we define the egoistic-helping motive in terms of the desire to maintain and improve one’s public rank in a reviewing community.

At the most granular level, the focal environment fosters situationally specific motives (Vallerand and Ratelle 2002), reflected in an individual’s response to external influences used to directly regulate self-determined behavior. Within the context of a reviewing platform, social and informational cues (i.e., community status resulting from a reviewer’s public rank) are the external influences of interest. SDT suggests that external influences overlaid on self-determined behavior may be capable of inducing motivational states ranging from a-motivated disengagement to intrinsically motivated advocacy.

The nature of an individual’s response to external attempts to regulate self-determined behavior is the subject of organismic integration theory (OIT; Deci and Ryan 2002), a subtheory of SDT. According to OIT, response to regulatory pressure is associated with an individual’s causality orientation, which in turn influences the perceived fulfillment of three psychological needs—autonomy, competence, and social relatedness. When fulfilled, these needs operate as motivators, sustaining the intrinsic motivation to act (Deci and Ryan 2002; Sheldon and Gunz 2009). Should a need deficit be perceived, however,

efforts to regain “balanced need satisfaction” will be triggered (Baumeister and Leary 1995). The result is a tendency to gravitate to situations that support need fulfillment and to disengage from those that do not.

Of the three needs, autonomy is the most critical (De Charms 1968; Deci and Ryan 1985a), reflecting a sense of self-determination that is enhanced when decisional control gives an individual freedom over what to do and how to go about doing it (Ryan and Deci 2000). Autonomy is essential to maintain self-directed, intrinsically motivated behaviors and is a prerequisite to creating optimal experiences online (Mathwick and Rigdon 2004). In this study, we define autonomy as freedom of expression, reflecting perceived control over review content, regardless of community or firm pressure. The psychological need for competence extends beyond skill attainment to a sense of confidence derived from “feelings of efficacy” (Holbrook et al. 1984, p. 729). We adopt a past-referential perspective to define competence (Elliott, McGregor, and Thrash 2002), which emphasizes demonstrated effectiveness resulting from persistent effort to hone one’s capabilities. Finally, social relatedness refers to integration into a social network and an experienced sense of acceptance, security, and belongingness (Baumeister and Leary 1995; Deci and Ryan 2002). Social relatedness in this context reflects friendship and the ability to get along with members of the reviewing community and/or the buying public through the review experience.

### *Individual Differences in the ORE Experience*

OIT is a staged framework (Deci and Ryan 2002) used to describe a continuum of motivational responses when the “promise of a reward, [establishing] a deadline, or success versus failure feedback” (Deci and Ryan 1985b, p. 113) is imposed on self-determined behavior. As individuals comprehend, appreciate, and integrate these motivators, their sense of self-determination, attitudes, perceptions of system fairness, advocacy intentions, and ultimately behavior can be affected. The OIT continuum is anchored by a-motivation and disengagement at one extreme, compliance and identification at the midpoint, and intrinsically motivated advocacy at the other extreme. While all participants may demonstrate high levels of behavioral engagement, the degree to which extrinsic and intrinsic motivational drivers underlie their behavior may differ (Koestner and Losier 2002).

Causality orientation complements the OIT framework by providing an explanation for the way external forces are perceived and influence behavior. For some, an external motivator may have little or no effect; for others, it may drive intended behavior; and for those who perceive it as aligning with their own values, it may contribute to the intrinsic motivation to act. Considered “a relatively enduring aspect of personality” (Deci and Ryan 1985b, p. 109), one’s causality orientation is situationally sensitive to social and informational cues (Deci and Ryan 2002; Oleson et al. 2010). Amazon’s public ranking system uses both social and informational cues in the form of

helpfulness votes from the buying public and the publication of reviewer rank.

### *The OIT Continuum: From Alienation to Advocacy*

Individuals located at the a-motivated extreme of the OIT continuum perceive themselves as being at the whim of some external agent “who wields resources and recognition, independent of their behavior” (Deci and Ryan 1985b, p. 112). This perceived loss of autonomy fosters a sense of ineffectiveness, alienation, and negative emotion that can undermine self-determination. The closer an individual is to the a-motivated end of the OIT continuum, the “less fair [a regulatory system] is rated” (Deci and Ryan 1985b, p. 127). Fairness perceptions form from the means and processes used to allocate resources (Rhoades and Eisenberger 2002). In this study, community rank is the resource being allocated, and the perception of fairness is based on a reviewer’s understanding of and appreciation for the procedures that determine community rank. A-motivated reviewers are likely to reject the ranking system and the firm’s authority to administer it. The resulting sense of alienation and disengagement can undermine fulfillment of competence needs or weaken social connections.

At the midpoint of the OIT continuum, individuals respond with grudging compliance to external motivators that take on a “determinative role in their behavior” (Deci and Ryan 1985b, p. 112), spurring them toward mastery and eventual identification with the system. In an attempt to avoid guilt and anxiety or maintain self-esteem in the face of public recognition, this type of individual will work to fulfill competence and relatedness needs, even though they may perceive constraints on their autonomy.

The structure afforded by such systems may actually be something individuals with this orientation seek out. They are likely to interpret public feedback as informational rather than as pressure to conform, precluding the projection of task-specific competencies onto their self-worth (Amabile et al. 1994). The consequence is task involvement that tends to foster a self-determined motivation to act (Plant and Ryan 1985; Ryan 1982). As feelings of efficacy emerge through mastery, compliance gradually gives way to personal identification. Reviewers predisposed to this orientation are likely to work to enhance their community status and the reputational benefits associated with public rank. Rather than reject the firm’s authority to publicize rank, reviewers who fall at the midpoint of the continuum may come to view the challenge of rising in the ranking system as a game of skill (Deci and Ryan 1985b; Mosteller and Mathwick 2014).

