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Service failures after online flash sales: role of deal proneness, attribution, and emotion

Service failures
after OFS

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Abstract

Purpose – The purpose of this paper is to focus on failures in online flash sales (OFS) and to explore why consumers participate in an OFS even after experiencing service failure. It also examines the role of deal proneness, attribution, and emotions.

Design/methodology/approach – Using a mixed method approach to gain insights into this relatively unexplored phenomenon of OFS, this research uses netnography followed by a survey study.

Findings – The findings show that deal-prone customers tend to ignore service failures during OFS and re-participate in the future. In the context of OFS, failures attributed to internal locus of attribution (LOA) also have a negative effect on re-participation compared with failures attributed to external LOA. Furthermore, there is a three-way interaction among deal proneness, LOA, and past emotions. The results show that negative past emotions further exacerbate the impact of attribution on the link between deal proneness and re-participation.

Originality/value – In contrast with prior research, the paper shows that consumers participate even after service failure. The proposed difference is between customers who experience different LOA and past emotions offers insights into their behavior after service failure in a new context of an online/electronic commerce event – flash sales. This paper specifically explores the role of internal LOA and finds that it has a more negative impact than external LOA on re-participation.

Keywords Service failure, Online flash sales, Deal proneness, Internal locus of attribution, External locus of attribution, Emotions

Paper type Research paper

Online flash sale (OFS) is a recent phenomenon in which electronic retailers (e-tailers) sell products online at a discount during a short time window (Grewal *et al.*, 2012), such as cyber Mondays by Amazon.com, Gilt Groupe, and Rue La La. In 2016, cyber Monday in the USA had record sales of \$3.45 billion, and China's singles day reaped total sales of \$17.8 billion (Kaplan, 2016). Along with discounts on these OFS days, customers expect minimum service levels; however, Macy's, Target's, and PayPal's websites all crashed on the largest sales day of the year in the USA (Gustafson, 2015). According to Dynatrace, 75 percent of consumers would abandon sites or apps if they have bugs or crash, and 50 percent would shop on other sites (Gustafson, 2015). This disconfirmation between desired and actual service leaves many customers angry.

Service failures result in customer abandonment of online transactions, thus directly affecting service providers' profit margins (Tan *et al.*, 2016). When service fails at the pre-purchase stage, due to server errors or stockouts, e-tailers can face widespread negative

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word-of-mouth (WOM). Service failures during OFS differ from regular failures in that service recovery cannot be salvaged because of high demand and limited time available (Smith *et al.*, 1999). Surprisingly, despite repeated failures, customers continue to participate in OFS.

This re-participation in OFS is due to the perceived monetary benefit that customers derive from their “deal proneness” (Lichtenstein *et al.*, 1995). With an increase in events of service failures due to OFS, who the customer blames has also become an important issue for firms to understand repurchase (Albrecht *et al.*, 2017). Locus of attribution (LOA) is customers’ causal assignment of success or failure of an event to internal (e.g. self) or external (e.g. company, third-party services) factors (Weiner, 1985). Researchers have tended to pay more attention to stability and controllability dimensions of attribution theory than to LOA in service failure (e.g. Van Vaerenbergh *et al.*, 2014). In response, Tan *et al.* (2016) have called for research in the area of online service failures and subsequent attributions by consumers, and the current research responds to their call. In addition, positive and negative emotions experienced during previous service encounters are affected by attributions and play an important role in OFS (Bagozzi *et al.*, 1999; Tracy and Robins, 2004). In the context of OFS, the goals of this paper are to investigate the role of deal proneness, which induces customers to participate again in OFS despite past service failures, and to examine the contrasting roles of internal and external LOA and positive and negative past emotion.

This paper explores the following three issues: first, it aims to understand deal-prone consumers’ re-participation intention after an online service failure. Second, to date, scant research has formally investigated the differential roles of internal and external LOA, leaving the question of the relative importance of different dimensions of LOA unanswered (Heidenreich *et al.*, 2014). Third, the role of emotions in service encounters has gained attention in the literature, but how positive and negative emotions interact with internal and external attributions to affect customers’ repatronage behavior after service failure remains largely unexplored (Hennig-Thurau *et al.*, 2006).

This study makes three contributions to service theory and literature. First, in contrast with service failure literature, the study shows that deal-prone customers tend to ignore the absence of any recovery and re-participate in OFS. Second, in the context of OFS service failures, the study shows that internal LOA has a more negative impact on re-participation intention than external LOA. Third, taking a holistic perspective of this novel phenomenon of OFS, the study finds that negative past emotions further weaken the effects of deal proneness and internal attributions on re-participation.

Next, this paper presents the conceptual framework and details the hypotheses development. A multi-method study using netnography and survey research is then undertaken, followed by a description of the data, methodology, and results. Finally, after a discussion of the theoretical and managerial implications of this work, the paper concludes with limitations and future research directions.

Conceptual framework and hypotheses development

Background

Previous research has explored many forms of deals and discounts in which consumers purchase products at a higher perceived value than the stated price (Webster, 1965). Examples include end-of-aisle sales, high/low strategy, everyday low prices, buy-one-get-one, and coupon discounts (Lichtenstein *et al.*, 1995). Price promotion strategies can lead to anxiety about price variation, enjoyment of bargain hunting, deal planning, and effort minimization among customers (Pechtl, 2004). OFS is another pricing strategy to attract customers, in which e-tailers offer deep discounts for a limited time. The price discount for a short span of time evokes anxiety, but in contrast with the previously mentioned forms, OFS occur online instead of in the store, giving customers many options from which to choose. For these customers, a deal is “an end in itself as well as a means to an end” (Lichtenstein *et al.*, 1990, p. 56). This tendency,

referred to as deal proneness, is a domain-specific construct that reflects consumers' increased propensity to buy products or services in deal form (Lichtenstein *et al.*, 1990).

Service failure is the inability of the service provider to meet a customer's expectations (Hoffman *et al.*, 2016). Service failures comprise two types: process failure and product failure (Smith *et al.*, 1999). In process failure, some aspect in service delivery is flawed – for example, when technical issues arise while buying products online (Sivakumar *et al.*, 2014). Conversely, failure to provide core services (e.g. broken screen when purchasing a mobile phone online) is an outcome failure (Forbes *et al.*, 2005). Smith *et al.* (1999) showed that process failures have a greater impact on dissatisfaction than product failures. Thus, this study concentrates on the effects of process failures only. Companies are devising new business models to increase their customer base and, thus, profits. One such model that has had a wide impact but has also sparked customer dissatisfaction is OFS. Because of an unanticipated demand-supply gap, occurrences of service failure, including server errors, payment channel errors, and stockouts, are common during OFS.

Attribution theory (Heider, 1958; Kelley, 1973; Rotter, 1966; Weiner, 1985) elaborates the three dimensions of attribution: stability, controllability, and causality. Although research has examined stability and controllability in the area of service failure, causality remains unexplored mainly because of a limited ability to measure blame internal to the customer (Tan *et al.*, 2016; Van Vaerenbergh *et al.*, 2014). Services marketing has used the LOA and causality dimensions of attribution theory interchangeably to denote customers' desire to receive an explanation for service failure (e.g. Dabholkar and Spaid, 2012; Dong *et al.*, 2016; Goles *et al.*, 2009; Harris *et al.*, 2006; Iglesias, 2009; Van Vaerenbergh *et al.*, 2014); thus, this study uses LOA, given its focus on the underlying theory of attribution. Blaming the self is classified as internal LOA, while external LOA is failure attributed to the firm or a third-party[1]. Table I summarizes select literature on LOA in service failure.