Individuals located at the advocacy end of the continuum tend to view external feedback as indistinguishable from personal beliefs related to how they should operate in such an environment. When fully integrated, external motivators tend to be perceived as fair in terms of process and operating procedures, leading to a “high degree of experienced choice” with respect to their own behavior (Deci and Ryan 1985b, p. 111). Such individuals tend to interpret feedback as informative

rather than evaluative, an affirmation of their competence. Focal behavior becomes intrinsically motivated, is sustained over time, and is often associated with advocacy on behalf of the associated experience (Deci and Ryan 2002).

## **Method**

### *Research Context*

The context for this study is Amazon’s top reviewer community (<https://www.amazon.com/review/top-reviewers>), a prolific book and product reviewing community with 10,000 publicly ranked individual contributors. Initiated in the late 1990s, the reviewer community was an alternative to Amazon’s original strategy to employ professional literary critics (Marcus 2005). The decision to replace professional employees with amateur and volunteer reviewers has revolutionized the marketing of all types of products and services (Pinch and Kesler 2011). To generate a review, contributors must register with the community by creating a contributor profile. In some instances, reviewers create elaborated profiles, sharing personal details and contact information, and becoming active participants in community forums. At the other extreme, reviewers can request that their names or identifiers be masked, maintaining little or no community engagement.

Reviewers rise in rank in the community depending on three broad criteria: the overall helpfulness of their reviews as judged by the buying public, the number of reviews written, and how recently reviews are written. Reviewer rank is updated every 2 days, allowing new reviews and new helpfulness votes to be factored into each reviewer’s rank. Rankings are relative, which means that someone can move up or down in rank because of another reviewer’s activity. Although the basis for rankings is disclosed, the actual algorithm used to determine rank is not. Because of the lack of specificity in the scoring process, the perceived fairness and integrity of the ranking system have surfaced as a frequent topic of discussion within Amazon community forums (Mosteller and Mathwick 2014).

While Amazon does not directly compensate reviewers, it may invite highly ranked reviewers to become part of the Vine Voices program, making them eligible for indirect compensation in the form of free samples of prereleased products or books from vendors. Vine reviews, identified by a green-striped signifier, are independent opinions of Vine reviewers. Neither the vendor nor Amazon influence, modify, or edit these reviews as long as they comply with the posting guidelines.

### *Data Collection*

Data came from a subset of active reviewers in Amazon’s top reviewer community who responded to an online survey invitation. We presented the study as an “academic research project associated with a university located in the Pacific Northwest,” conducted independent of Amazon or other commercial interests. We collected both quantitative and qualitative data using a combination of closed-ended survey questions

(see the Appendix) and a final open-ended question inviting additional comments. Survey items included measures of psychological needs (i.e., autonomy, competence, and social relatedness); altruistic and egoistic motives; and attitudes related to ranking fairness, hobbyist enjoyment, advocacy intentions, and an estimate of 12-month reviewing volume. Data collection took place in two waves; the initial survey invitation was sent to the top 2,500 ranked reviewers, followed by an e-mail invitation to the 716 reviewers (28.6%) who provided an e-mail address on their profile page. Three hundred and seven reviewers responded, yielding 280 completed surveys. In comparing the contact method and completion rate, 42 completed surveys came from reviewers responding to the forum invitation, and 238 were in response to the direct e-mail contact. Analysis of responder Internet Protocol addresses indicated that multiple survey response was not a problem.

Given the relatively high rank of the reviewers contacted, coupled with the fact that many published an e-mail address, respondents may be somewhat biased. Providing contact information may reflect reviewers' interest in encouraging social contact with peers or members of the buying public (i.e., "fans" in the language of the community). Consequently, we would expect to find an overrepresentation of reviewers predisposed to facilitating social connections through their reviewing activity. This sample may also exhibit insider characteristics with strong ties to the online group and to the consumption community (Kozinets et al. 2010).

### Analysis Approach

Data collection largely relied on adaptations of existing scales. Confirmatory factor analysis (CFA) was used to test the psychometric properties and theoretically implied relationship between administered items and their latent constructs. The typology of ORE is based on a cluster variate comprising psychological needs and market-helping motives that we posit constitute the ORE experience. We employed a two-staged process, beginning with hierarchical clustering to determine the number of clusters, followed by a K-means clustering procedure (Hair et al. 1995). Using multivariate analysis of variance (MANOVA), we examine the effect of reviewer type on four theoretically and substantially implied outcomes: perceived fairness of ranking procedures, the perception of reviewing as an intrinsically enjoyable hobby, willingness to advocate for the reviewing experience, and sustained reviewing behavior. To provide a rich description of empirical findings, we also analyzed quotes collected during the survey process, sorted by the reviewer's cluster affiliation (Patton 2002).

### Measurement

We adapted items related to the three focal psychological needs to reflect "domain-specific measures" (Deci and Ryan 1985a, p. 131; Reis et al. 2000). This included a 3-item autonomy scale, a 5-item scale related to competence, and a 3-item social relatedness scale. We adapted the 2-item altruistic-helping

motive scale from Clary et al. (1998). Relying on forum comments reviewed by both researchers and published empirical findings from a related study (Mosteller and Mathwick 2014), we developed a 3-item scale for the egoistic-helping motive.

To validate cluster results, we examined segment differences related to four theoretically implied and practical outcomes. Specifically, we adapted a 4-item scale that measures the perceived fairness of the public ranking system (Folger and Konovsky 1989). We adapted a 2-item scale related to attitudes toward reviewing as an enjoyable hobby from Mathwick and Rigdon (2004). We measured advocacy for the Amazon reviewing experience using Reichheld's (2003) willingness-to-recommend scale, and 12-month reviewing volume was a self-reported open-ended response. We measured most items with 7-point scales, anchored by *not at all true* and *very true*. Exceptions include the fairness construct, measured on a 7-point Likert-type scale, and the advocacy construct, measured with a single-item, 10-point scale. The final question invited respondents to "add any additional comments or feedback you would like to share."