Emotions are mental states triggered by specific events (McColl-Kennedy and Smith, 2006; Van Vaerenbergh *et al.*, 2014). Service failures cause negative emotions (e.g. frustration, anger) as customers perceive the company as having broken the moral code. Wary of similar psychological and financial losses in the future, customers often abandon online transactions. Conversely, positive emotions lead to a continuation of purchase. Bagozzi *et al.* (1999) call for research to explore the role of emotion in information processing related to purchase decision making. Continuing the dialogue, Smith and Bolton (2002) show that emotion has a significant role in information processing, specifically after service failure. Furthermore, as emotions have an effect beyond satisfaction, they should be measured separately (Zeelenberg and Pieters, 2004). In a valence-based measurement, Zeelenberg and Pieters (2004) use an aggregation of positive and negative emotional states to capture accurate responses. In their meta-analysis, Van Vaerenbergh *et al.* (2014) explore the role of emotions in the setting of attributions after service failure but limit their scope to only stability and controllability dimensions.

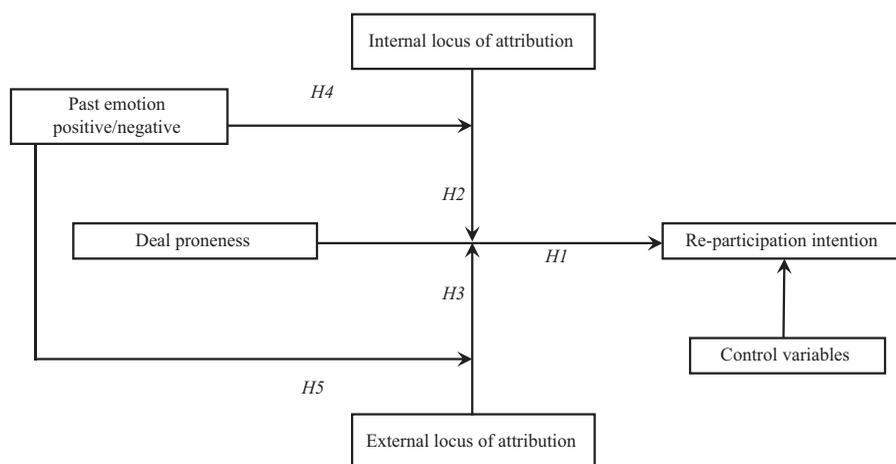
Thus, this study integrates the literature related to the three research streams of service failure, attributions, and past emotions in the new context of OFS (Figure 1). Building on the literature and the theoretical framework in the three areas, the following sub-sections explain the hypotheses development on deal proneness, internal and external attributions, and past emotions.

Main effect of deal proneness

This study introduces, the concept of flash sale proneness as another category of deal proneness (similar to coupon and rebate proneness) in which customers show a propensity to buy products in deal form from the OFS. A deal-prone consumer might show high levels of enjoyment while planning the purchase, coupled with high anxiety about price variability. This behavior tends to maximize his or her benefits during the shopping experience (Pechtl, 2004) and is consistent with previous empirical studies that report that

Table I.
Selected literature on
LOA in service failure

Contribution	Harris <i>et al.</i> (2006)	Goles <i>et al.</i> (2009)	Iglesias (2009)	Dabholkar and Spaid (2012)	Van Vaerenbergh <i>et al.</i> (2014)	Dong <i>et al.</i> (2016)	This Study
Context	Banking and airline	Internet shopping	Retail banking sector	Job recruitment kiosk	Meta-analysis	Internet setup, online car rental system	OFS (new context)
Type of failure: outcome /process failure	No	Both (unusable product and delay in service delivery)	No	No	Moderating role of type of failure	Process failure	Process failure only; emphasis on technology related failure
Considering service failure/recovery	In tandem	Service failure	Service failure	Service recovery	Service recovery	Service recovery	Service failure only, no time for recovery during OFS
<i>Conceptualization in the study</i>							
Deal proneness in OFS	No	No	No	No	No	No	Yes, deal-prone consumers participate even after service failure (Contribution 1)
Comparing LOA: internal and external LOA	Both	External LOA	Stability, controllability, external locus of causality (attribution)	External LOA	Only stability and controllability, no causality (attribution)	Both	Customers exhibit contrasting re-participation intentions when faced with internal versus external attribution (Contribution 2)
Past emotion	No	No	No	No	Stability and controllability triggers negative emotion	No	Yes, negative past emotion decreases purchase intention as compared with positive past emotion (Contribution 3)
<i>Measuring LOA</i>							
Magnitude of internal LOA	Reported by customers as blame on self	No	No	No	Customers mostly blame service failure on service provider	Joint or customer recovery	Internal LOA: inability of user and environment characteristics (using netnography)
Magnitude of external LOA	Reported by customers as blame on firm	Seller or delivery company	Employee or to the bank	Kiosk, employee, and store	No	Firm or joint recovery	External LOA: service provider and third-party related characteristics (using netnography)



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Figure 1.
Model of deal
proneness, LOA,
past emotion, and
re-participation
intention after online
service failure

deal proneness positively influences purchase intention in other deal forms (e.g. gift promotions; Buil *et al.*, 2013; Clark *et al.*, 2013). In OFS, a high-deal-prone consumer who faced a service failure in the past may want to participate even after experiencing negative outcomes because of the perceived benefit derived from the deal. Thus, the following hypothesis is proposed:

H1. In OFS, after experiencing service failures, consumers' deal proneness positively affects their re-participation intention.

Moderating effect of internal LOA

Although previous research has concentrated on the causes of failure related to firms (external) (Hoffman *et al.*, 2016), with the advent of self-service technologies (SSTs), the share of customer-related decision making has increased, paving the way for attributions related to customers (Nijssen *et al.*, 2016). In case of SSTs, Harris *et al.* (2006) showed that the blame attribution is more internal than external because of the nature of service. Heider (1958) referred to internal locus of causality as internal LOA in which the factors of failures are within the person. The blame of self plays an important role, as purchase and consumption are now separated, and in SSTs, minimum human interactions occur (Harris *et al.*, 2006; Parasuraman, 2000). When customers observe a high percentage of success among other customers while they fail to get the deal, low self-esteem may result (Heider, 1958). Therefore, low perception of their ability and effort (Kelley, 1973) determines their future behavior toward the service provider. If the attribution of the failure is to the self, internal LOA will suppress the effect of deal proneness, consequently diminishing the purchase intention to buy from the same retailer. Thus, the following hypothesis is proposed:

H2. Failure associated with internal LOA negatively moderates the relationship between deal proneness and re-participation intention.

Moderating effect of external LOA

Customers can also attribute the causality of the failure to an external LOA, such as e-tailing vendors or third-party services that act as financial intermediaries or delivery agents. When a customer has had successful past experiences while purchasing a product but fails to get the deal while performing a similar task in the future, he or she is more likely to attribute the failure to causal factors external to the self (Kelley, 1973). Customers will retaliate when

another party does not control the situation or when trust is broken (Chang *et al.*, 2015). Researchers have noted that external LOA decreases purchase intention, leading to company losses. When attributing the failure to external factors, customers perceive the psychological contract as damaged, which leads to anger and negative WOM (Goes *et al.*, 2009). Investigating externally attributed failures, Iglesias (2009) showed that service failure negatively affects quality perceptions. Along similar lines, Dabholkar and Spaid (2012) examine failure attribution to technology and employees in financial services at kiosks and find that service failure decreases user satisfaction.

However, on examining the events of OFS, especially company-related failures, customers are still participating even after facing these service failures. First, the customers seem to be aware that they are getting a deal worthy of the effort, as the perceived value of the product is higher than the loss from the service failure. Moreover, because the cost of a failure is non-monetary, customers might want to take the chance of buying even after experiencing psychological distress. Second, although companies, such as Amazon.com, are taking measures (e.g. public apology, rebates) to mitigate losses, service failures also lead to massive publicity for the e-tailer. For example, in 2014, a flash sale by an e-tailer giant gained immense attention due to technical glitches and made headlines in the newspapers but offered an apology explaining the situation to the customers (Saxena, 2014). Customers do not feel angry if a person justifies his or her situation; similarly, in the case of a service provider, after issuing an apology, customers do not feel resentment if the e-tailer explains the situation (Soscia, 2007).

Thus, external LOA has the opposite effect to that related to internal LOA. That is, in addition to deal proneness, external LOA has a positive effect on re-participation intention, acting to influence customers to buy again. Thus, the following hypothesis is proposed:

- H3.* Failure associated with external LOA positively moderates the relationship between deal proneness and re-participation intention.

Role of past emotions in three-way interaction

Consumers use different strategies to process information depending on their emotional state (Smith and Bolton, 2002). Consumers prefer stores that offer deals that best fit their emotions (Pechtl, 2004). Negative customer experiences lead to negative emotions, which in turn result in negative WOM. When customers express negative emotions, service providers that successfully decode them can change their performance and create higher levels of service encounter satisfaction. Customers with positive past emotions generally use heuristics and show superior recall, whereas those in a negative past emotional state engage in more elaborate information processing for future decision making and usually recall negative information (Bagozzi *et al.*, 1999). Emotions related to consumption include gratitude, happiness, guilt, anger, pride, and sadness (Soscia, 2007).

Causal dimensions are related to emotional states (Weiner, 1985). After consumption, customers experience specific emotions depending not only on their emotional state but also on whom they attribute it to. On the one hand, regarding positive emotions, customers experience happiness and gratitude in case of external LOA and pride if they attribute successful purchase to internal LOA (Tracy and Robins, 2004). On the other hand, in case of service failure, the negative emotions for internal LOA are guilt and shame, and external blame causes anger and sadness toward the service provider (McCull-Kennedy and Smith, 2006; Tronvoll, 2011).

Success or failure related to internal LOA elicits higher emotions (positive or negative) than success or failure related to external LOA (Weiner, 1985). Thus, it is important to isolate the effect of internal LOA from external LOA. In the case of OFS, when customers believe they cracked the online deal because of their own ability, they experience pride (Gelbrich, 2011). Conversely, guilt related to the negative emotion of internal LOA requires

customers to blame themselves, thinking the failure was their own fault. Thus, extending the work on the role of emotions in causal attributions related to internal LOA, this study posits that negative valence of past emotions experienced during the service encounter will diminish the interaction effect of deal proneness and LOA on re-participation intention more than positive past emotions:

- H4.* Valence of the emotions experienced in the previous purchase moderates the interaction effect of deal proneness and internal LOA on re-participation intention, such that negative valence elicits a greater negative impact on re-participation intentions than positive valence.

If the source of success or failure is external, customers will attribute their emotions to external entities. External attribution elicits anger, disgust, contempt, sadness, and fear for negative past experiences and gratitude, happiness, and pride for positive experiences. Negative experiences lead to outrage because of deviation from the expected service by the service provider. Conversely, in case of positive emotions attributed to the service provider, the advantage customers receive in a deal while buying from OFS makes them feel grateful to the company. Thus, positive and negative emotions act opposite to each other in the case of external LOA, in which positive emotions have more impact than negative emotions:

- H5.* Valence of the emotions experienced in the previous purchase moderates the interaction effect of deal proneness and external LOA on re-participation intention, such that negative valence elicits a greater negative impact on re-participation intentions than positive valence.

Table II lists the hypotheses and it also summarizes the theoretical support for different boundary conditions related to deal proneness, LOA (internal and external), and past emotions (positive and negative).

Research method

The study divides the empirical analysis on the impact of deal proneness, internal LOA, and external LOA, along with the role of past emotion in OFS, into two phases (Figure 2). The first

Hypothesis	Theoretical rationale	Literature support
<i>H1</i>	Deal proneness induces a sense of value and price consciousness Deal is an end in itself as well as a means to an end	Clark <i>et al.</i> (2013), Lichtenstein <i>et al.</i> (1995)
<i>H2</i>	Low internal LOA and deal proneness: re-participation intention is low; customers perceive that they do not have the capability	Kelley (1973), Harris <i>et al.</i> (2006)
<i>H3</i>	High external LOA and high deal proneness: high re-participation, as they know they are capable of re-affirming their ability and cracking the deal under an external failure Low external LOA: average; they might give the company another chance for the deal they are getting	Goes <i>et al.</i> (2009), Chang <i>et al.</i> (2015), Dabholkar and Spaid (2012)
<i>H4</i>	Negative past experience with high internal LOA has a more detrimental effect because customers lose their self-confidence	Bagozzi <i>et al.</i> (1999), Smith and Bolton (2002), McColl-Kennedy and Smith (2006)
<i>H5</i>	In case of external LOA, customers' positive past emotion overpowers the psychological hassle faced, and negative past emotions are subsided for the gain they achieve, as it is not their fault but that of the external source	Bagozzi <i>et al.</i> (1999), Smith and Bolton (2002), McColl-Kennedy and Smith (2006)