## Results

### Measurement Model

Given the predominance of measures adapted from previously published work, a CFA was used to test the psychometric properties of the multi-item scales administered (Anderson and Gerbing 1988). Following initial estimation of the model and inspection of the modification indices, we deleted 3 items iteratively to enhance model fit. The final measurement model, based on an analysis of the full data set ( $N = 280$ ), yielded an acceptable model fit ( $\chi^2 = 467.25_{(168\ df)}$ ; normed  $\chi^2 = 2.8$ ; root mean square error of approximation = .07, CFI = .93). We assessed convergent validity of the constructs using an average variance extracted (AVE), which ranged from .57 to .75, exceeding the cutoff value of .50 (Fornell and Larcker 1981). Composite scale reliability yielded values of .80 to .88, which exceed the recommended cutoff value of .70 (Nunnally and Bernstein 1994). We measured discriminant validity using the criterion suggested by Fornell and Larcker (1981), who contend that for discriminant validity to exist between two constructs, the AVEs from both constructs must be greater than the variance shared by the two (i.e., the squared correlation coefficient). All construct pairs met this condition (see Table 1). The Appendix provides the item wording and psychometric properties of the administered scales. The correlation matrix associated with the measurement model appears in Table 1.

### Reviewer Engagement Typology Procedure

To develop the proposed ORE typology, we use a two-stage procedure involving hierarchical clustering, followed by a K-means approach to identify the final cluster solution (Cannon and Perreault 1999; Hair et al. 1995). We employed Ward's method and squared Euclidean distance to determine the hierarchical clustering. All measures included in the cluster

**Table 1.** Correlation Matrix and AVE Comparison.

Variables	AVE	Social	Autonomy	Competent	Fairness	Egoistic Helping	Altruistic Helping	Enjoyable hobby	Advocacy	Reviews
Social	.57	1.00								
Autonomy	.67	0.23(.05)	1.00							
Competent	.57	0.29 (.09)	0.10 (.01)	1.00						
Ranking fairness	.61	0.20 (.04)	0.14 (.02)	0.18 (.03)	1.00					
Egoistic helping	.71	0.17 (.02)	−0.02 (.0004)	0.24 (.06)	0.23 (.05)	1.00				
Altruistic helping	.75	0.21 (.04)	0.14 (.02)	0.09 (.01)	0.14 (.02)	0.08 (.01)	1.00			
Enjoyable hobby	.71	0.25 (.06)	0.14 (.02)	0.63 (.40)	0.22 (.05)	0.29 (.08)	0.22 (.05)	1.00		
Advocacy	<sup>a</sup>	0.33 (.11)	0.19 (.04)	0.31 (.09)	0.21 (.04)	0.14 (.02)	0.31 (.10)	0.41 (.17)	1.00	
12-Month reviews	<sup>a</sup>	−0.09 (.01)	−0.12 (.01)	0.04 (.002)	0.06 (.004)	0.18 (.03)	0.06 (.004)	0.20 (.04)	−.02 (.0004)	1.00 (.0003)

Note. The statistics in the second column are the average variance extracted (AVE) for each construct. The remaining statistics represent the correlation coefficient between two constructs. The squared correlation coefficient is in parentheses.

<sup>a</sup>Advocacy and 12-month review volume are single-item measures. Confirmatory factor analysis modeling assumes  $\theta\epsilon = 0$  for single-item measures, therefore, AVE cannot be calculated.

**Table 2.** Analysis of Agglomeration Coefficient for Hierarchical Cluster Analysis.

Number of Clusters	Agglomeration Coefficient	Percentage Change in Coefficient to Next Level (%)
10	940.07	5.2
9	989.47	6.2
8	1,050.56	7.3
7	1,126.99	7.3
6	1,209.41	8.2
5	1,308.30	7.6
4	1,408.10	<b>9.2</b>
<b>3</b>	<b>1,537.83</b>	<b>23.1</b>
<b>2</b>	<b>1,892.53</b>	<b>28.0</b>
<b>1</b>	<b>2,413.09</b>	

Note: The bold values signify large changes to find preliminary evidence of the number of cluster solutions in the data.

variate (i.e., altruistic and egoistic motives, autonomy, competence, and social relatedness needs) used the same 7-point scale, so standardization was unnecessary. We removed one extreme outlier, identified following the first iteration of the hierarchical analysis. To identify large relative increases in cluster homogeneity, we calculated the percentage change in the agglomeration coefficient from 10 to 2 clusters, looking for large changes. This procedure provided evidence of a three-cluster solution. To reduce the potential influence of other outliers on the hierarchical solution and evaluate the solution stability, we randomly selected six additional subsamples from the complete data set, each of which represented two thirds of the observations, and repeated the analysis (Cannon and Perrault 1999). The three-cluster result was stable across the subsamples (see Table 2; Hair et al. 1995).

For the second stage of the clustering procedure, we used the quick cluster K-means procedure in SPSS (Version 23), specifying a three-cluster solution to “fine-tune the results from the hierarchical procedure” (Hair et al. 1995, p. 453). This approach “selects the necessary seed points randomly from among the observations” (Hair et al. 2006, p. 589). The pattern of cluster

means (centroids) serves to generate cluster labels. The means associated with altruistic-helping motives are high across all clusters, consistent with results reported by Hennig-Thurau et al. (2004), who find that the desire to help the buying public is a common factor underlying electronic word-of-mouth communication in general. For the remaining means, we find that reviewers in the first cluster, labeled *indifferent independents* (II,  $n = 70$ ), exhibit relatively high autonomy means, while egoistic-helping motives satisfied by community rank are the lowest in the sample. Those in the second cluster, labeled *challenge seekers* (CS,  $n = 104$ ), exhibit the lowest social relatedness means, coupled with relatively strong egoistic-helping motives. Those in the third cluster, labeled *community collaborators* (CC,  $n = 106$ ), exhibit consistently high means across all variables, suggesting a fully integrated, intrinsically motivated segment. Table 3 reports the final cluster means and an analysis of variance test involving cluster centers.