Table II.
Hypotheses
development

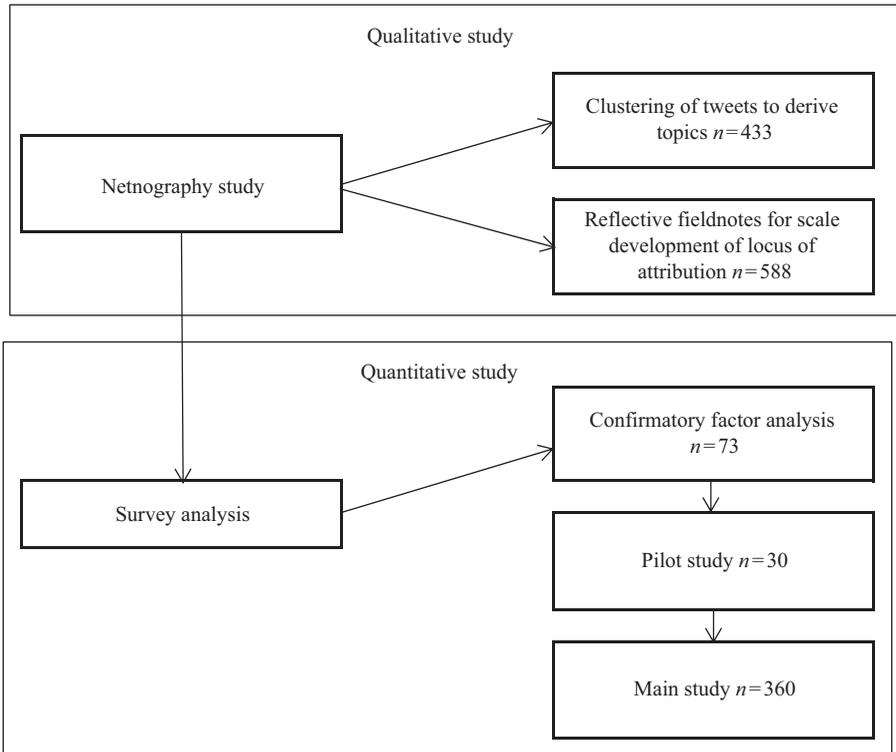


Figure 2.
Overview of
the research

phase uses netnography on Twitter and serves two main objectives: first, to gain qualitative support for the hypotheses, given the novel context of OFS, and second, to derive measurement items for internal and external LOA in the context of OFS. Building on the results of Phase 1, the second phase of the quantitative study empirically tests the hypotheses.

Phase 1: qualitative study

Method

To gain insights into the novel phenomenon of customer re-participation in OFS after service failure, a qualitative study (netnography) is conducted to provide added support for the hypotheses (Figure 1). Similar to ethnography, netnography is a qualitative study but uses online communities to investigate consumer behavior (Kozinets, 2015). Virtual communities enable collective consumer creativity and social interaction that a single customer cannot generate (Kozinets, 2015). Netnographic studies involve six steps: research planning, entrée, data collection, analysis and interpretation, research ethics and member checks, and research representation (Kozinets, 2002).

An in-depth study was conducted using the data set collected from Twitter (tweets) on different OFS from August 2014 to October 2015. Twitter was chosen for the study because of its limited space of 140 character (now 280 characters), which forces customer to communicate specific opinions relevant to the experiences they are sharing. Actual or potential customers who had experience in participating in OFS were included in the study, without restriction on age or gender. The first-order analysis of 433 tweets, carried out on a partial data set of only negative sentiment tweets using cluster analysis, found two distinct

clusters related to service failure and deals and discounts (Blei *et al.*, 2003; Hu and Liu, 2004). These two clusters provide initial support for the hypotheses on impact of deal proneness and the roles of service failure and emotions in the context of OFS. Cluster 1, “deals and discounts” (Table III, panel A), indicates how customers succumbed to the deals. Some specific deals discussed included value-for-money deals, buying products without necessity, and searching for deals all day. For example, tweet 1 (Table III, panel B) shows the eagerness the customer felt while participating in the OFS.

Tweets 3-4 of service failure in Table III (panel B) show that customers were unable to buy products because of their own or environment-related inability. The few reasons provided were anxiousness, first-time users, and less time, among other factors (e.g. tweet 3 in Table III, panel B). Moreover, the customers also blamed their internal environment for their inability to participate. For example, tweet 4 (Table III, panel B) indicates that the laptop stopped working at the time the user was about to place the order and could not complete the purchase, which led to frustration. Although customers often do not blame themselves directly for the failures related to their internal environment, at that time their immediate surrounding is responsible for glitches, such as poor internet connectivity and hardware failures. From companies’ perspectives, they are not responsible for internal environment-related failures. Finally, service failure associated with the company or third-party services appears in tweets 5-9 (Table III, panel B). For example, tweet 5 indicates that the third-party payment services were not working so the customer could not purchase a product.

Analysis of the remaining data set served to measure the dimensions of LOA after service failure. The analysis included 3,700 tweets from a series of OFS by e-tailers (e.g. Flipkart and Amazon.com) held on October 10, 2014. First, 588 tweets were selected after classification; the tweet was included in the study only if it was related to service failure, process failure, and external or internal LOA. To ensure the accuracy of the coding,

Panel A: clustering of negative valence tweets related to Flipkart big billion day sale

Topic	Important words in cluster
Topic 1: deals and discounts	offer, discount, missed deal, deal should not, unlock deals, mad
Topic 2: service failure	rocking (shaky), rocking (shaky) start, sale, sale crash, app crash, crash twitter, sale slow, suffer time, wait

Panel B: selected tweets from the study

Deals and discounts	Service failure related to external LOA
1. Could not control. Hands were itching. Credit card was pulled out	5. @user4 so flipkart server is down and amazon does not have in stock making it difficult to purchase xiaomi mi power bank [...]
2. @user1 same with me, bought Nokia Lumia 625 without need :)	6. Fake @Flipkart sale of @xiaomi RedMI 1s. I got it in my cart and then when I proceeded for payment it vanished. Scam!
	7. Amazon (flash sale)... They sell a product and then cancel it suggesting a seller pricing error!. @Amazonideals @user5
Service failure related to internal LOA	
3. @xiaomi hi team mi3 i am now help less [sic] to buy one mi3 tried several time through flipkart but failed thrice and need the same pls guide me	8. @flipkart – disappointed, can’t even register for xiaomi mi3. And your app still popping for “OPEN” tag.:(
4. tried buying a @xiaomi #mi3 on @flipkart today and my laptop hung 15 secs before the sale. Tried from my mobile but just couldnt buy one	9. Amazon (flash sale)... is Flop, No Great Product to buy, Price No Cheap, Site Crashed..Bad Experience

Note: User handles renamed to user to maintain the anonymity of the tweet

Table III.
Results of
netnography

30 randomly selected tweets were given to an independent coder; the level of agreement was 74.5 percent, which is reasonable (see Isabella, 1990). Ethics and member checks render credibility to a netnographic study and therefore are an important part of it (Kozinets, 2015). Participants of the online public conversation are kept anonymous, and all analysis is carried out to form an aggregate idea of the service failure in an e-retail business model of OFS solely for research purposes. Second, analysis of this exploratory study was shown to some participants of recent OFS, asking them about the model; all concurred with the overall conceptualization.

Analysis results

The analysis uncovered three important implications. First, during OFS the blame attribution in the process of buying online is to the self, the e-tailer, or a third-party (e.g. delivery services). Second, dissatisfactory service experiences with the process failure included customer complaints about website navigation, stockouts, and technical failure. Third, the data structure proposed by Corley and Gioia (2004) is used to organize the results, which also serve as initial items for measurement of internal and external LOA as discussed next (Figure 3).

In general, previous studies tend to measure LOA using categorical variables that classify a respondent’s attribution for failure as internal or external (Smith *et al.*, 1999). Many previous studies have reported that respondents do not perceive themselves as responsible for failure because of fundamental attribution errors (Dabholkar and Spaid, 2012; Weiner, 1985). Thus, to measure LOA, it is deemed appropriate not to rely on existing measures, as they capture the construct only partially. Items are drawn from the qualitative study using netnography, followed by steps of scale development to refine the index (Diamantopoulos and Winklhofer, 2001).

To measure internal and external LOA, a qualitative study followed by a grounding of indicators in the literature helped establish content validity (Hair *et al.*, 2016). Set procedures were followed to establish face validity of the items, and a comprehensive list of indicators

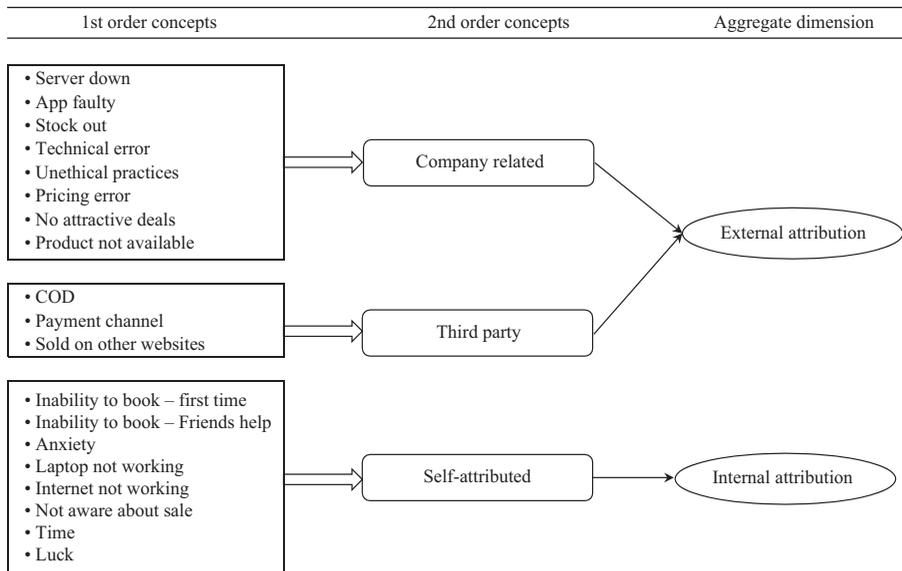


Figure 3. Results of netnography using tweets

derived from the netnographic study helped ensure that no important attribute of LOA was excluded. After discussion with three senior and two junior researchers, two items that were beyond the scope of process failures were eliminated. During exploratory factor analysis ($n = 73$), two second-order factors emerged: internal and external LOA. Table IV shows the factor loadings (exploratory factor analysis) of the conceptualized domains of internal (min. = -1.81, max. = 3.00, $M = -0.03$, $SD = 0.97[2]$) and external (min. = -2.82, max. = 2.43,

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Panel A: internal LOA

Measurement properties of variable Constructs/item	EFA		CFA	Reference
	Loading	Variance	Loading	Reference
User inability		52.99%	0.48***	
I was not able to buy because I participated for the first time	0.50		0.71***	Technology anxiety scale: Meuter <i>et al.</i> (2003)
I was not able to buy because I needed help from a friend	0.81		0.83***	Technology readiness scale: Parasuraman (2000)
I was not able to buy because I was very anxious	0.86		0.84***	Technical Anxiety: Meuter <i>et al.</i> (2003)
I was not able to buy because my laptop stopped working at the last moment	0.69		0.73***	Belk (2013)
User environment		55.69%	0.67***	
I was not able to buy because internet was not working/working slowly	0.60		0.64***	New
I was not able to purchase because I came to know about the flash sale very late	0.81		0.71***	New
I was not able to buy because I did not have time	0.87		0.76***	Levenson (1974)
I was not able to buy because others had good luck	0.68		0.68***	Lefcourt <i>et al.</i> (1979)

Panel B: external LOA

Constructs/Item	EFA		CFA	Reference
	Loading	Variance	Loading	Reference
Technical company-related		53.04%	0.51***	
I was not able to purchase because the website/mobile app was not working	0.75		0.73***	Kelley (1973), Forbes <i>et al.</i> (2005)
I was not able to purchase because there was stockout	0.73		0.56***	Holloway and Beatty (2003), Kelley (1973)
I was not able to purchase because after adding to cart, the product disappeared	0.63		0.68***	Holloway and Beatty (2003)
I was not able to purchase because the website showed technical error	0.80		0.81***	Holloway and Beatty (2003)
Non-technical company-related		64.04%	0.39***	
I was not able to purchase because I think e-commerce company was involved in unethical practices like black-marketing, hoarding, etc.	0.80		0.76***	Keaveney (1995)
I was not able to purchase because there was a pricing error	0.88		0.85***	Keaveney (1995)
I was not able to purchase because I did not get a good value for money deal	0.71		0.58***	Lichtenstein <i>et al.</i> (1995)
Third-party		50.61%	0.45***	
I was not able to buy because COD was not available	0.68		0.72***	New
I was not able to buy because payment channel was not working	0.77		0.80***	Holloway and Beatty (2003)
I was not able to purchase because vendors bought and sold products on other websites	0.68		0.74***	New

Notes: COD, cash on delivery; EFA, exploratory factor analysis; CFA, confirmatory factor analysis. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table IV.
LOA measurement

$M = 0.02$, $SD = 0.98$ (see footnote 2)) LOA in the context of OFS service failures. Because of low factor loadings, one item each from internal and external LOA was removed.

Furthermore, two dimensions of internal and three dimensions of external LOA emerged from the exploratory factor analysis. These surprising results led to a careful evaluation of the literature and the questions asked in the survey. After further analysis, it was deemed that these two first-order dimensions of internal LOA were related to the inability of the customer participating in OFS and the internal user-related environment controlled by the clients, not the e-tailing vendor. According to the literature review and factor analysis, the two dimensions of internal LOA were “use inability” and “user environment.” For external LOA, company-related and third-party service failures emerged as first-order dimensions of external LOA. Company-related failures formed two separate dimensions, one related to technical (e.g. website error, crashed server) and the other to non-technical (e.g. pricing errors, unattractive deals) failures. This indicated that internal and external LOA are second-order latent variables. Second-order constructs are causal indicators derived from first-order reflective dimensions of user inability (internal LOA), user environment (internal LOA), company-related failure (external LOA), and third-party failure (external LOA). Therefore, to measure the magnitude of LOA in process failure, internal and external LOA is conceptualized as a second-order formative latent index (Jarvis *et al.*, 2003). The nature of the second-order formative index was confirmed by performing confirmatory tetrad analysis, which also identified LOA as a formative construct because at least one tetrad of measurement items was significantly different from zero (Hair *et al.*, 2016).

Phase 2: survey research

Through the exploratory study, initial support was garnered for hypotheses testing. In the subsequent section, empirical validation of the hypothesis is undertaken, building on the literature and the results of the netnographic study.