We used MANOVA to test a combination of theoretical and practical outcomes of the reviewing experience as a function of ORE type. Using variables not previously included in the cluster procedure—perceived ranking fairness, enjoyable hobby, advocacy, and 12-month reviewing volume—this test provides insight into the cluster characteristics, allowing for more robust cluster profile development. Controlling for reviewer start date, the MANOVA revealed highly significant mean differences associated with these four outcome variables across the three reviewer types (Wilks's  $\lambda$ :  $F = 13.337, p = .000$ ). Perceived fairness of the ranking system ( $M = 4.98$ ), reviewer advocacy for the Amazon reviewer experience ( $M = 8.36$ ), and the perception of reviewing as an enjoyable hobby ( $M = 6.44$ ) were all significantly higher ( $p < .01$ ) for the CC reviewers relative to other reviewer types. The CS reviewers differed from the II reviewers in their perception of reviewing as an enjoyable hobby ( $M = 5.65$  vs.  $M = 5.26, p < .01$ ) and 12-month reviewing volume ( $M = 108$  vs.  $M = 66, p < .01$ ). There was no significant difference in 12-month reviewing volume between the CS and the CC reviewers. Differences in perceived fairness of the monitoring systems and reviewer advocacy were not significant between the CS and II reviewers. Table 4 summarizes the full MANOVA results.

**Table 3.** Psychological State of Online Reviewer Engagement.

K-Means Cluster Centers						
Psychological Drivers	Indifferent Independents ( <i>n</i> = 70)	Challenge Seekers ( <i>n</i> = 104)	Community Collaborators ( <i>n</i> = 106)			
Egoistic helping (community rank)	1.90	4.94	5.17			
Altruistic helping	5.71	5.61	6.19			
Competence	4.99	4.90	6.24			
Autonomy	6.10	5.68	6.61			
Social relatedness	3.42	2.84	4.96			
Analysis of Variance: Significance Testing of Differences Between Cluster Centers						
Variables	Mean Square	<i>df</i>	Mean Square	<i>df</i>	<i>F</i> <sup>a</sup>	Sign.
Egoistic	263.167	2	1.081	277	243.337	.000
Altruistic	9.793	2	1.049	277	9.332	.000
Social relatedness	124.256	2	1.052	277	118.087	.000
Autonomy	22.948	2	0.907	277	25.303	.000
Competence	56.812	2	1.178	277	48.244	.000

<sup>a</sup>The *F* tests should be used only for descriptive purposes because the clusters have been chosen to maximize the differences among cases in different clusters. The observed significance levels are not corrected for this and thus cannot be interpreted as tests of the hypothesis that the cluster means are equal.

**Table 4.** Multivariate Analysis of Variance: Mean Differences by Online Reviewer Engagement Type.<sup>a</sup>

Variables	Indifferent Independents Cluster 1	Challenge Seekers Cluster 2	Community Collaborators Cluster 3
	<i>n</i> = 70	<i>n</i> = 140	<i>n</i> = 106
Enjoyable hobby	<i>M</i> = 5.26*** (2, 3) <sup>b</sup> ( <i>SE</i> = .114)	<i>M</i> = 5.65*** (1, 3) ( <i>SE</i> = .094)	<i>M</i> = 6.44*** (1, 2) ( <i>SE</i> = .093)
Ranking fairness	<i>M</i> = 4.20 ( <i>SE</i> = .124)	<i>M</i> = 4.38 ( <i>SE</i> = .101)	<i>M</i> = 4.98*** (1, 2) ( <i>SE</i> = .100)
12-Month reviewing volume	<i>M</i> = 66 ( <i>SE</i> = 12)	<i>M</i> = 108*** (1) ( <i>SE</i> = 10)	<i>M</i> = 93* (1) ( <i>SE</i> = 10)
Advocacy	<i>M</i> = 6.50 ( <i>SE</i> = .262)	<i>M</i> = 6.64 ( <i>SE</i> = .215)	<i>M</i> = 8.36*** (1, 2) ( <i>SE</i> = .213)

<sup>a</sup>Wilks's  $\lambda$ :  $F(4, 274) = 3,121$ ;  $p = .000$ ; Covariate: reviewer start date. <sup>b</sup>Results for II Reviewers<sup>a</sup> reported as: *M* = 5.26\*\*\* (2, 3) indicates that the mean = 5.26 differs at the  $p < .01$  level when compared to results reported for both CS reviewers as well as CC reviewer.

\*Significant at  $p < .10$ . \*\*Significant at  $p < .05$ . \*\*\*Highly significant at  $p < .01$ .

### Indifferent Independents (II)

To add rich description, we integrate open-ended comments made by respondents from each ORE segment. While these quotations do not serve to confirm the findings, they do illustrate the examined experience (Patton 2002). II reviewers exhibit weak egoistic motives and social relatedness means, suggesting a rejection of the public ranking system and limited social attachment to the community. Autonomy appears to be the defining characteristic, as II #4 describes, "I [review] when I want to, on what I want, in the way I want to." In contrast, social connections seem irrelevant: "I don't KNOW any other members, and I have NO interaction with them, nor any feelings about them one way or the other" (II #35).

Egoistic-helping motives are lower than any other motives, as II #8 describes: "I don't know my ranking and honestly have no interest in it." II #29 is a bit more emphatic, stating "about the ranking system, I couldn't care less." Although egoistic motives do not carry much sway, a pragmatic take on altruistic-helping motives did emerge: "[T]oo many products

are put on the market with obvious flaws or bad design. It's important that individual consumers report junk to other potential buyers" (II #13). Reiterating the need for autonomy, II #33 describes helping as "incidental" to the expression of "opinions about subjects that I care about."

Despite the freedom of expression afforded by Amazon's reviewing platform, the alienated tone of many II reviewers suggests an impersonal orientation to Amazon's ranking system. As II #1 elaborates, "[Amazon] stacks the deck in favor of bad/poorly reviewed books." II #41 describes the retribution resulting from writing a negative review: "the author will have his hit squad go in and trash your review and destroy your 'helpful' ratings." II #3 describes Amazon as "ineffective at curbing the increasing number of abusive reviews," while II #40 depicts the ranking system as "designed to kick long term reviewers out of the top spots," describing the rankings as having a "review or die bias." II #43 sums up this disaffected attitude as follows: "Amazon now seems to be a forum for the masses who have no interest in great literature or its nuances. I am currently searching for a more enlightened forum."

Considering their advocacy scores (Reichheld 2003) and the sentiments expressed, II reviewers are unlikely to advocate on behalf of the Amazon review experience. They also report the lowest number of reviews generated in the sample. A possible explanation is the preponderance of professionals in this segment (Kozinets et al. 2010). II reviewers variously described themselves as “professional writers [with] an agent” (II #20), critics who “review on commission occasionally” (II #18), academics “teaching at the fresh-soph level” (II #12), and experts who “review books in [their] own field” (II #8). In general, II reviewers seem to reject Amazon’s public ranking system and its reviewing community, focusing instead on the professional benefits afforded by publishing reviews.

### Challenge Seekers (CS)

CS reviewers fall between the alienation and advocacy extremes of the OIT continuum. They exhibit a counterintuitive combination of low social relatedness to the community and high motivation to improve their public rank. CS #45 describes the impact of Amazon’s control over the ranking system as follows:

I was really disappointed that Amazon ditched the ‘Classic Reviewer’ rankings . . . . After 14 years, they pulled the only bit of recognition they ever gave me for providing them with 300,000 words of totally free and (dare I say) excellent content.

Theory suggests that individuals located at the midpoint of the OIT continuum grudgingly comply with regulatory mechanisms, as suggested by this comment from CS #18: “I have gone through stages of focusing on the ranking as a target and stages of not being very interested in it. Ultimately, it’s too hard to control the ranking.”

This segment exhibits the lowest level of social relatedness in the sample, exemplified by CS #12’s experience with the community: “On the few occasions that I have gone onto the reviewer forums, [I have found participants to be] harsh, petty, critical bullies.” Although exhibiting signs of social exclusion, these egoistically motivated reviewers generate review content at a level comparable to the CC reviewers. A balance between altruistic and egoistic motives appears to operate, as CS #43 describes:

This month is my 14th anniversary of reviewing on Amazon. Helping people make an informed buying decision is important to me. However, as the years have gone on my ranking has also become important to me—just not AS important as helping people.

Enjoyment and the inherent challenge of reviewing seem to drive CS reviewers significantly more than II reviewers. This reviewer type appears to be determined to simply master the system, a challenge that CS #20 describes: “I wish I could write reviews that would attract more ‘helpful’ clicks [and] I wish that people who click ‘unhelpful’ would comment on why they felt that way.” In this case, buyer feedback seems to be experienced as developmental, precluding the projection of task-specific

competencies as indicators of self-worth. The result preserves the reviewer’s perceived locus of causality (De Charms 1968) and task involvement, strengthens commitment to the organization (Amabile et al. 1994), and prompts the intrinsic motivation to act (Plant and Ryan 1985; Ryan 1982). CS #12 reacts to the public ranking system as follows: “[A]t times I can become very competitive with myself to elevate my rankings. When this is the case I generate more reviews and attempt to accurately identify and address the major area of concern for a buyer.”

CS #36 expresses a hobbyist attitude, stating “[r]eviewing is not just a hobby but also a form of escape from everyday pressures and problems. When I review, I become absorbed in the process and forget any worries.” CS #17 elaborates as follows:

I review to game the Amazon system. Specifically, I pick something that has few reviews, but will probably be popular and then try to write a lengthy review of that item. Amazon reviewing is entertaining because you can rig it to be a “Top Reviewer” with little effort.

CS reviewers are the most prolific on the Amazon platform. In addition to rank, Amazon’s Vine Voices program provides a means to incent top reviewers with free books or products. Pinch and Kesler (2011) estimate that nearly 50% of the volume generated by top-ranked reviewers is Vine Voices supported. CS #16 describes the appeal of this program as follows: “[R]ankings are interesting, but my reviewing ‘pays’ for my books.” Being a “Vine member [is] the major reason I started doing tons of reviews this year” (CS #20). The Vine Voices program introduces a two-tiered system, adding to perceptions of unfairness, as CS #40 describes:

Vine members get free products, some of which when reviewed can hurtle them through the ranks with only a relatively few reviews. And then there are the rest of us. It just seems grossly unfair.

Although prolific, this grudging sense of unfairness may explain the low advocacy scores associated with this segment. As CS #2 explains, “I find Amazon’s approach to serious book reviews profoundly wrong and self-serving.”

### Community Collaborators (CC)

CC reviewers perceive significantly higher levels of psychological need fulfillment than the other reviewer types. Their scores are the highest among all segments, suggesting that all three needs (autonomy, competence, and social relatedness) operate in harmony with one another. This segment uses reviewing to satisfy needs for competence, with CC #64 describing the reviewing experience as having “greatly aided my writing skills . . . . [T]he Amazon reviewing system is a major contributing factor to my love of writing.” CC reviewers appreciate the socially embedded reviewing community; for example, “I have made friends with others and buy many of the books they recommend” (CC #12). Direct interaction with



the buying public reinforces market-helping behavior, particularly when reviewers receive a “your-review-made-me-buy-the-book” comment.

CC reviewers are the most engaged, aligned, and interconnected reviewers in our sample, evidenced in their willingness to operate as advocates for the system. CC #56 describes his advocacy experience as follows:

I told a neighbor of mine who teaches reading/writing for “at risk” high school students . . . that encouraging them to write reviews for Amazon, Yelp, etc. would be great for [his] literacy project. They get “published” immediately.