Sample and procedure

For hypotheses testing, the sample consisted of university students at a large business school. Students are considered an appropriate segment for this study as 32 percent of internet users in the 18-29 age group use Twitter to express their views (Yoo *et al.*, 2010) and consumers aged 18-34 years remain key users of e-tailers (Smith, 2014). The selection of respondents for the study was based on two criteria, which were also used as screening questions to qualify for the study. First, the respondent must have participated in an OFS at least once during the previous year. Second, the respondent must have faced a process failure; the questionnaire included examples of process inability to facilitate understanding. A reward of under \$5 was offered as an appreciation for taking part in the study. The questionnaire was distributed to 1,250 undergraduate and graduate students, 468 of whom were eligible for the main study, by the screening criteria adopted. The final usable sample size was 360 respondents, after removal of incomplete questionnaires, for an effective response rate of 34.6 percent. Sample sub-group means replaced responses with missing values of less than 15 percent of the total questions asked in the questionnaire (Hair *et al.*, 2016). Respondents (67.4 percent male and 32.5 percent female) were younger than 30 years of age. The age and gender of the respondent were asked in the questionnaire using single-item questions. Regarding experience, 27.2 percent had participated in an OFS for less than six months, 55.19 percent for six months to two years, and 16.6 percent for more than two years. All respondents had participated in an OFS at least once within the past year.

To test the conceptual model, scales of deal proneness and re-participation intention were adopted from previous research, with minor word modifications to fit the study context.

Deal proneness (min. = -1.82, max. = 3.00, $M = -0.03$, $SD = 0.97$) is measured using Lichtenstein *et al.*'s (1995) proposed scale after revising it for the context of OFS (Table V). Re-participation intention (min. = -0.93, max. = 2.04, $M = 0.46$, $SD = 0.88$) of customers comprised three items that measure intention to participate (not likely/likely, improbable/probable, and impossible/possible; Table V). A scenario[3] on an OFS experience riddled with numerous process failures was included before measuring re-participation intention. The scenario helped control for brand, product, and service failure experiences. The pleasure dimension of the emotion scale (positive = 159, negative = 201) was used to measure past emotions, followed by a mean-split to divide the data set into positive and negative experiences (Hair *et al.*, 2016; Olney *et al.*, 1991): happy/unhappy, pleased/annoyed, satisfied/unsatisfied, hopeful/despairing, and relaxed/bored. All items used a seven-point Likert scale (1 = "strongly disagree", 7 = "strongly agree"), which is most conducive for analysis and comparison between different scale items. Age, gender, and experience of participants served as control variables for the study.

Partial least squares structural equation modeling (PLS-SEM) helped analyze the data (Hair *et al.*, 2012). PLS is used because, first, it does not assume normality of distribution and, second, it facilitates the modeling of formative constructs (Hair *et al.*, 2011). A two-step approach is appropriate for modeling second-order formative constructs to measure hierarchical component models such as LOA (Hair *et al.*, 2016). The pilot test did not result in significant changes to the variables in the model.

Measurement model

The measurement model is assessed before the structural model (Hair *et al.*, 2016). For reflective constructs, composite reliability was above 0.7, as Nunnally (1978) recommends for acceptable internal consistency (Table V). Convergent validity denoted by average variance extracted (AVE) was 0.5 and above (Fornell and Larcker, 1981). Discriminant validity is assessed by taking the square root of the AVE, which should be less than the correlation between the other latent variables (Fornell and Larcker, 1981; Hair *et al.*, 2011) (Table V). Both *ex ante* and *ex post* measures are adopted to reduce common method bias (Podsakoff *et al.*, 2003). The *ex ante* approach is implemented by protecting respondent anonymity and defining vague concepts (Podsakoff *et al.*, 2003). Harman's one-factor test is applied to assess common method bias (an *ex post* measure), and there were no problems in the sample (Hume and Sullivan Mort, 2010). For the second-order formative construct, internal and external LOA, multicollinearity is tested using the variance inflation factor, which is less than 3 (Hair *et al.*, 2011). Convergent validity is assessed using redundancy analysis, in which formative items of internal and external LOA were correlated with a global indicator as a proxy for the reflective measurement (Cenfetelli and Bassellier, 2009). The formative construct explained nearly 50 percent variation of the global indicator (Cenfetelli and Bassellier, 2009). Bootstrapping samples (5,000 samples generated from 360 responses) serve to evaluate the significance of the path coefficients and calculate standard errors (Hair *et al.*, 2011).

The R^2 for the complete sample, including negative and positive valence of past emotion, is 24.1 percent. Studies on consumer behavior (e.g. customer loyalty and satisfaction) consider an R^2 of 20 percent and above high (Hair *et al.*, 2016). Furthermore, the Stone-Geisser Q^2 value was greater than zero, and therefore the model has predictive relevance (Hair *et al.*, 2016). The standardized root means square residual is 0.03, which is less than 0.08 and thus considered a good fit (Hu and Bentler, 1999).

Results

Main effects of deal proneness. As Table VI (panel A) shows, deal proneness is significantly related to re-participation intention in the next OFS ($\beta = 0.28$, $p < 0.01$), in support of $H1$. This direct effect of deal proneness brings to the fore the role of deal proneness and explains

Table V.
Measurement model:
factor loadings of deal
proneness and
re-participation
intention (reliability
and validity of scales)

Variable	Composite reliability	AVE	Deal proneness	User inability	User environment	Technical company-related	Non-technical company-related	Third-party	Re-participation intention
<i>Deal proneness</i>									
1. Participating and taking advantage of flash sale deals makes me feel good	0.82	0.49	0.70						0.87
2. When I participate in flash sale and take advantage of flash sale deals, I feel that I am getting a good deal	0.86	0.60	-0.01	0.78					0.82
3. I am more likely to buy brands that have promotional deals	0.79	0.49	0.15	0.48	0.70				0.61
4. Beyond the money I save, participating in flash sales and taking advantage of flash sale deals give me a sense of joy									0.61
<i>Re-participation intention</i>									
1. Not likely/Likely									0.90
2. Improbable/Probable									0.89
3. Impossible/Possible									0.88
Reflective construct	Composite reliability	AVE	Deal proneness	User inability	User environment	Technical company-related	Non-technical company-related	Third-party	Re-participation intention
Deal proneness	0.82	0.49	0.70						
User inability	0.86	0.60	-0.01	0.78					
User environment	0.79	0.49	0.15	0.48	0.70				
Technical company-related	0.79	0.50	0.14	0.13	0.13	0.70			
Non-technical company related	0.80	0.55	0.02	0.31	0.21	0.26	0.74		
Third-party	0.80	0.57	0.08	0.37	0.44	0.33	0.37	0.76	
Re-participation intention	0.94	0.85	0.18	0.02	0.04	0.14	0.06	0.05	0.92

Notes: AVE, average variance extracted. Factor loadings are for the model deal proneness → re-participation intention. Two items of deal proneness were dropped because of low factor loading and thus were not included in further analysis. Items were anchored at 1 ("strongly disagree") and 7 ("strongly agree"), except when noted otherwise. Diagonal represents square root of AVE. All the variables were included in the model to calculate composite reliability and AVE

Dependent variable	Independent variable	Age	Experience	Gender	Deal proneness	Internal LOA	Deal proneness × internal LOA	External LOA	Deal proneness × external LOA
Re-participation intention	Complete data	-0.08	0.21***	-0.08*	0.28***	0.12**	-0.12**	0.19***	0.13**
	Three-way interaction (PLS-MGA)				(H1)	(H2)	(H3)		
	Negative emotion	0.16***	0.24***	-0.01	0.27***	0.17***	-0.14**		
	Positive emotion	0.12	0.21***	-0.09	0.27***	0.23***	-0.02		
	Negative emotion	-0.18***	0.25***	-0.09	0.25***			0.26***	-0.04
	Positive emotion	0.06	0.19***	-0.07	0.31***			0.13	0.20***
	Deal proneness × internal LOA × past emotion								
	Deal proneness × external LOA × past emotion								

Path coefficient difference (negative past emotion – positive past emotion)
0.13 (H4)
0.23*** (H5)

Notes: The latent scores were generated for each variable to calculate the regression coefficient, including deal proneness, internal LOA, and external LOA. Each variable was included as a single indicator after generating latent scores. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Service failures after OFS

Table VI.
Effect of deal proneness on re-participation intention and interaction effect of LOA and past emotion

why even after repeated failures in an OFS, customers participate again. Therefore, a deal-prone consumer experiences a higher level of re-participation intention than a non-deal-prone consumer who experiences service failure.

Two-way interaction of internal LOA. The results confirm the hypothesized interaction between deal proneness and internal LOA ($\beta = -0.12, p < 0.05$); therefore, *H2* is supported. An increase in the magnitude of internal failure decreases the variation in re-participation (Figure 4). Internal LOA acts as a negative moderator in the relationship between deal proneness and re-participation intention. As in SSTs, the customer is responsible for the process and thus has a significant share of decision making in the complete purchase process. This is not surprising, as in the case of positive accomplishment, customers with internal LOA show a greater sense of achievement than those with external LOA (Rotter, 1966). Similarly, in cases of adverse events, customers with internal LOA show greater remorse than those with external LOA. As discussed previously, in the case of internal LOA, customers lose their self-confidence and show less participation because of incapability, especially in SSTs in which they play a major role (Harris *et al.*, 2006).

Two-way interaction of external LOA. In support of *H3*, external LOA positively moderates ($\beta = 0.13, p < 0.05$) the relationship between deal proneness and re-participation intention, such that an increase in the magnitude of external failure enhances the variability in the relationship between deal proneness and re-participation intention (Figure 4). The results of external LOA are consistent with those of Van Vaerenbergh *et al.* (2014), who posit that if a vendor violates the moral code, customers will attribute failure to the company. They show this with diminished path coefficient values as compared with our deal proneness measure. Because company-related failure is widely condemned in OFS, customers know the mistake is caused by the external agency and tend to be confident

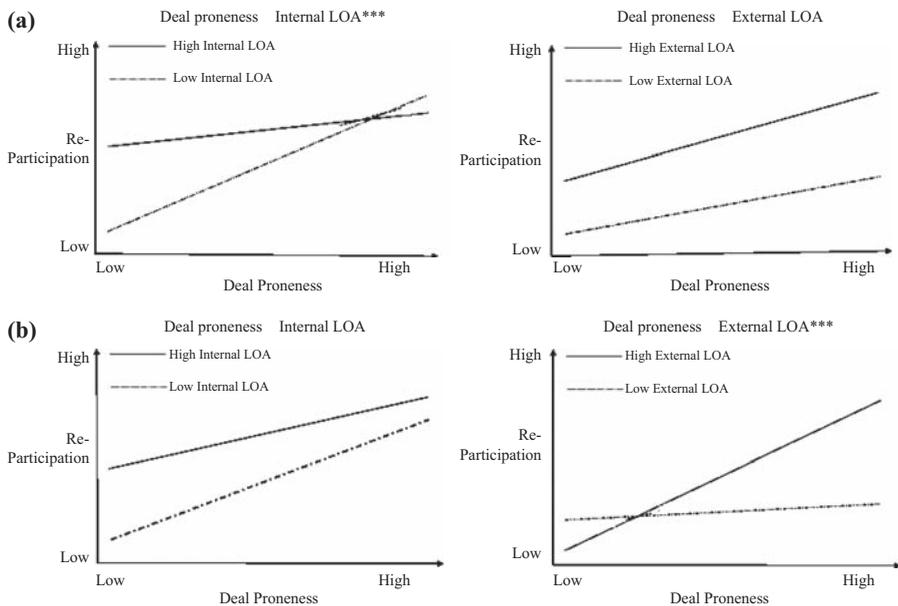


Figure 4. Interaction effect of deal proneness and LOA for negative and positive past emotion

Notes: (a) Three-way interaction effect of deal proneness LOA negative past emotion; (b) three-way interaction effect of deal proneness LOA positive past emotion

about their capability. As such, they are likely to try to participate again to reaffirm their capability. Relationship management literature shows that consumers are ready to give a company another chance even after service failure because of the belief that it was a one-time event (Palmer and Bejou, 2016). Moreover, according to the current results, when external failure is high in magnitude, customers show a higher level of re-participation intention. This is surprising, as the high magnitude of service failure should deter deal-immune customers from participating further because they are not sure if the psychological loss suffered is justifiable for the deal they are getting. In contrast, deal-prone customers will take another chance because they see higher perceived value in the stated price than its actual price (Buil *et al.*, 2013).

Three-way interaction of deal proneness, LOA, and past emotion. PLS-MGA (multi-group analysis) tested the three-way interaction; the results show differences between internal and external LOA (Table VI, three-way interaction). After service failure, the impact of the interaction between deal proneness and internal LOA is diminished and turns negative in the case of negative past emotion, but in the case of positive past feelings, it becomes nonsignificant ($\beta_{\text{negative}} = -0.14$, $p < 0.05$; $\beta_{\text{positive}} = -0.02$, NS), consistent with *H4*. As discussed previously, however, a negative experience with internal LOA has a more detrimental impact, as the customer loses his or her self-confidence (Heidenreich *et al.*, 2014; Orsingher *et al.*, 2016). According to the PLS-MGA, however, the difference in the interaction of deal proneness, internal LOA, and positive past emotion is nonsignificant (deal proneness \times internal LOA \times past emotion; $\beta = 0.13$, NS).

In the case of external LOA, after a service failure, the impact of deal proneness is diminished but remains positive in the case of positive past emotions and turns nonsignificant in the case of negative past feelings ($\beta_{\text{negative}} = -0.04$, NS; $\beta_{\text{positive}} = 0.20$, $p < 0.01$). In the case of external LOA, customers' positive past emotions overpower the psychological hassle faced and are significantly different from consumer behavior from negative past emotions because consumers believe the failure is not their fault but that of the external source (*H5*). For the deals and discounts they are getting, they offset the loss faced by preparing a mental model that weighs the perceived value they are getting from the present transaction. Thus, *H5* (deal proneness \times external LOA \times past emotion; $\beta = 0.23$, $p < 0.05$) is supported.