Reviewing is intrinsically motivating, as CC #36 describes: “I write mainly for myself, to process and settle a book in my mind.” CC #19 takes this a step further, describing reviewing as “a very fascinating hobby,” which CC #61 also admits “can easily become an addiction.”

CC reviewer comments also suggest a willingness to work with Amazon on system design issues. For example, CC #31 stated, “I think Amazon’s feedback system is excellent. Whenever I have come across [fake/shill reviews], I have e-mailed Amazon CS, and EVERY SINGLE TIME, Amazon has acted quickly, investigated and removed the obviously fake reviews.” According to OIT, fully integrated participants in a regulated environment recognize, accept, and are willing to support system objectives. They not only identify with such systems but also embrace them as an extension of their own values.

In summary, II reviewers appear alienated by Amazon’s ranking system and the community that surrounds it, reviewing instead to satisfy their need for autonomous self-expression. CS reviewers appear egoistically motivated by the enjoyment of mastering the ranking system, striving to be helpful, largely as a means to boost community rank. With significantly lower advocacy scores than CC reviewers, both II and CS reviewers exhibit characteristics associated with detractors rather than potential promoters of this reviewing experience (Reichheld 2003). CC reviewers exhibit interdependencies with Amazon, advocating on behalf of the system and developing meaningful personal relationships with peers and the buying public. Figure 1 provides a summary of the ORE typology with individual differences in the key study variables used to profile each of the three segments.

## Discussion

### *Theoretical Implications*

This study contributes to the literature in three ways. First, we extend the study of engagement to the reviewing context, developing a typology that illustrates the contextually dependent psychological state associated with an ORE experience. We introduce a multilevel motivational framework relevant to the ORE context at domain-specific and situationally-specific levels. The psychological state associated with ORE varies as a function of altruistic and egoistic motive strength and combines

with perceived psychological need fulfillment, which is known to underlie the intrinsic motivation to act.

Second, this research introduces SDT and its associated theories, as a means to explain the effect of process and infrastructure mechanisms specific to firm controlled, ORE environments. We attribute observed reviewer responses to individual differences in their causality orientation. Although we do not directly measure causality orientation in this study, we do measure the theoretically implied consequence of one’s causality orientation manifested in the relative intensity of perceived psychological need fulfillment.

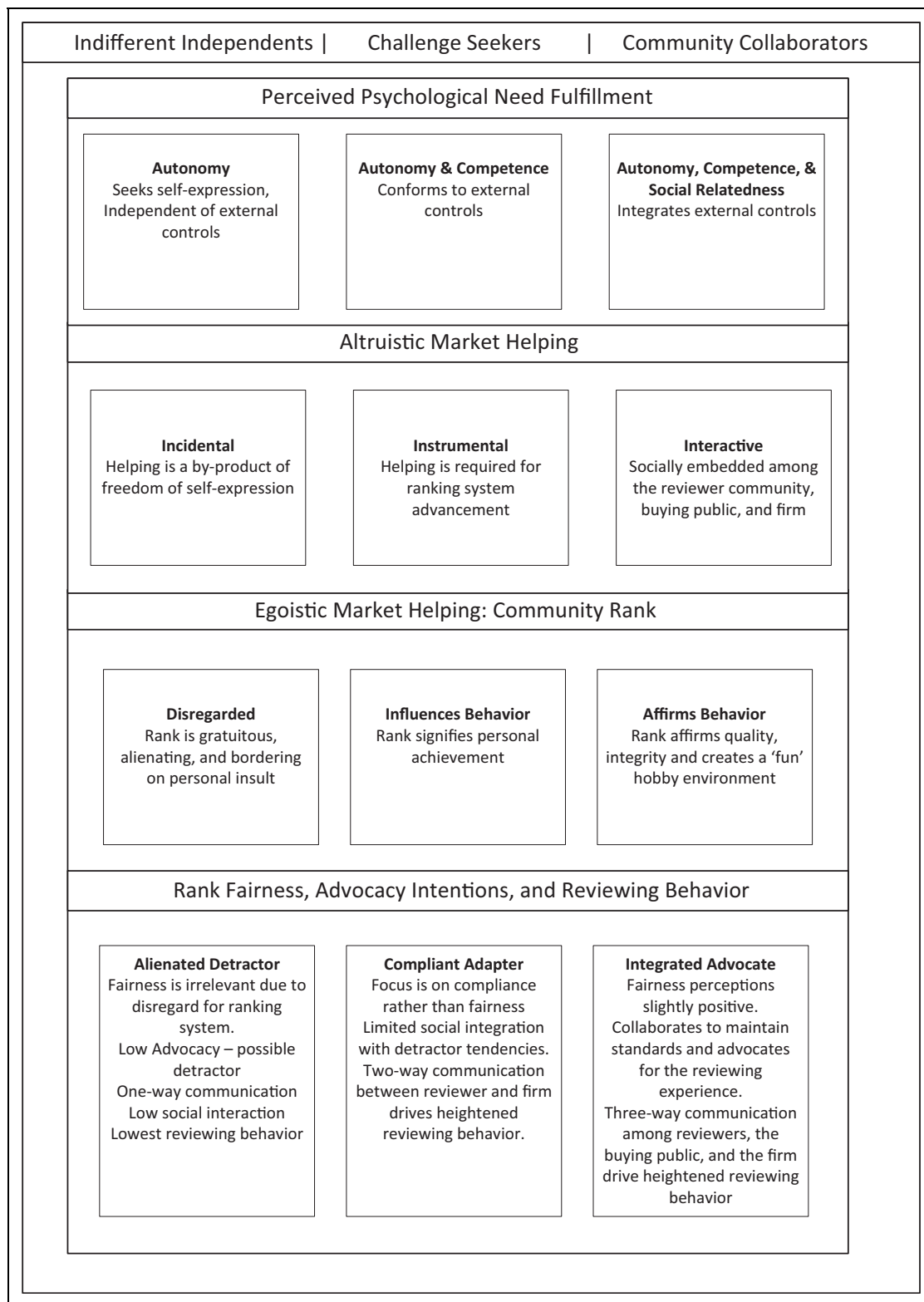
Third, this study provides an initial glimpse into the range of reactions that can arise from firm attempts to influence ORE using public feedback systems. Segment-specific reactions illustrate significant differences in perceived fairness, hobbyist attitudes toward ORE, and willingness to advocate for, as well as sustain reviewing behavior within firm controlled environments.