Discussion

OFS are examples of new forms of online business models through which customers can buy products at higher perceived value than stated price (Webster, 1965). After a customer faces an online service failure, it is important to understand the process behind re-participation and causal attribution. This research is the first to examine the impact of deal proneness on re-participation intention in the novel context of OFS using netnography followed by survey research. In addition, it investigates the role of LOA (internal and external) and past emotions (positive and negative). The findings show that in contrast with the literature, deal-prone customers are more likely to ignore their previous dissatisfactory experience and participate again in OFS; the intent to re-participate is more prominent in deal-prone customers who faced service failure due to external rather than internal LOA; and customers who belong to the sub-group of high deal proneness, external LOA, and positive past emotion show positive re-participation intention, while the high-deal-prone, internal LOA, and negative past emotion sub-group shows reduced re-participation intention.

Theoretical contributions

This study provides contributions to the theory in service literature, especially in the areas related to online service failures and attributions after failure. First, this study introduces

the concept of OFS as a new context to investigate the role of deals and discounts after service failures. Similar to previous literature on customers' experience of deal proneness by using coupons, rebates, and cents-off deals, the study shows that deal proneness is a pertinent construct to examine in an OFS context as well. The study confirms that deal-prone customers ignore service failures to re-participate again in OFS; this is contingent, however, on whom they hold responsible for their failure along with their past emotions.

Second, this study is one of the first to conceptualize the dimension of internal and external LOA as a second-order formative construct; the multi-method study provides several insights in this domain. These measures stem from the use of netnography, which assisted in examining internal LOA, a largely ignored factor in the literature because of limited ways to measure it. This aided understanding of consumer behavior in failures attributed to customers' inability and the user environment in which they are embedded and its adverse effect on re-participation intention. In addition, both internal and external LOA affect the relationship between deal proneness and re-participation intention, but in opposite directions, as Figure 4 shows. Thus, this study throws light on the negative effect of internal LOA, as opposed to external causal factors affecting failure, and adds to conceptual advances in an under-explored area. Furthermore, with an emphasis on LOA related to internal factors, this study urges researchers to scrutinize this previously unexplored dimension not only in OFS but in other service failure contexts as well.

Finally, regarding the role of past emotions experienced, the effect of internal LOA is exacerbated if the emotion is negative, thus further decreasing purchase intention. This finding serves as a warning to e-tailers organizing OFS that the customers with internal LOA should be helped so that they can overcome the inability and negative emotion. However, in the case of positive past emotions coupled with external LOA, customers show a high inclination to participate again as though service failure never occurred in the first place.

Managerial implications

The findings have several implications with regard to whom marketing managers of e-tailers should target to increase sales after service failures in OFS. First, managers should target customers with high deal proneness. This segment tends to ignore the service failure to take advantage of the monetary benefits derived from the online deals and discounts. The sense of urgency created by the limited time window triggers impulsive buying behavior, leading to repeat purchases.

Second, the netnography study elaborates on various failure attributions, including the self, internal user environment, company (technical and non-technical), and third-parties, thus offering managerial insights. Managers should make an effort to assess which type of service failure the customer faced. Doing so will aid in designing the re-targeting strategy for that customer. This can be done by including a feedback section enumerating different service failures that the netnographic study revealed.

Third, the interaction effects indicate that customer segments with attribution to internal failure show low re-participation intention during the next OFS. This segment of consumers represents a lost opportunity and should be encouraged to re-participate by the e-tailer. Follow-up calls and personalized online help from the e-tailer to alleviate their concerns and help them re-participate can encourage these customers to re-participate. The segment of consumers who faced service failure but had an overall positive experience are likely to come back for their next purchase. Finally, marketers using the OFS business model should target customers with high attribution to external failure with positive past emotions

because these customers, though they faced failure, were successful in cracking the deal. Table VII presents some specific scenarios and the associated managerial recommendations building on this discussion.

Service failures after OFS

Limitations and future research directions

This work has a few limitations that, in turn, provide directions for future research. Process and product failures are two integral parts of service failure typology. The role of attribution in product-related failure also involves the manufacturer of the product, which is beyond the scope of this study but could be explored in future research. In addition, this study explored how psychological burden during process failures leads to financial losses for e-tailers, but some services are more customized to the individual, and even slight negligence can result in high service failure. Methodologically, the segment chosen for the survey analysis is university students, though the pilot study using Twitter gives evidence of the role of deals and discounts in OFS service failure. Future studies could examine other segments such as employees.

Despite these limitations, this study serves as a foundation to encourage additional research in the area of OFS. Future studies could explore the impact of deal proneness on different customer segments: customers experiencing success, customers experiencing

Tweet	Scenario	Relevant variables	Expected future consumer behavior	Recommended managerial action
[...] tried several time through flipkart but failed thrice and need the same pls guide me	Customer is facing difficulty in purchasing and needs help	Deal proneness, internal LOA, and negative experience	Negative future participation intention	This customer represents a lost opportunity and should be motivated to re-participate by follow-up calls and personalized online help
[...] server is down and amazon does not have in stock making it difficult to purchase [...]	Customer is facing service failure related to stockouts	Deal proneness, external LOA, and negative experience	Ignore negative experience as customer is not responsible for the non-monetary failure	This customer thinks company is responsible for the failure, in this scenario, managers should assume customer is deal prone and re-target with better deals and discount
Finally nailed one, feeling accomplished and great being the few ones in the rush of millions	Customer was successful in purchasing the product and feels accomplishment	Deal proneness, internal LOA, and positive experience	No impact of previous failure on future participation intent	Although this customer faced service failure, he/she has an overall positive experience and therefore is more likely to come back for next purchase. Thus, managers should continue to communicate with the customer
Finally Purchased @xiaomi #Redmi1S from @Flipkart one of lucky 40,000 customers who were able to purchase. Thank you @Flipkart and @xiaomi	Customer was successful in purchasing the product and shows gratitude toward the company	Deal proneness, external LOA, and positive experience	Highly likely to participate again even after experiencing a service failure due to past positive experience	This customer had positive experience and acknowledges the company in his/her positive customer journey. Managers should make efforts to continue this relationship by thanking these customers

Table VII.
Managerial implications

failure, or customers with no experience with the service provider. To ensure the external validity of the model, investigations across developed and emerging economies would also help differentiate how cultural dimensions influence consumer behavior in OFS.

Notes

1. Internal and external LOA can be conceptualized in two ways: first, as a two-by-two matrix, as both internal and external LOA happen together but in varying magnitudes, and second, as a continuum, in which LOA is a single construct ranging from internal LOA to external LOA. During OFS events, customers might be first-time purchasers but also face a stockout situation; thus, the failure could be classified as both internal and external LOA. This work conceptualizes internal and external LOA as separate constructs, to explore their opposing impacts on re-participation.
2. Standardized values as generated from partial least squares.
3. Scenario: your previous experience of trying to buy a mobile phone during a flash sale was very disappointing. A Chinese brand had tied up with an Indian e-commerce company and had announced a flash sale of just smart phones at an unbelievable price. You had spent almost the entire day trying to buy a handset. You had faced problems such as server not available, website not responding, server timeout, unable to reach the right link and finally the server of the e-commerce company had crashed. You were very disappointed. Now the same e-commerce company has announced a “new flash sale” once again only on mobiles at an unbelievable price. However, this time it is for a different model of smart phone.

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Further reading

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