### *Managerial Implications*

Managers interested in harnessing the value created by reviewers can use the findings to formulate segment-specific strategies tailored to individual differences in the ORE experience. Segment-specific motives and needs fulfilled by ORE reveal material differences in response to the reviewing experience. II reviewers are the opportunists of the community, using product reviewing to support professional or quasi-professional pursuits. CS reviewers engage more for the personal challenge, regarding reviewing as a game to be mastered. Finally, the CC reviewers are team players who work with Amazon, one another, and the buying public to create a mutually beneficial reviewing experience.

Segment-specific differences related to the social dimension of reviewing and the response to the public ranking system are particularly pronounced. II reviewers appear to view market helping as an incidental by-product of professional or avocational interests. Although these reviewers generate significant content, they show little regard for the ranking system or the community that surrounds it. For firms aiming to attract this market segment, systems that facilitate the publication and sharing of II reviewers’ reviews and a ranking system that carries enough credibility to enhance their professional standing would likely be appealing. We do not expect members of this segment to be a source of advocacy for the reviewing environment, in light of their opportunistic nature. Given how productive they can be, however, enabled exploitation of the review system as a means to support their professional or personal interests may be justified.

Among the CS reviewers, learning to be “helpful” is a prerequisite to advancing in the ranking system. This segment is characterized by strong egoistic motives fueled by the helpfulness feedback built into the ranking system. Complying with the ranking criteria appears to be part of a solitary leisure pursuit that offers an enjoyable challenge characterized by intense concentration, as individuals become engrossed in the ORE



**Figure 1.** Online reviewer engagement typology.

experience (Higgins and Scholer 2009). The “vigor” Patterson, Yu, and de Ruyter (2006) associate with consumer engagement behavior is evident in comments and sustained reviewing behavior, which one CS reviewer characterized as “an escape,”

suggestive of telepresence and a flow state (Mathwick and Rigdon 2004). For CS reviewers, the reviewing system is not their responsibility; their investment extends only to what is required to progress up the ranks. The introduction of

gamification techniques may further enhance the reviewing experience for this segment. Managers may also find that facilitated learning appeals to this reviewer type, as members attempt to optimize their ability to be helpful.

CC reviewers appear deeply engaged in using the interaction tools built into the reviewing platform to connect with fellow reviewers, with their fan base, and with Amazon. The significance of CC reviewers' social connectedness suggests that reviewing is a socially embedded experience for them, representing an important element of their personal lives (Koestner and Losier 2002). Marketers aiming to nurture engagement within this segment should invest in interactive systems such as fan designations to help reviewers amass a following, offer expanded profile options to reveal elements of their personal lives, and implement discussion forums to facilitate communication. Interactive tools foster an enjoyable, socially embedded experience that helps promote advocacy for the experience.

### *Limitations and Further Research*

Interpretation of the study findings relies on empirical testing of survey data, supplemented by open-ended responses from study participants. The respondents targeted in this study are among the most engaged in Amazon's reviewer community. Nonetheless, the findings from such an engaged sample can provide meaningful insights that are both theoretically and managerially relevant (Kozinets 2002). Researchers, however, should be judicious in generalizing these results, given that study respondents are operating exclusively on Amazon's reviewing platform. The proprietary nature and limited transparency of Amazon's algorithms may be eliciting responses unique to that system, thereby limiting generalizability of the study findings. We encourage researchers to apply SDT, causality orientation, and OIT within other engagement contexts to validate and extend the findings from this preliminary work.

Given the characterization of product reviewing as a hobby, researchers might consider formally applying play theory (Holbrook et al. 1984) to the analysis of the ORE experience. Any investigation of the gamification of the reviewing experience suggests a need to focus research attention on questions related to the importance of the transparency and rigor with which rules governing this form of play behavior are enforced (Huizinga 1955). This perspective may uncover additional insights relevant to hosting, staging, and managing various reviewer types or engagement behaviors.

Product and service reviews have become a common service system feature (Bughin, Doogan, and Vetvik 2010), designed to enhance the usability of e-commerce services in particular. Within the context of service marketing, in which trust is often a prerequisite to buying behavior, signaling mechanisms such as reviewer rank are likely to play an important role. We acknowledge the limitations in our measurement of the egoistic-helping motive as well as identify an opportunity to extend the study of market-helping motives in future work. Also warranted is further investigation into the dimensionality

and psychometric properties of both altruistic and egoistic reviewer motivations. To extend the findings reported in this study, researchers might build on the work of Cialdini et al. (1997) and Cialdini, Darby, and Vincent (1973) to create a more comprehensive measure of market-helping motivation.

Public ranking systems are designed to acknowledge and reward contributors; however, some researchers have argued that they may also act as an automated system to ostracize low performers (Lustenberger and Jagacinski 2010). Researchers might consider examining the impact of community rank on reviewers who perceive differences in social inclusiveness created by such systems. Moreover, in line with Khare, Labrecque, and Asare's (2011) recommendations, we encourage researchers to adopt the perspective of the buying public to investigate how reviewer rank may influence consumer decision making online.

Advocacy is a key metric relevant to the monitoring of organic growth and the vitality of sponsored communities. Researchers interested in harnessing the value created by engagement should consider investigating the effect of advocacy within various engagement contexts. For example, is a shift in reviewer advocacy associated with community growth trends? Is review quality and advocacy for the reviewing experience related? Is a detractor versus advocacy tendency related to the frequency of positive versus negative reviews? Investigation of these questions could build on the work of Hollebeek and Chen (2014) to offer another fruitful area of study.

The perceived fairness of a public ranking system (Rhoades and Eisenberger 2002) is influenced not only by what is rewarded but also by how the recognition procedures themselves work. Perceived fairness comprises two dimensions: distributive justice related to the perceived equity of public recognition outcomes and procedural justice related to the criteria determining the means and processes of resource allocation (Rhoades and Eisenberger 2002). Psychological contract theory provides a framework for examining these dimensions (Rousseau and Snehla 1998) and may be relevant to researchers interested in directly investigating the impact of procedural versus distributive sources of fairness on firm-controlled engagement experiences. Differences in the influence of firm controlled versus market feedback (i.e., number of helpfulness votes, likes, or thumbs-up) on reviewer engagement, perceived fairness, and reviewer motivation represent another unexplored area that merits future investigation.

Firm-controlled reviewing environments provide a platform for reviewers to expand their reach and subsequent market impact. Programs such as Amazon's Vine Voices facilitate awareness of new products, encouraging early adopters to participate in diffusion initiatives. Understanding the degree to which product seeding influences the review process, its credibility, and reviewer motivation are all worthy topics for further research.

In this study, we measured reviewer response to public feedback in terms of motives, perceived psychological need fulfillment, attitudes, and behavioral intentions. Researchers might consider validating these theoretically implied relationships by

directly examining the role of a reviewer's causality orientation on perceived need fulfillment, across a variety of reviewing and other engagement contexts. Insight into the role of one's causality orientation in the self-selection process initially triggering

ORE also merits future study. Finally, extending this study to a variety of engagement contexts may help researchers uncover other factors relevant to the design and management of mutually beneficial engagement experiences.

## Appendix

**Table A1.** Survey Measures.

Construct	Item Wording	Loading (Completely Std)	t Value
Social relatedness <sup>a</sup> CR = .80 AVE = .57	I really like the people I interact with in the Amazon top reviewer community. I get along with the people I come into contact with when posting reviews. I consider the people I interact with in the Amazon forums to be my friends.	.80 .66 .79	( <sup>b</sup> ) (t = 10.09) (t = 11.30)
Autonomy <sup>a</sup> CR = .86 AVE = .67	I have complete freedom to decide how I review books and products. I feel free to express my ideas and opinions when reviewing. There is no pressure to review products or books in a particular way.	.89 .79 .77	( <sup>b</sup> ) (t = 14.34) (t = 14.02)
Competence <sup>a</sup> CR = .84 AVE = .57	Reviewing books or products has helped me to develop my writing skills. I feel I have developed a level of competence by reviewing books or products. Writing book reviews enhances my reading and comprehension skills. Improving my reviewing skills is important to me.	.81 .70 .81 .68	( <sup>b</sup> ) (t = 11.70) (t = 13.50) (t = 11.22)
Fairness of public ranking <sup>c</sup> CR = .86 AVE = .61	Amazon's reviewer rankings are fair. The Amazon ranking system gives me the recognition I deserve. My rank in Amazon's reviewer ranking system is directly related to the helpfulness of my product reviews. My rank within Amazon's reviewer ranking system is exactly what I would expect based on my understanding of how the system works.	.80 .86 .79 .68	( <sup>b</sup> ) (t = 14.92) (t = 13.76) (t = 11.56)
Egoistic-helping motives <sup>d</sup> CR = .88 AVE = .71	Maintaining my ranking in the reviewer system is important to me. The public recognition I get writing product or book reviews is one of the most important reasons why I review. Improving my ranking in the reviewer system is important to me.	.97 .95 .55	( <sup>b</sup> ) (t = 24.69) (t = 10.35)
Altruistic-helping motives <sup>e</sup> CR = .86 AVE = .75	Helping others make informed buying decisions is important to me. The reason I review is to be helpful to other people.	.81 .91	( <sup>b</sup> ) (t = 5.93)
Reviewer advocacy <sup>f</sup>	How likely would you recommend reviewing books or products on Amazon reviewing system to a friend or colleague?		
Enjoyable hobby <sup>g</sup> CR = .83 AVE = .71	I enjoy reviewing books and products very much. I would describe reviewing as a very interesting hobby.	.85 .81	( <sup>b</sup> ) (t = 11.49)

Note. AVE = average variance extracted; CR = Composite Reliability.

<sup>a</sup>Social relatedness, autonomy, and competence scales adapted from Reis et al. (2000) and Deci and Ryan (1985a). <sup>b</sup>This metric was established by fixing one indicator to 1.00 for each factor. <sup>c</sup>Fairness of public ranking adapted from Folger and Knovsky (1989). <sup>d</sup>Egoistic-helping motives were newly developed. <sup>e</sup>Altruistic-helping motives adapted from Clary et al. (1998). <sup>f</sup>Reviewer Advocacy was adapted from Reichheld (2003). <sup>g</sup>Enjoyable Hobby adapted from Mathwick and Rigdon (2004).

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### Author Biographies

**Charla Mathwick** is an associate professor of marketing at Portland State University in Oregon. Her research interests involve the study of customer behavior online with a focus on value creation, social capital production, motivation, and community self-governance. She has investigated online consumer behavior occurring within commercial

user groups, as well as product support, and product reviewer communities. She earned her PhD from Georgia Institute of Technology in Atlanta. Her work has been published in *Journal of Consumer Research*, *Journal of Retailing*, *Journal of Interactive Marketing*, and *Journal of Consumer Marketing*.

**Jill Mosteller** is an associate professor of marketing at the University of Tampa in Florida. Her research focuses on examining consumers in high-involvement consumption contexts-online and offline. Environments that support or thwart consumer well-being is an overarching theme of her work with related firm relationships being one area of focus. She earned her PhD in business with a concentration in marketing from Georgia State University. Her research has been published in the *Journal of Business Research*, the *Journal of Consumer Affairs*, the *Journal of Consumer Marketing*, and in other interdisciplinary peer-reviewed outlets.